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SPECIAL REPORT

Down the Road: Testing Evidence in Sexual Assaults



NIJ

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TESTING EVIDENCE IN SEXUAL ASSAULTS

BY NANCY RITTER

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DOWN THE ROAD: TESTING EVIDENCE IN SEXUAL ASSAULTS

BY NANCY RITTER

A few years ago, NIJ published *The Road Ahead: Unanalyzed Evidence in Sexual Assault Cases*, a special report that explored the issue of untested sexual assault kits that were stored in law enforcement evidence facilities around the nation. Since then, we have learned a lot about the role of testing biological evidence in solving sexual assaults. This report, *Down the Road: Testing Evidence in Sexual Assaults*, discusses the results of recent studies supported by NIJ. Through scientific research, we have gained greater understanding that:

- Although a sexual assault kit (SAK) may contain biological evidence — more than two-thirds of the cases in two recent studies did¹ — there can be other important physical evidence that is not stored with the SAK, such as bedding, toxicology reports, or weapons.
- One kit does not equal one biological sample: In an ongoing SAK-testing partnership between NIJ and the FBI, for example, 597 kits (tested as of October 2015) contained 8,694 discreet biological samples; therefore, when speaking about the “number” of SAKs, it is important to keep in mind that each kit likely contains many separate pieces of evidence that could be tested to determine the identity of a suspect.
- Although testing SAK evidence may lead to the identification of a suspect, evidence of serial rapes,



In 2011, NIJ published *The Road Ahead: Unanalyzed Evidence in Sexual Assault Cases*, which took stock of what was known at the time about unsubmitted sexual assault kits. The report explored the critical gaps that needed to be filled to help jurisdictions develop solutions for a range of problems. To read the 2011 report, visit NIJ.gov, keyword: 233279.

or the exoneration of a wrongly convicted person, it is only one part of the investigative process. Testing may not result in a new lead if, for example, the identity of the suspect is already known or there is not enough biological evidence in the kit to yield a DNA profile.

Some of the most recent scientific findings about the role of evidence testing in sexual assaults come from two major NIJ-supported projects. After a competitive solicitation process, NIJ awarded research grants in 2011 to the Houston Police Department (HPD) and the Wayne County (Detroit), Michigan, Prosecutor's Office to form multidisciplinary teams to examine the issue of unsubmitted SAKs in their jurisdictions.² (See sidebar on page 7, *The Teams*.)

NIJ's goals were not only to help these two jurisdictions and determine whether their experiences could help others, but also to better understand the issue of untested SAKs in the larger context of improving the justice system's response to sexual assault.

Before we discuss the details of the Houston and Detroit research findings, however, it bears noting that these projects were played out against a larger backdrop as the national spotlight intensified on a seemingly inexplicably large number of SAKs that were stored, untested, in law enforcement property rooms around the country. (See sidebar on page 11, *Unsubmitted SAKs: How Many Are There Nationwide?*)

Although it has long been known that testing evidence for DNA in a rape kit does not automatically bring a rapist to justice, the "solution" to solving a sexual assault case is often framed only in terms of testing the kit. We know, as was borne out in the Detroit and Houston projects, that solving sexual assault cases is much more complicated than simply testing forensic evidence. Law enforcement must investigate to develop other potential evidence in the case, prosecutors must file charges, juries or judges must render verdicts, and judges must sentence — and at every step along the way, the victims must be supported.

William Wells of Sam Houston State University, one of the lead researchers on the Houston project, said:

One of the first things we learned in Houston is that this problem is not just something for property rooms and crime labs to deal with. Although testing kits is part of the solution, it is only one part. Workload then flows downstream — to investigators, prosecutors, and victim advocates — which is why it is so important to think holistically in terms of a *system* response.

DETROIT AND HOUSTON: CATALYSTS FOR CHANGE

The first goal for the multidisciplinary teams in Detroit and Houston was to determine how many SAKs had not been sent to the crime lab for testing and why the problem developed. The teams were then charged with creating plans for testing SAKs and notifying victims.

Over the course of the four-year projects, the multidisciplinary teams were catalysts for change in these two very different American cities.

In Detroit, the multidisciplinary team played a role in:

- Performing a census of more than 11,000 previously unsubmitted SAKs from sexual assaults that occurred from 1980 to 2009
- Identifying the "risk factors" that contributed to the development of the large number of unsubmitted kits
- Testing nearly 1,600 kits
- Developing, implementing, and evaluating a protocol for notifying victims
- Increasing collaboration among the entities that work on sexual assault issues
- Training police and other practitioners to understand the neurobiology of trauma
- Developing victim advocacy partnerships

In Houston, the multidisciplinary team played a role in:

- Forming a special squad in the HPD to investigate when suspects were identified through testing of previously unsubmitted SAKs

- Hiring a justice advocate in HPD's Adult Sex Crimes Unit
- Developing better techniques, based on neurobiology of trauma research, for police interviews of victims and prosecutor presentation at trial
- Creating a hotline for victims to obtain information about their cases
- Streamlining hospital processes for how evidence is packaged in SAKs
- Creating a team in the Houston Forensic Science Center (Houston's crime laboratory) to finalize

The Teams

In its support of the Houston and Detroit projects, NIJ required the that jurisdictions form multidisciplinary teams — including law enforcement, prosecutors, forensic scientists, medical and mental health experts, victim advocates and service providers, and researchers — and that the teams be involved in every step along the way.

The Houston team included representatives from:

- Sam Houston State University's Department of Criminal Justice and Criminology
- The University of Texas at Austin's Institute on Domestic Violence & Sexual Assault
- The Houston Forensic Science Center
- The Houston Police Department
- The Houston Area Women's Center
- Memorial Hermann Health System (Sexual Assault Nurse Examiner (SANE) nursing director and medical director)
- The Harris Health System (SANE nursing director)
- The Harris County District Attorney's Office

The Detroit team included representatives from:

- Michigan State University
- The Wayne County Prosecutor's Office
- The Detroit Police Department
- The Wayne County Sexual Assault Forensic Examiner's Program
- YWCA Interim House
- The Michigan State Police
- The Michigan Domestic and Sexual Violence Prevention and Treatment Board
- The Joyful Heart Foundation
- The Prosecuting Attorneys Association of Michigan

reviews on kits that were sent to private labs and uploading DNA profiles into the Combined DNA Index System (CODIS), the federal criminal DNA database

- Upgrading information management systems

“There’s no doubt that the Houston team has been one of the most collaborative and successful multidisciplinary teams I’ve ever worked with,” said NIJ social scientist Katharine Browning, who oversaw the Houston project and has significant experience in bringing criminal justice practitioners and social science researchers together.

“As NIJ continues to promote the action research model in addressing some of our nation’s most complex, entrenched criminal justice issues,” she added, “I will point to the Houston team’s experience and say, ‘This is how it’s done.’” (See sidebar on page 9, *The Power of Action Research*.)

PERFORMING A CENSUS OF PREVIOUSLY UNTESTED SAKS

When the NIJ-supported projects began in the spring of 2011, officials in Houston and Detroit had no idea how many untested SAKs were stored in their evidence property rooms; they knew only that the number was in the thousands.

In Detroit, the first step was to perform a census, or audit, of every SAK that had been collected from 1980 through Nov. 1, 2009. Team members had to manually count the kits one by one, opening each of more than 11,000 kits. The census in Detroit took 15 weeks and 2,365 person-hours. Some kits had a laboratory ID, suggesting that they had previously been sent to a laboratory, but it could not be determined whether a DNA analysis had been performed or, if so, what the results were.

In all, 2,512 SAKs had laboratory numbers, although it could not be determined how many had been tested, and 8,707 had never been submitted to the laboratory.

See a step-by-step summary of how Detroit conducted its census at NIJ.gov, keyword: 248680.

In Houston, there were more than 16,000 rape kits in police storage from sexual assaults that had occurred from 1982 to 2009. However, the NIJ-supported project was occurring in tandem with the HPD’s move to a new evidence storage facility, so an audit of all of the kits, including 4,000 kits stored in a freezer that became the focus of the NIJ study, was already underway.

In all, 16,863 SAKs were in HPD custody; 10,200 had previously been tested, and 6,663 had not been submitted to the laboratory as of Dec. 1, 2011.

DETROIT

11,303

SAKs IN STORAGE

30

YEARS SPANNED (1980-2009)

8,707

SAKs NEVER SUBMITTED TO LAB

1,600

SAKs TESTED VIA NIJ GRANT

HOUSTON

16,863

SAKs IN STORAGE

27

YEARS SPANNED (1982-2009)

6,663

SAKs NEVER SUBMITTED TO LAB

500

SAKs TESTED VIA NIJ GRANT

The Power of Action Research

The past 15 years have witnessed a significant shift in how complex criminal justice problems are studied. Before “action research,” researchers sat apart from the practitioners who worked inside the justice system, studying an issue from the “outside.” In action research, however, researchers work collaboratively with practitioners to:

- Understand circumstances in their local context by diagnosing the nature and the source of the problem
- Plan a response or solution
- Implement the response
- Evaluate the response
- Modify the response based on the results of evaluation

The Detroit and Houston projects followed a multidisciplinary, action research model. For example, when Rebecca Campbell and her research team in Detroit looked at police reports, they began to see evidence that officers were not aware of post-trauma phenomena. Research on the neurobiology of trauma shows that a “blunt presentation” — when a victim is not crying, for example — can actually be a normal human response to trauma. Some police reports indicated that cases had been closed in Detroit — and sexual assault evidence was therefore not sent to the crime laboratory for DNA testing — because the victims’ reaction was not what police thought it should have been.

Using the action research model, Campbell talked with detectives in the Detroit sex crimes unit and was invited to train staff on the neurobiology of trauma.

“It was a real game changer for them in thinking about what a sexual assault victim could present, how he or she might behave,” Campbell said.

This training was so well received by the police and prosecutors in Detroit that Campbell was invited to Houston to train the NIJ-supported team there.

Watch Campbell discuss the neurobiology of sexual assault trauma at [NIJ.gov](https://www.nij.gov), keyword: sakvideos.



WHY WERE THERE SO MANY PREVIOUSLY UNSUBMITTED SAKS?

One of the questions that NIJ asked the Houston and Detroit teams to answer was *why* there were so many unsubmitted SAKs. Before we explore the findings, which other jurisdictions may find helpful, there is a very important principle to keep in mind: *History matters.*

First, forensic DNA testing did not exist until the mid-1990s. Second, a national database of DNA profiles did not exist until 1994. Third, modern DNA forensic analysis was not widely used until the late 1990s. Finally, DNA databases were not widely used until the early 2000s.

“There’s no doubt that advances in technology for processing and analyzing DNA evidence, plus the creation of a national DNA database in the mid-1990s, have brought about a profound change in the criminal justice system,” said Gerald LaPorte, Director of NIJ’s Office of Investigative and Forensic Sciences.

“In fact, the sensitivity of DNA analysis has evolved so much recently that, even if previously unsubmitted SAKs had been tested a decade ago, it would not have been nearly as fruitful,” he added. “For example, advances are now making it possible for forensic labs to identify trace amounts of DNA from evidence — and, as with many scientific endeavors, we expect, through research and development, that the technology will continue to improve.” (See page 31, *How Forensic Science R&D Improves Justice in Sexual Assault Cases.*)

To understand why so many SAKs in Detroit had never been submitted to the laboratory, the researchers examined 20 years of records and interviewed detectives, prosecutors, advocates, elected officials, laboratory personnel, and sexual assault nurse examiners (SANEs). They determined that the problem was rooted in long-standing relationships *within* and

between agencies in the jurisdiction. These “risk factors” included:

1. Victim-blaming beliefs and behaviors. For example, police had thought, “She’s not acting like a real victim,” or, “This is a ‘he-said, she-said’ situation.”
2. No written policy for submitting SAKs to the laboratory.
3. Budget cuts over the years that reduced the number of crime laboratory staff and law enforcement personnel assigned to sexual assault cases, along with laboratory capacity issues, such as inefficient DNA testing equipment and methods.
4. High turnover in police leadership, which made it difficult to identify and remedy front-line practices. For example, Detroit had nine police chiefs in a 20-year period and five chiefs in less than three years.
5. Lack of community-based advocacy services.
6. Strained relationships and a lack of training among the necessary partners.

Rebecca Campbell, a researcher with Michigan State University who led the project in Detroit, explained the domino effect of having too few DNA scientists, no specialized sexual assault unit in the prosecutor’s office, and no community-based victim advocacy.

“The police point of view was, ‘We can’t investigate all of these cases,’ and the crime lab was saying, ‘We can’t test all of these kits,’” she said. “So it became a mutually reinforcing dynamic.”

In addition, Detroit’s medical system did not have a SANE program until 2006, so until then, medical practitioners were not trained on the potential usefulness of evidence in a rape kit. As a result, the message that the police often got from medical providers was, “I don’t think this is going to be really useful to you.”

“You put that message into a system of chronic resource deprivation and scarcity, and there is a systemic breakdown, with mutually reinforcing messages all through the system,” Campbell said.

Unsubmitted SAKs: How Many Are There Nationwide?

As the scientific research arm of the U.S. Department of Justice, NIJ is often asked how many sexual assault kits (SAKs) are in law enforcement property rooms — nationwide — that have never been submitted to a crime lab for DNA testing. For years, newspaper articles, speeches by public figures, and even official governmental documents have offered estimates. The fact is, however, that there is no official *current* estimate of the number of untested SAKs in the custody of law enforcement agencies nationwide.¹

Only two studies in the past 30 years have attempted to quantify the number of untested SAKs, and both of these used estimates from law enforcement surveys. The first (covering estimated data from 1982 to 2002) estimated that 169,000 kits during that period had not been sent to a lab for testing²; the second survey (covering estimated data from 2003 to 2007) estimated that, during that period, 27,000 kits had not been sent to a lab for testing.³

That means that even the most recent estimated numbers are nearly a decade old.

Determining the current number of unsubmitted SAKs nationwide would require a comprehensive census. This, in turn, would require resources, training, and technical assistance for state and local jurisdictions, because many of the nation's law enforcement agencies have information technology (IT) challenges. For example, when the NIJ-supported project began, Detroit's police department property room "database" was a Microsoft Excel spreadsheet, and it was not easy to figure out what kits might have been tested over the years, let alone what the legal disposition of the cases were.

Many jurisdictions have much better IT tracking systems now, but the quality of these systems remains a significant challenge for many criminal justice agencies across the country. There is currently no mechanism in place for determining how many untested kits lie in law enforcement evidence rooms nationwide.

Notes

1. It is also important to note that many media reports use the term "backlog" when referring to unsubmitted SAKs, but the term actually applies only to kits that law enforcement has sent to a crime laboratory for analysis. NIJ defines kits as backlogged when they have been awaiting testing at the laboratory for more than 30 days and does not use the term to refer to unsubmitted, untested SAKs in a law enforcement property room.
2. Lovrich, Nicholas P., Travis C. Pratt, Michael J. Gaffney, Charles L. Johnson, Christopher H. Asplen, Lisa H. Hurst, and Timothy M. Schellberg, "National Forensic DNA Study Report," Final report to the National Institute of Justice, award number 2002-LT-BX-K003, February 2004, available at <https://www.ncjrs.gov/pdffiles1/nij/grants/203970.pdf>.
3. Strom, Kevin J., and Matthew J. Hickman, "Unanalyzed Evidence in Law-Enforcement Agencies: A National Examination of Forensic Processing in Police Departments," *Criminology & Public Policy* 9 (April 8, 2010): 381-404. See also <http://www.nij.gov/topics/law-enforcement/investigations/handling-evidence/pages/survey-unttested-evidence.aspx>.

In Houston, the researchers also found a number of reasons why more than 6,600 SAKs had not been submitted for testing.

“Like many other cities in Texas — and nationwide — Houston had a system that was investigator-driven, which meant that before 2006, a police detective had to request that a kit be analyzed,” said Wells. “For example, if a suspect admitted to sexual contact with the victim or the victim had difficulty engaging in the criminal investigation, the investigator might not have sent the kit to the lab for testing.”

Noël Busch-Armendariz, head of the Institute on Domestic Violence & Sexual Assault at the University of Texas at Austin (UT-Austin) and the co-lead researcher on the Houston project, said that there were also other reasons for the large number of unsubmitted SAKs.

“DNA testing was expensive, and, frankly, resources available to police investigators were limited, which led to victim blaming and insensitivity — and for these and other reasons, victims often dropped out of the criminal justice process,” she said.

Partnering with the FBI

In 2014, NIJ formed a partnership with the FBI Laboratory to learn more about the handling of sexual assault kits (SAKs) and to improve the collection and processing of quality DNA evidence.

The FBI Laboratory in Quantico, Virginia, is testing DNA evidence from approximately 30 previously untested SAKs per week and entering any eligible profiles into the Combined DNA Index System. NIJ scientists are collecting and analyzing data about the kits, including whether kits can be processed more efficiently when submitted in bulk.

“In addition to supporting state and local law enforcement agencies in their efforts to reduce their number of unsubmitted SAKs, this project will increase the nation’s knowledge about processes currently used to collect and test sexual assault evidence,” said Gerald LaPorte, Director of NIJ’s Office of Investigative and Forensic Sciences. “It will also help develop tools and strategies to evaluate current DNA-testing methodologies and procedures, improve practice, and inform future policies.”

Any law enforcement agency or public forensic laboratory in the country is eligible to submit up to 30 SAKs per request, as long as they meet the following criteria:

- SAKs are more than one year old and have had no biological testing. (Note: The FBI is conducting biological testing only, not any other type of forensic testing, such as trace evidence.)
- An incident or police report accompanies each SAK.

For details on submitting SAKs, contact SAKPartnership@usdoj.gov.

Findings from this project will be released over the next few years.

Learn more about the NIJ-FBI partnership at NIJ.gov, keywords: FBI SAK Initiative.

RESULTS OF SAK TESTING

Once the census of the SAKs had been completed, the teams in Detroit and Houston had to develop a testing plan. Would evidence in all or just some of the kits be tested; if only some were tested, how should they be prioritized?

Detroit

Nearly 1,600 SAKs were tested in Detroit as part of the NIJ-supported project.³ To answer specific research questions, the kits were divided into four testing groups:

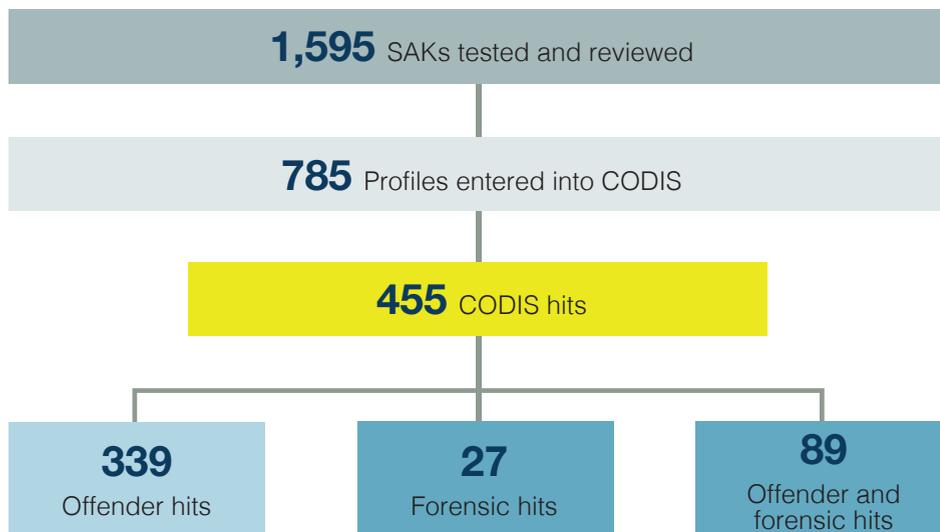
1. Stranger-perpetrated sexual assault (450 cases).
2. Nonstranger-perpetrated sexual assault (450 cases).

3. Cases presumed to be beyond the statute of limitations (SOL, the period during which criminal charges can be filed) (350 cases).
4. A comparison of traditional versus selective degradation DNA-testing methods (350 cases). (See sidebar on page 14, *Detroit Project Shows Promising Result for Testing Technique.*)

Of the kits tested, 49 percent yielded DNA profiles that could be uploaded to CODIS, the national DNA database. Of the 785 profiles uploaded, 455 produced “hits.” In other words, DNA from 28 percent of the kits matched a DNA profile that was in the database. Of these, 127 serial assaults were identified — that is, there was a DNA match across two or more SAKs.⁴

The researchers found no statistical difference in the CODIS hit rates in stranger- and nonstranger-perpetrated rapes. With respect to nonstranger sexual assault — sometimes referred to as

SEXUAL ASSAULT KIT TESTING RESULTS IN DETROIT



“Offender hits” refers to a match of a DNA profile to an offender’s DNA profile in CODIS, revealing the identity of the suspect. “Forensic hits” refers to a match of a DNA profile in CODIS to an unknown (unidentified) suspect profile from another crime scene.

“known-suspect” or “acquaintance” rapes — Campbell said, “We had cases of serial sexual assault where the perpetrator had raped multiple individuals that he knew. It was also interesting that, in the nonstranger cases, some of those hit to previously unsolved crimes in other jurisdictions.”

What, then, do the Detroit findings mean in terms of basing decisions about prioritizing SAK testing on whether the identity of the suspect is known? (See sidebar on page 19, “*Known*” Versus “*Unknown*” Suspects in Sexual Assaults.) The results in Detroit showed merit in testing both stranger and nonstranger cases in terms of (1) the ability of profiles to be uploaded to CODIS, (2) the likelihood of CODIS hits, and (3) discovering the serial nature of some sexual assaults.

It is also important to note that there was no statistical difference in CODIS hit rates based on whether the SOL had passed. Again, these results led the researchers to conclude that, in terms of CODIS hits and discovery of serial sexual assaults, there is merit, when dealing with a large number of formerly untested kits, in testing kits regardless of whether the SOL is likely to have expired.

“We learned that there was tremendous potential utility in testing kits that were beyond the statute of limitations,” Campbell said, “as hit information may be useful in pursuing current cases.”

She was referring to Rule 404(b) in the Federal Rules of Evidence, in which facts from an older case that was never adjudicated (tried or pled to) might be admissible in a current case that is within the statute of limitations.

In understanding the Detroit results, it is important to keep in mind that the NIJ-supported project did *not* look at outcomes beyond CODIS hits; that is, the study did not determine whether the SAK-tested cases within the SOL were successfully investigated and prosecuted. It was beyond the scope of the study, for example, to investigate criminal histories to see whether a suspect might have committed other crimes that were not in CODIS; therefore, Campbell noted, looking only at data on CODIS hits is likely to underestimate the degree of serial sexual offending. (See sidebar on page 20, *Serial Rapes: Exploring Rates and Patterns*.)

Detroit Project Shows Promising Result for Testing Technique

One of the randomized controlled experiments performed in the Detroit project was designed to determine whether there was any difference in the results of sexual assault kits (SAKs) tested with traditional DNA methods versus those tested with a newer method called “selective degradation.”

Selective degradation isolates sperm and destroys nonsperm cells. This method minimizes mixtures in the sample, leaving any sperm mixtures intact, including when there are multiple assailants.

The researchers found no difference between the two testing methods in terms of the ability to load DNA profiles into the Combined DNA Index System (CODIS), CODIS hit rates, or the cost of materials. There was, however, a time savings: The selective degradation method required 1.1 fewer hours to test an SAK.

“We found that selective degradation has the potential to be faster, cheaper, and easier to interpret,” said Rebecca Campbell, the lead researcher in the Detroit project. She noted that although these savings may substantially reduce personnel costs, especially when aggregated across a large number of SAKs, the issue merits further study.

Houston

In the Houston project, the researchers randomly selected 500 cases from the 6,663 previously untested SAKs. (Because complete data were not available on a few of these, there ended up being 491 cases in the sample that the researchers studied.) The sexual assaults in the sampled cases occurred from 1990 to 2009. When they were DNA tested, 55 percent yielded a DNA profile, and 79 percent of those profiles were successfully uploaded into CODIS. There were CODIS hits in 21 percent of the Houston sample, or 104 cases. (See the discussion, page 16, *What Happened in Houston Cases After a CODIS Hit?*)

In addition to following the results of DNA testing, the Houston researchers performed an in-depth examination of the 500 cases themselves based on a review of the police files. What they found is shown in the graphic below.

The fact that less than one-third of the victims had provided a sworn statement to police was a critical finding for the Houston team.

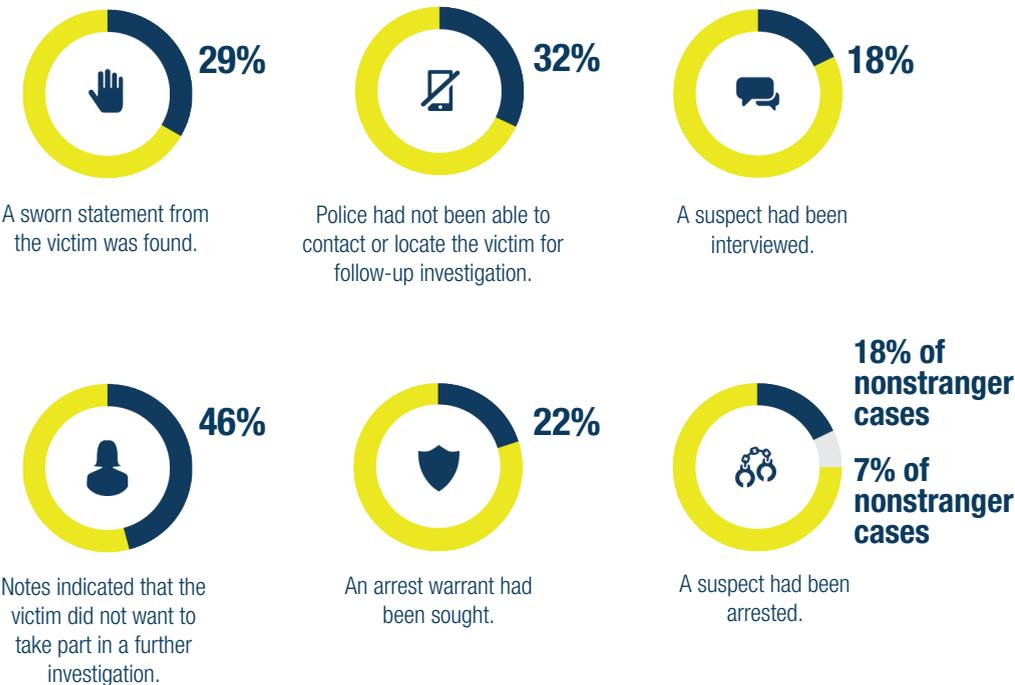
“This is particularly important,” said Wells, “because police investigators indicated that, except in rare situations, cases do not advance without a sworn statement from the victim.”

Although the absence of a sworn victim statement in these older cases may partially explain why DNA testing of the kit was not requested at the time of collection, this cannot definitively be known without a comparison sample of tested kits that had an accompanying sworn victim statement.

Another interesting finding from the Houston project is that, in 46 percent of the cases, the victim did not participate in the case after the SAK exam. Because this finding could be subject to misinterpretation or be startling to many, it is important to understand precisely how the data were gathered.

The Houston researchers hired and trained retired police investigators to review the police files and code a wide range of data, including phone and in-person contact with the victim after the SAK exam. Based on their review of the files, the researchers determined that the victim had not participated in any additional

IN-DEPTH EXAMINATION OF 500 CASES IN HOUSTON



investigation of the case. The study did not draw conclusions regarding the extent to which this finding involved law enforcement issues (such as no effort to follow up with the victim) or victim issues (such as failure to respond to police attempts to contact).

There is no doubt, however, that this finding raises important questions for future research.

“We know that attrition of sexual assault cases in the criminal justice system is very high, and we know that the victim’s participation — sometimes referred to as ‘victim cooperation’ — is crucial to a case moving forward,” said Wells. “But very little research has been done to help us understand the complex factors behind a nonparticipation number like we found in Houston.”

Finally, in Houston, the researchers wanted to use the police files to determine, to the extent possible, what investigation had occurred in the past in the 104 cases in which there was now a CODIS hit. They found that 26 percent contained a sworn statement from the victim; 74 percent did not. In 68 percent of the cases, it appeared — again, based on a review of the police files by retired investigators — that the victim did not participate in any additional investigation.

In 15 percent of the cases, a suspect had been interviewed; in 82 percent, a suspect had not been interviewed. In 10 of the 104 cases, the police file indicated that there was insufficient evidence to proceed with an investigation, despite the fact that the SAK had not been sent to the lab for testing. In 18 of the cases, the police had asked for an arrest warrant; in 16 cases, an arrest had been made.

What Happened in Houston Cases After a CODIS Hit?

The researchers looked at what judicial outcomes were achieved in the 104 cases in which a CODIS hit revealed the identity of a suspect.

As of mid-August 2015, when the Houston researchers completed their study, charges had been filed in one of the 104 cases, and seven cases were still being investigated.⁵

“The expired SOL and the lack of victim participation represent two important barriers to case progression in our sample,” said Wells. “It remains to be seen, however, whether the criminal case outcomes in our sample here in Houston are unique or whether they reflect patterns that other jurisdictions may also experience.”

IN-DEPTH LOOK AT 104 HOUSTON CASES IN WHICH CODIS HIT REVEALED THE IDENTITY OF SUSPECT



TESTING SAKS: ALL OR SOME?

There are really two separate questions with respect to whether evidence should be tested in all — or just some — sexual assault kits:

- What policies should apply to testing a large number of older, previously untested SAKs?
- What policies should apply to current and future cases? (See sidebar on page 27, *Going Forward: Testing SAKs in Current and Future Cases.*)

With respect to testing a large number of older, previously untested cases, jurisdictions will have to determine whether all of the kits will be DNA tested regardless of case status. For example, is it useful to test a kit if the identity of the alleged assailant is already known? Does it make sense to test if the SOL for filing charges has expired? Will a kit be tested only if the victim expresses a desire to proceed with the case?

As previously mentioned, while the NIJ-supported projects were underway, officials in Detroit and Houston decided to test all previously untested SAKs. But whatever policy decisions other jurisdictions make, they will undoubtedly be bound by the fiscal realities of not only DNA testing but also follow-up law enforcement investigations and possible prosecutions. Below is a brief summary of other considerations surrounding testing all — or just some — older, previously untested kits.

As Campbell explained in the final report on the Detroit project, past research has found that many rapists, in both stranger and nonstranger assaults, are serial rapists who have committed more than one assault. Therefore, she said, “In stranger-perpetrated cases, testing could reveal the potential identity of the offender and DNA profiles from multiple crimes.”

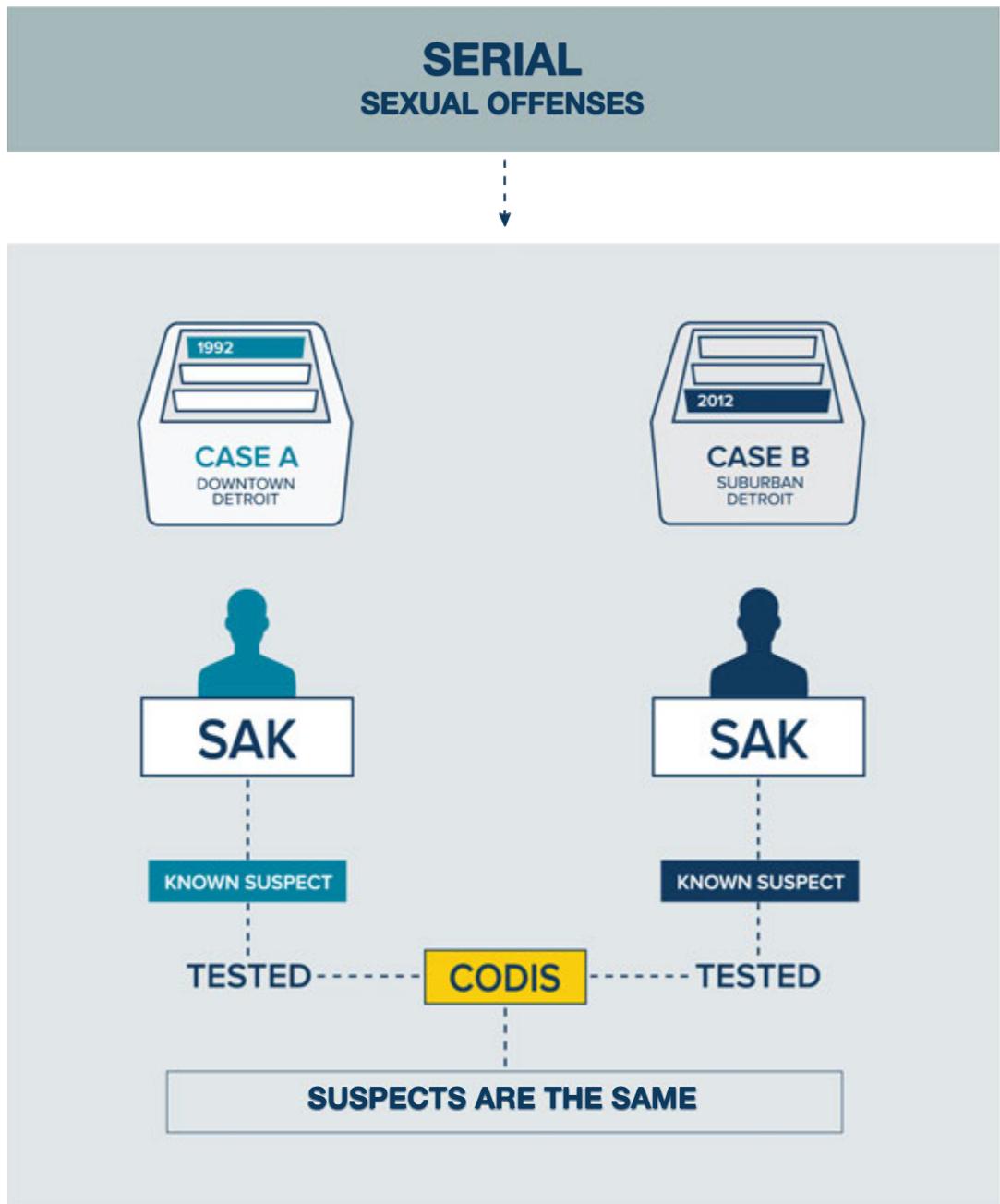
SUMMARY POSITIONS REGARDING TESTING OLDER SEXUAL ASSAULT KITS

Test Some SAKs	Test All SAKs
<ul style="list-style-type: none"> • DNA is useful only in stranger rapes, when the identity of the suspect is unknown. 	<ul style="list-style-type: none"> • Even if the identity of the suspect is known, it is useful to populate CODIS. A “stranger” in one assault can be a “nonstranger” in another.
<ul style="list-style-type: none"> • Testing is not a good use of public funds if the SOL has expired and the case cannot be prosecuted. 	<ul style="list-style-type: none"> • The SOL might <i>not</i> have expired; even if it has, there could be evidence of prior bad acts (Rule 404(b)) that could be used in the prosecution or sentencing of another case.
<ul style="list-style-type: none"> • Testing is not a good use of public funds in complainant refuses to prosecute (CRTP) cases. 	<ul style="list-style-type: none"> • In Detroit, the researchers found evidence that a CRTP designation in the police report was sometimes inaccurate.

“In nonstranger cases,” Campbell added, “if the assailant’s identity was known in Case A, police may not test the kit. Similarly, if identity was known in a separate crime, Case B, again, police may not test the kit. However, if A and B were both tested, it is possible they would match, indicating a pattern of serial sexual offenses.”

Although the Detroit findings showed the merit of testing SAKs across a wide variety of case circumstances — known/unknown suspect, for example, and SOL—expired/nonexpired — Campbell said that it is unknown what outcomes other jurisdictions would have if they decide to test a large number of previously unsubmitted kits.

The graphic below illustrates this.



“Known” vs. “Unknown” Suspects in Sexual Assaults

One of the most complex issues for law enforcement and the public to fully understand is how nuanced the concepts of “known” versus “unknown” and “stranger” versus “nonstranger” are when referring to sexual assault suspects. Although the terms are intended to describe whether the victim knows the “identity” of the suspect, the researchers in the NIJ-supported projects in Detroit and Houston noted that the terms can ignore the complexity of real-world situations.

To address this, the following categories were developed as part of the Houston project and are now being used by the Houston Police Department:

- Acquaintance: Someone whose identity the victim knows, even if he or she knows only a nickname
- Dating relationship/spouse: A current or former partner
- Family member: Someone to whom the victim is related through blood, marriage, or adoption (anything but a godparent-type relationship)
- Met same day: Someone the person met within 24 hours of the assault
- Stranger: Someone with whom the victim has no affiliation

“I think the ‘met same day’ category gets at a very important distinction,” said Noël Busch-Armendariz, one of the lead researchers in the Houston project. “It creates a much more nuanced understanding of a victim who, for example, met a man in a bar and had a few drinks with him but doesn’t really know him; he is not an acquaintance and not a stranger.”

Rebecca Campbell said that investigators wrestled with the same issue in Detroit, where researchers defined “stranger assaults” as those in which the victim did not know the offender. All other assaults were coded as “nonstranger” and broken down into three categories:

- The suspect was known by sight, nickname, or street name.
- The suspect was a friend, associate, or family member (but not an intimate partner).
- The suspect was a current or past intimate partner.

“Because it was sometimes difficult to distinguish between ‘stranger’ and ‘known by sight/nickname/street name,’ the team established consistent operational definitions and case assignment rules,” Campbell said. “Cases were coded as a ‘stranger’ if there was no information that the police could work from in order to identify the possible assailant.”

For example, if the victim said that the assailant was called John and that “he hangs out at the party store,” and if the police were given the specific location of the party store, the case was considered to be in the nonstranger “known by sight/nickname/street name” category.

On the other hand, if the victim said that she thought that she heard someone else at the crime scene refer to her attacker as John but she had no other details about his identity and there were no other leads to go on, the case was considered a stranger case.

In Houston, Wells noted, 44 percent of the cases in that sample could not be prosecuted because the SOL had expired. Therefore, if the goal is to prosecute suspects, it may be beneficial to first test cases that are still within the SOL. Although the Houston researchers did not study the issue of serial offending, Wells agreed with Campbell's conclusion that testing all older SAKs could be valuable in identifying serial rapists.

Finally, Campbell noted, some studies have found that evidence from SAK testing is rarely presented in court. This, she said, suggests that future research needs to explore the knowledge, attitudes and beliefs, and behaviors regarding the utility of testing SAK evidence among all stakeholders in the criminal justice system, including police, prosecutors, judges, and — because DNA evidence can protect the innocent — the defense bar.

Whether a jurisdiction adopts a test-all policy or prioritizes only some kits for testing, one of the best pieces of advice, said Campbell, is to start small.

"You don't jump in and try to test all of these kits all at once," she said.

Starting with as few as 10 kits could help a jurisdiction clarify goals, work through logistics, identify resources and staffing, and determine what information is difficult to track down. It can also help a jurisdiction make decisions such as (1) how to ensure that the chain of custody is not broken if SAKs are sent to an outside laboratory for testing, (2) what review procedure to use when the results come back from the laboratory, (3) how — and by whom — the victim will be notified regarding testing results, and (4) what resources would be needed for follow-up investigation and possible prosecution.

In their final report, the Houston researchers also make a number of recommendations for jurisdictions to consider when deciding to test a large number of previously untested SAKs.

First, the Houston researchers state that collecting and reporting on case characteristics is important because there is very little scientific information regarding older cases that were not sent for forensic testing. Understanding the facts regarding these older, previously untested cases may be helpful, said Wells, because "the media often make broad-brushed conclusions about these cases and their investigations." He noted, for example, that police

Serial Rapes: Exploring Rates and Patterns

NIJ recently funded Michigan State University to perform a longitudinal study of sexual assault offending patterns by using DNA evidence. Rebecca Campbell is leading the project, which will look at the scope of serial sexual assaults by males who have raped more than one person.

"Court recidivism studies have shown that 10 to 15 percent of convicted sex offenders re-assault within five years, and self-report surveys suggest that 60 percent of males who have committed sexual assaults have raped more than one individual," Campbell said. "We will be using a different method — DNA evidence in sexual assault kits — to explore the rates and patterns of serial sexual assaults."

In partnership with the Michigan State Police, the researchers are using a sample of approximately 7,000 recently tested sexual assault kits in Detroit. The three-year project will look at DNA matches in the Combined DNA Index System (CODIS) and the full adult criminal histories for all CODIS-identified offenders to model their offending patterns over time.

Read details about the grant at [NIJ.gov](https://www.nij.gov), keyword: 2014-NE-BX-0006.

had sought an arrest warrant in 20 percent of cases in the Houston sample and arrests had been made in 14 percent of the cases.

In their recommendations, the Houston researchers also point out that, even if other jurisdictions decide to investigate older cases only when a CODIS hit identifies a suspect, significant police and prosecution resources will still be needed. Investigators will require time and possibly specialized training, prosecutors will face additional workload to review cases, and victim advocates will be called upon to ensure that victims receive full support.

Finally, the Houston researchers noted that because jurisdictions currently do not know what criminal justice outcome they should expect if they test a large number of older kits, it is important to study case progression beyond testing, through investigation and possible adjudication. Again, in the Houston sample as of mid-August 2015, only one case had resulted in new charges being filed, although seven cases were still being investigated.

Wells noted that this finding suggests that jurisdictions may want to consider outcomes *other* than the potential of case adjudication when making the decision to test older SAKs.

“For example,” he said, “SAK testing practices may signal important messages to the community about the justice system’s responsiveness to the crime of sexual assault, and it is possible, in turn, that these messages could generate other results, such as enhanced police legitimacy or greater rates of victim reporting.”

VICTIM NOTIFICATION

The multidisciplinary teams in Detroit and Houston were charged with developing protocols for notifying victims in cases where the SAK was only now being tested for DNA evidence. Although the protocols were developed specifically to address this situation, they also offer guidance for recent or current cases, where it is easier to find the victim and determine her or his willingness to be involved in the criminal justice system.

In understanding the investigation and prosecution of sexual assault, it is important to understand that the victim’s participation is critical. As Wells says in his report on the Houston findings, “The lack of victim participation is an important reason why CODIS hit cases do not advance through the criminal justice system, so devoting time and resources toward improving victim engagement and participation may pay significant dividends that amplify the value of forensic testing.”

There are any number of reasons why a victim may not want to participate in the criminal justice system, said Bethany Backes, a social scientist at NIJ and an expert on sexual violence who oversaw the Detroit project.

“For example,” Backes said, “a victim may have had negative experiences with police or have fears about her case becoming public, or he may experience shame or fear about not being believed.”

In older cases, in which the victim may not have heard anything since agreeing to the forensic medical examination, the issue can be even more complicated. Consider a woman who was sexually assaulted in college and who has since married and not told her husband about the assault. Consider a victim who may have been using drugs at the time of the assault and has since slid further into drug use. Consider a woman who was impregnated years ago by the rapist but never told the child about the rape. Now consider that, years later, officials knock on these victims’ doors to tell them that their SAKs have now been tested.

Testing SAKs in older cases can raise complex legal and psychological issues for the victim. Notifying victims can trigger memories and feelings regarding the assault, and this re-traumatization can cause flashbacks, exacerbate post-traumatic stress disorder and other mental health issues, and affect substance use or abuse. The Houston and Detroit teams made it a goal to develop victim-centered, trauma-informed protocols for notifying victims about the testing of their SAKs. (See sidebar on page 24, *Victim-Centered, Trauma-Informed Notification*.)

In partnership with the Office for Victims of Crime, NIJ published a brochure that summarizes the approaches used in both Detroit and Houston to develop victim notification protocols. Read the brochure at NIJ.gov, keyword: 249153.

In developing victim notification protocols, the Detroit multidisciplinary team reviewed each case in which there was a hit in CODIS to determine the specific circumstances of the case. They then followed a two-step process to notify the victim:

1. Investigators affiliated with the prosecutor's office (not the police department) contacted the victim to:
 - Explain that her or his SAK had not been tested when the assault was originally reported, but had now been tested;
 - Offer an apology that the SAK had not been previously tested; and
 - Request a follow-up meeting.
2. Investigators and an advocate then met with the victim to:
 - Provide further details and discuss options; and
 - Connect the victim with community services.

Both the Detroit and Houston teams made the decision to notify victims *only* if there was a CODIS hit. Another key piece of Detroit's protocol was to have an investigator from the prosecutor's office, not the police department, make the first contact with the victim. This was done to minimize re-traumatization,

including any bad experiences that victims may have had with the Detroit Police Department.

The researchers selected 41 cases to determine the effectiveness of the Detroit victim notification protocol. Investigators found the victims in 31 of these cases. Negative reactions, such as anger or refusal to talk, were reported in 16 percent of cases; positive reactions, such as happiness or relief, in 29 percent; and no strong reactions, with respondents being open but reserved and cautious, in 55 percent.

Perhaps unsurprisingly, the more time that had passed between the initial report of sexual assault and the new contact during the notification process, the more negative the victim's reaction. Strong negative reactions were more common if the rape had happened nine or more years earlier; a strong positive reaction was more common if the assault had happened less than nine years earlier. An absence of reaction was more common if the victim was more than 24 years old at the time of the assault.

Far more than half the victims in this sample — 64 percent — agreed to a follow-up meeting, and 57 percent decided to participate in the investigation and prosecution process.

It is important to note that the majority of these 31 cases were "stranger" cases, not cases in which the suspect's identity was known to the victim before the SAK was tested. Campbell noted that preliminary findings suggested that victims of nonstranger rape were not as likely as victims of stranger rape to stay in contact with the criminal justice system after notification.

In summary, the findings in Detroit showed the following:

- Most victims did not have strong negative reactions to being contacted by officials after so many years.
- Most victims decided to stay in contact with the criminal justice system.
- Victims ages 16 to 24 at the time of the assault were more likely to react negatively and less likely to wish for further contact.

- Victims of nonstranger assaults were less likely to wish further contact.

Based on these findings, what were the most important victim notification lessons in Detroit?

“Given that notification can reactivate memories of a major traumatic event and require that complex forensic and legal information be communicated, one of the most critical lessons was the importance of a multidisciplinary perspective,” Campbell said. “The input from all core disciplines — police, prosecution, crime lab, sexual assault nurse examiners, and advocacy — was essential for creating a comprehensive plan that addressed survivors’ psychological and informational needs.”

A second important lesson, she said, was that it was “doable” — that is, it was not impossible to find

victims in older cases. After an initial search of three databases (Law Enforcement Information Network, TLO Online Investigative Services, and LexisNexis), relatively little effort (defined as up to two phone calls and one in-person visit to a single address) was required to contact more than half the victims.

Third, Campbell said, it was important that, during the initial in-person notification, the victim was shown compassion, offered an apology, and given options for confidential communications in the future.

Finally, Campbell noted, a victim-centered notification protocol should not expect 100 percent re-engagement in the criminal justice system.

In Houston, the multidisciplinary team created a smaller task force to develop victim notification protocols. Led by Busch-Armendariz, the task

Victim Notification Training Through the Office on Violence Against Women

The U.S. Department of Justice’s Office on Violence Against Women is now supporting researchers from the University of Texas at Austin who worked on the NIJ-supported project in Houston as they develop training and technical assistance on victim notification. Rebecca Campbell, the lead researcher on the Detroit project, is a consultant on the project, along with a number of other experts.

The work is grounded on the victim-centered, trauma-informed protocols developed by the Houston and Detroit multidisciplinary teams in the NIJ-supported projects.

“Sexual assault survivors voluntarily participated in the Houston and Detroit projects and distinguished good and bad notification practices, helpful and hurtful responses, and their long-term needs after notification,” said Noël Busch-Armendariz, who, along with fellow researchers Caitlin Sulley and Leila Wood, is heading up the project.

The researchers are developing a comprehensive curriculum for law enforcement, prosecutors, and victim service providers regarding victim notification in cases where sexual assault evidence was not tested at the time the victim reported a crime.

“Our goal,” said Busch-Armendariz, “is to improve the system response to sexual assault crimes and build the public’s trust in the criminal justice system to respond more adequately to victims of these crimes.”

Learn more at <http://www.justice.gov/ovw>.

force first conducted focus groups and individual interviews with 42 victims of sexual assault and 27 professionals, including systems-based advocates (who worked in the police department), community-based advocates (who worked at a nonprofit social service agency), and SANEs. Their goal was to determine whether victims in cases in which the SAK had not previously been tested should be notified of DNA test results if their case could *not* move forward in the criminal justice system and what special factors should be considered when notifying victims in these older cases.

“We wanted to understand, in these complex cases, how victims wanted to be notified about testing results

after evidence in the rape kit was tested,” Busch-Armendariz said. “They told us that they needed to be re-engaged, that they wanted to be in control of *when* the notification happened, to be prepared for the results.”

Many victims, although not all, wanted the results of the SAK testing, and many said that they would be willing to be re-engaged in the criminal justice system.

“Precisely how all those factors were considered was key for us as we designed the victim notification protocol,” Busch-Armendariz added. “We needed to get right.”

Victim-Centered, Trauma-Informed Notification

Victims of sexual assault undergo a thorough medical forensic examination — lasting several hours — in which evidence is collected from their bodies: pubic and head hairs are taken; the genitals, anus, mouth, and breasts are swabbed to collect semen, saliva, and blood; and the undersides of the fingernails are scraped. All of this evidence — as well as evidence that is not in the kit, such as bed sheets or a weapon — can be tested to determine the presence of the alleged assailant’s DNA.

One of the goals of the NIJ-supported projects in Detroit and Houston was to develop victim notification protocols that were victim centered and trauma informed. But what precisely does this mean?

“Victim-centered” means that the victim is at the center of all decisions regarding recovery and any involvement with the criminal justice system. The focus is on the victim’s choice, safety, and well-being, and the needs of the victim are everyone’s concern.

“Trauma-informed” means attending to the victim’s emotional and physical safety and using resources, services, and support to increase the victim’s capacity to recover. It means educating victims, service providers, and the community about the impact of trauma, which may cause victims to behave in ways that are confusing to them and which can lead to recollection of what happened coming slowly or in fragments.

- Read a brochure about notifying sexual assault victims after testing evidence based on findings from Detroit and Houston at [NIJ.gov](https://www.nij.gov), keyword: 249153.
- Watch Rebecca Campbell, the lead researcher in the Detroit project, discuss the neurobiology of trauma at [NIJ.gov](https://www.nij.gov), keyword: sakvideos.
- Watch Noël Busch-Armendariz, a lead researcher in the Houston project, address victim notification issues at [NIJ.gov](https://www.nij.gov), keyword: sakvideos.

The notification protocol adopted in Houston called for the HPD to contact victims only in cases in which, after the SAK was tested, there was a CODIS hit to an identified suspect and either the SOL had not expired or, if it had, the CODIS hit had identified a suspect who was on trial or in the punishment phase of a trial for another sexual assault. In all other situations — a case-to-case CODIS hit without an identified suspect, for example — the victims were not contacted *unless* they contacted a hotline or the DNA profile identified in their kit resulted in a CODIS hit at some later point. For cases in which there was no CODIS hit or a DNA profile could not be developed, the protocols called for a review of the case file to determine whether there were leads that should have been (but were not) investigated at the time of the assault.

Investigators in Houston contacted victims in a number of ways, first trying to reach the victim by phone to set up an in-person discussion. If that was not successful, they attempted to notify the victim in person at her or his home. If the victim could not be contacted by phone or through a home visit, they sent a certified letter.

Houston authorities also created a hotline and an email option for victims who had, at any time since 1980, reported a sexual assault and wanted to find out about the results of new SAK testing and the status of their case. Notice of this hotline was published in numerous media. A trained advocate answered the phone and responded to emails, giving victims additional information and connecting them to support resources that they might need.

“The hotline,” said Busch-Armendariz, “gave victims more control about when they re-engage with the system.”

The victim notification protocols in Houston also included a temporary “justice advocate” position in HPD’s Adult Sex Crimes Unit to work with victims in both older and new cases. One of the justice advocate’s goals was to try to re-engage victims from older cases in the criminal justice system. The justice advocate has several duties:

- Establish and maintain contact with victims in collaboration with investigators

- Identify victims with complex psychosocial needs and serve those needs
- Connect victims to other resources
- Serve as a liaison between the HPD and community organizations
- Document the contact with the victim

Six months after the justice advocate started work, the NIJ-supported multidisciplinary team conducted a focus group with seven HPD officers to consider the impact of the advocate’s role on their investigations.

“I talked to investigators working side by side with the justice advocate who said they couldn’t believe that they did this work before without a justice advocate,” said Caitlin Sulley, a UT-Austin researcher who was a member of the Houston team. “Investigators said that the justice advocate helps them respond to the needs of the survivor and keep them engaged in the process. Survivors have described that they are very scared and nervous when an investigator comes to their door to tell them about a new CODIS hit from the evidence in their rape kit; however, once they speak with the investigator and with the justice advocate, they have very positive things to say — that the investigator was compassionate and listened to them, which is very different from their initial interaction with law enforcement.”

The justice advocate had such a positive impact on the work of investigators and on victim outcomes that the position was made permanent. It is important to note, however, that because the justice advocate position in Houston is embedded in the police department, the advocate is not bound by rules of confidentiality — unlike justice advocates who work in victim services agencies.

The Houston researchers noted that although responses to this position have been very favorable so far, further research would be needed to determine how the position’s impact, in terms of outcomes such as increasing victim cooperation and engagement in the criminal justice process, compares with the

impact of justice advocates who work in outside victim services agencies.

- Watch Houston researcher Sulley discuss HPD's hiring of a justice advocate at [NIJ.gov](https://www.nij.gov), keyword: sakvideos.
- Watch Emily Burton-Blank, HPD Justice Advocate, discuss the impact of her role in the investigation of sexual assaults at [NIJ.gov](https://www.nij.gov), keyword: sakvideos.

The Houston task force on victim notification interviewed a number of victims, some of whom asked why they were being contacted now and why there had been such a long wait. Some reported that they had “moved on” and did not want to relive the assault. Some victims expressed uncertainty and confusion about why their case was reopened, since there was no guarantee of a successful resolution.

Busch-Armendariz noted that contacting victims about SAK testing can reveal issues, such as lack of transportation or childcare, mental illness, and current life stressors, that may complicate victims' decisions about whether to move forward with investigation and possible prosecution.

Interviewing victims about their experience with being notified about the testing of their kits years after the assault provided the Houston team with powerful insight into what worked and how victims were affected by the process.

“We cannot avoid the emotional costs,” Busch-Armendariz said, “but we can structure the involvement in a way that does not do more harm — that empowers the victim and acknowledges the harm done by the offender.”

- Watch Busch-Armendariz talk about the Houston team's work on victim notification issues at [NIJ.gov](https://www.nij.gov), keyword: sakvideos.
- See sidebar on page 23, *Victim Notification Training Through the Office on Violence Against Women*.

LESSONS FOR OTHER JURISDICTIONS

How applicable are the research findings in Houston and Detroit to other jurisdictions? Or, as the scientists put it, how generalizable are they?

The bottom line is that “community context” matters. Each jurisdiction has its own history and resource issues. If a law enforcement agency's property storage policies do not require segregating SAKs from other types of evidence — or if the property room computer system does not interface with the laboratory's tracking system — it could be difficult to know how many untested kits there are.

On the other hand, Campbell said, a department may know that it has a large number of unsubmitted kits but may not view this as an issue, depending on departmental norms or culture regarding sexual assault investigations, including whether sexual assault cases are an organizational priority, whether the department has sufficient staffing, and whether officers and detectives have adequate training about trauma and its impact on victims.

Another critical issue is the availability of information technology (IT). Many jurisdictions lack a computerized evidence-tracking system that can help evaluate funding and staffing needs for testing SAKs and for follow-up investigations and prosecutions. To help other jurisdictions address IT issues, the Detroit team created a number of resources and recommendations regarding storage procedures, census taking, and tracking of SAKs throughout the criminal justice process. Read more in the Detroit team's final report at [NIJ.gov](https://www.nij.gov), keyword: 248680.

Going Forward: Testing SAKs in Current and Future Cases

The Detroit and Houston projects dealt with a large number of older sexual assault kits (SAKs) that had not previously been tested. As noted earlier, while the projects were underway, both jurisdictions decided to test all previously untested kits — as have a number of other jurisdictions around the country.

It is important to keep in mind, however, that SAK testing policies going forward — that is, in current and future sexual assault cases — could involve different considerations. For example, some jurisdictions have passed laws mandating that all new SAKs be sent to the laboratory for forensic testing. To date, there are no nationwide studies of whether the jurisdictions are actually complying or how these laws are affecting the nations' crime laboratories. Although it has long been known that while forensic laboratories' processing capacity and output have increased substantially, demand has grown much faster, leading to the “backlog” issue that NIJ has studied for years. To learn more, download *Making Sense of DNA Backlogs, 2012 — Myths vs. Reality* at NIJ.gov, keyword: 243347.

The mandatory collection of DNA from arrestees is another factor that may affect SAK testing policies in new cases. Twenty-eight states now require that DNA be collected from certain categories of arrestees. With the influx of DNA profiles into CODIS due to these laws, the likelihood of identifying previously unknown suspects — and possible serial offenders — may increase. The so-called “all-arrestee” laws may also affect SAK testing policies in that fewer SAKs may need to be tested: If, in a state that automatically collects DNA from suspects arrested for sexual assault, a suspect admits to having had sexual contact but claims it was consensual, no new information would be gained from testing the SAK, because (a) the suspect's identity is known and (b) his DNA profile has already been uploaded into CODIS.

Another consideration for future decision-makers is the victim's perspective. A certain percentage of victims have a medical forensic examination, but then choose not to participate in further investigation or prosecution. If prosecution is not going to move forward, should the kit be tested? Furthermore, if the SAK contains a mixture of biological material, the victim would need to participate in the case in order for DNA to be collected from a consenting partner.

A number of important questions remain to be answered. What effect does “all-arrestee” DNA collection/uploading to CODIS have on the need to test all SAKs in current cases? What impact do test-all policies and arrestee DNA policies have on crime laboratories? Do they exacerbate the current backlog, possibly delaying the discovery of new investigative leads in sexual assault cases?

“The bottom line is that testing large numbers of older SAKs and creating policies for testing future SAKs may require different approaches,” said Gerald LaPorte, who heads up NIJ's Office of Investigative and Forensic Sciences. “And the only way to determine this — to help inform SAK testing policies and practices that contribute to investigating and solving sexual assaults — is through further scientific study.”

MOVING FORWARD

The issue of previously untested evidence in sexual assault cases is complicated, and efforts to address it have come from many quarters. Law enforcement agencies are performing audits to identify what untested evidence is in their custody. District attorneys have set up dedicated sex crimes units to bring more resources to bear in the labor-intensive investigation and potential prosecution of older cases. Some states and municipalities have passed laws that mandate the testing of all kits. Advocacy groups keep the issue front and center in the minds of policymakers, and some have even begun public fundraising to test rape kits.

In 2014, NIJ partnered with the FBI laboratory to learn more about the handling of SAKs, particularly to improve the collection and processing of quality DNA evidence. (See sidebar on page 12, *Partnering With the FBI*.)

In 2015, the Bureau of Justice Assistance (BJA), one of NIJ's sister agencies, awarded more than \$24 million to 20 law enforcement agencies to test kits and improve the agencies' response to the crime of sexual assault (BJA also awarded \$6 million for training and technical assistance).

The nation's forensic and social scientists, including those at NIJ, continue to develop new research-based tools and processes that improve investigations and prosecutions to bring more rapists to justice and better support victims. The appendix offers examples of NIJ's most recent forensic science research and development (R&D) projects and social science research projects (see page 31).

Testing SAKs is only one aspect of the larger problem of preventing and solving sexual assault. And indeed, Backes, who oversaw the project in Detroit, noted that the large number of previously untested kits is one of the issues that has brought national attention to the crime of sexual assault.

But, as Backes and the researchers in the Houston and Detroit projects emphasize, truly understanding

how to prevent and solve sexual assaults will mean that the national dialogue cannot be limited to testing kits, because doing so obscures the larger, more complex issue of sexual assault.

Most sexual assaults still are not reported to law enforcement, and there is no forensic evidence for many assaults that are reported. Furthermore, testing a kit does not automatically lead to the arrest and conviction of the perpetrator and justice for the victim. Cases must be investigated and prosecuted, and numerous scientific studies over the last few decades have shown that the complexity of the crime can make it difficult to investigate and prosecute many cases.

Considering these factors, the researchers in the Detroit and Houston projects remind us not to be distracted from continuing to work on improving down-system investigations and prosecutions and support for the victims.

"This is a thorny, complex crime," said Busch-Armendariz, "and we need to tell ourselves the truth about the prevalence of this crime, offender-victim relationships, where sexual assaults most often happen, the offender's pre-assault behavior, and other factors that can be at play — such as the role of alcohol and drugs."

The question, then, is whether the nation is ready for a more nuanced dialogue about the complexity of sexual assault — one that emphasizes effective investigations and effective prosecutions, with forensic evidence as just part of the process.

"When we start to really understand — and address — that complexity," Busch-Armendariz added, "we will go a long way in solving sexual assault as a crime."

About the Author

Nancy Ritter is a former writer for NIJ. She has worked on criminal justice issues, as both a practitioner and a journalist, for many years.

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- The NIJ-supported researchers featured in this report, including Dr. Rebecca Campbell, Dr. William Wells, and Dr. Noël Busch-Armendariz

Endnotes

1. In a sample of 491 cases that researchers tracked in the NIJ-sponsored action research project on untested SAKs in Houston, 68 percent contained biological evidence and 32 percent did not. Read reports from the Houston project at <http://www.houstonSAKresearch.org>. In the sample of 350 cases that researchers tracked in the NIJ-sponsored project in Detroit (Testing Group 4), about 70 percent contained biological evidence and 30 percent did not. Read the final report from the Detroit project at [NIJ.gov](http://www.nij.gov), keyword: 248680.

2. Throughout this report, “unsubmitted” SAKs refers to those that had not previously been sent (submitted) to a crime laboratory for testing, *not* to any “backlog” of kits that are in laboratories and awaiting testing. Media often refer to untested kits in law enforcement custody as part of the “backlog,” but this is not how NIJ uses the term.

3. Funding came from both this NIJ-supported project and an NIJ DNA Backlog Reduction grant to the Michigan State Police.

4. All Detroit figures are as of Dec. 31, 2013.

5. As part of the Houston project, researchers at UT-Austin performed a cost analysis based on a sample of 500 SAKs that were randomly selected from the 6,663 previously untested kits. There are too many variables and data limitations to report the results here, but the full report is available at <http://www.houstonSAKresearch.org>.

APPENDIX

A. How Forensic Science R&D Improves Justice in Sexual Assault Cases

NIJ supports research and development (R&D) in numerous forensic science disciplines that can improve the investigation and prosecution of sexual assaults. Most people readily identify DNA or forensic biology as a forensic area, but NIJ also funds R&D in forensic toxicology, impression and pattern evidence (such as firearms and fingerprints), and trace evidence, to name only three other disciplines that may be relevant in sexual assault cases.

Here is a brief glimpse of some of the basic and applied scientific research related to sexual assault that NIJ has funded in the past three years.

Test-all policies: RTI International is investigating the impact of policies that require the testing of all sexual assault kits (SAKs) on evidence processing in the lab and on the flow of information between law enforcement and crime laboratories. The researchers are using an “efficiency approach” to examine issues such as labor, equipment, and management systems and other communication processes. Using in-depth studies of law enforcement departments and crime laboratories with both high- and low-efficiency rates, they will make recommendations for improving the processing of SAKs and reducing the number of kits that await testing in test-all jurisdictions. Read details about the grant at NIJ.gov, keyword: 2013-NE-BX-0006.

Reducing DNA analysis time: Researchers in Sacramento County, California, are investigating ways to streamline the analysis of sexual assault evidence by determining what case-specific information can help select the samples most likely to yield a DNA profile. They are also working on validating a more efficient data interpretation method using probabilistic modeling software that could be run on standard desktop computers. This could reduce the time required to evaluate DNA profiles from the newest generation of short tandem repeat-typing kits — in many laboratories, there is a bottleneck in interpreting the data at this step — and could allow laboratories to better report testing results using likelihood ratios. Read details about the grant at NIJ.gov, keyword: 2015-NE-BX-K004.

Determining the presence of male DNA: Researchers are working with the Denver Crime Laboratory in Denver, Colorado, to determine whether a modified extraction process can more quickly reveal the presence of male DNA in sexual assault evidence. The study will compare the sensitivity, reproducibility, and reliability of current methods — which are time- and labor-intensive — to a modified process that could be used with a variety of automated extraction robots in different forensic laboratory systems. Read details about the grant at NIJ.gov, keyword: 2015-NE-BX-K005.

Improving analysis of swabs: Traditional methods of analyzing swabs in SAKs are time- and sample-consuming and expensive, test for only one bodily fluid, and are prone to false negatives. Researchers at Western Carolina University are studying whether surface-enhanced Raman spectroscopy (SERS) could allow analysts to perform one measurement for all bodily fluids, such as semen and vaginal fluid, with minimal consumption of the sample itself. This research — which could lead to greater efficiency and accuracy and more definitive results — builds on NIJ investments in SERS research at Boston University, where researchers are studying the use of SERS for comprehensive and conclusive testing for blood, saliva, semen, and vaginal fluid. Read details about the grants at NIJ.gov, keywords: 2015-NE-BX-K003 and 2014-DN-BX-K021.

Using microbes as trace evidence: It is estimated that humans carry 10 times more bacterial cells than human cells. Researchers at the University of North Texas Health Science Center are exploring how best to exploit this fact for forensic purposes. Looking at the genomes of the microbes that live on and in our bodies, they are working to identify the microbial genetic markers with the best potential for identifying the unique microbial communities found on different people. Once the best microbial gene panel is identified, they plan to test how it performs in distinguishing between a set of human subjects by gender, age, and other factors. The researchers speculate that using this additional microbial information might help overcome some of the challenges, including contamination, that are currently experienced with human touch DNA analysis. Read details about the grant at [NIJ.gov](https://www.nij.gov), keyword: 2015-NE-BX-K006.

Learn more about NIJ's forensic science R&D portfolio at [NIJ.gov](https://www.nij.gov), keywords: forensic science.

B. Increasing the Nation's Capacity to Test DNA Evidence

NIJ supports the nation's crime laboratories in improving their capacity to more rapidly and efficiently test DNA evidence, including evidence from sexual assault kits (SAKs). Here are some examples of work performed through NIJ's Forensic DNA Unit Efficiency program:

Decreasing backlog: The Louisiana State Police Crime Laboratory was experiencing an increased rate of DNA requests that made it impossible to eliminate their backlog. By using a multifaceted approach, including the Lean Six Sigma model, the laboratory increased productivity by 280 percent, reduced its backlog by 85 percent, and completed 68 percent more DNA testing requests per month. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 235190.

Improving workflow: Researchers at the Field Testing Division of the University of North Texas Health Science Center's Laboratory for Molecular Identification developed an integrated workflow, from laboratory processing to reporting. This included a redesign and validation of several steps for mitochondrial DNA (mtDNA) amplification, sequencing, and purification procedures that increased efficiency and throughput capabilities and reduced costs. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 234292.

Reducing turnaround time: The Allegheny County, Pennsylvania, crime laboratory reduced case turnaround time by creating a comprehensive process map of the forensic biology workflow, allowing the laboratory to identify areas of the analysis process that needed greater efficiency, including manual microscopic examinations for the presence of spermatozoa and DNA profile interpretation. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 234634.

Processing known standards: The Kansas City Police Crime Laboratory increased its efficiency by 20 percent (resulting in a 39 percent decrease in its backlog) by validating a rapid extraction and analysis method for processing known DNA standards. The method required changes in workflow so that known standards were batched separately from casework standards, which allowed technicians to process them separately and dedicate more time to casework samples. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 236157.

Reducing SAK backlog: When the Los Angeles Police Department (LAPD) outsourced the testing of more than 6,000 SAKs, funding supported overtime pay for LAPD analysts who reviewed those analyses and uploaded more than 1,700 DNA profiles into the state and national databases; 895 resulted in at least one Combined DNA Index System (CODIS) hit. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 236693.

Analyzing buccal swabs: The Oklahoma State Bureau of Investigation developed a more efficient way to collect and process reference DNA samples, using a new buccal collection kit that eliminated the extraction step in the analysis process. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 237764.

Setting up a CODIS laboratory: Before NIJ funding allowed the Wyoming State Crime Laboratory to purchase its own equipment, offender samples had to be outsourced to private labs for testing. With the new equipment, the laboratory significantly reduced the backlog and decreased the turnaround — that is, the time when a sample is received until the entry of a DNA profile into CODIS — from more than two years to fewer than 60 days. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 238909.

Developing an expert system: The University of North Texas Health Science Center developed an automated expert system for forensic mtDNA data analysis that improved the laboratory's efficiency and speed. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 239675.

Process mapping: In response to a rising workload that was leading to backlogs, the Denver Police Department purchased software and hired an information technology project manager to improve its process-mapping capability. Along with simulation of the DNA analytical-process workflow, the new hire allowed the lab to identify areas for improvement, test new ideas, and increase the system's performance. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 240638.

Separating sperm cells: The city of Oakland, California, developed an automated method (selective degradation using DNase I) to separate sperm from other cells in mixed samples; the new method worked as well as traditional methods but was faster. Read an abstract and access the full report at [NIJ.gov](https://www.nij.gov), keyword: 242773.

C. Using Social Science to Improve the Nation's Response to Sexual Assault

For more than 20 years, NIJ has funded social science research to better understand the nature and causes of sexual violence, including what system responses are required. NIJ has also evaluated the effectiveness of prevention and intervention programs that are designed to reduce sexual violence. Here are just a few examples of NIJ-sponsored social science projects to help improve the nation's response to sexual assault.

Decreasing case attrition: The attrition of sexual assault cases from the criminal justice system — that is, cases that drop out as they move from initial reporting to filing charges to prosecution — has been a nationwide concern for many years. NIJ has funded a number of studies that have improved our understanding of factors that contribute to case attrition. For example, researchers have studied victim, offender, victim advocacy, and case characteristics to identify best practices that can help decrease case attrition within law enforcement departments, including cross-agency collaborations among law enforcement, prosecutors, and victim assistance groups. Most recently, NIJ funded researchers from the University of Massachusetts Lowell (UM-Lowell) to replicate an earlier case-attrition study in Los Angeles. The study is looking at factors related to attrition of sexual assault cases at the law enforcement and prosecutorial levels across multiple jurisdictions and considers the role of sexual assault forensic evidence in case attrition. Read details about the grant to UM-Lowell at [NIJ.gov](https://www.nij.gov), keyword: 2012-IJ-CX-0052.

Expanding time for evidence collection: In most jurisdictions, DNA is collected through a sexual assault forensic medical exam up to 72 hours after the assault. Recently, NIJ-funded researchers demonstrated that this period for recovery of viable biological evidence could be expanded; however, 93 percent of the subjects in that study were white. Therefore, researchers at the University of Alabama at Birmingham are now exploring

the presence or absence of DNA at 4, 7, and 9 days after coitus to better understand factors that diminish or enhance the recovery of sperm in minority women. The study could help improve the reporting, practices, and prosecutions in sexual assaults where the victim is nonwhite, including delayed-reporting cases. Read details about the grant at NIJ.gov, keyword: 2014-NE-BX-0009.

Child cases: In an effort to improve the success of prosecutions, researchers from the University of Massachusetts are collaborating with prosecutors' offices in several Massachusetts counties to study child abuse cases. Past studies have found that less than 10 percent of child sex abuse cases that are charged actually go to trial. The researchers are examining 500 child sex abuse cases over a five-year period to identify the characteristics of cases that are prosecuted and to determine what factors are associated with case attrition, including the frequency with which the child is required to testify at multiple hearings, confront the alleged perpetrator directly, and undergo cross-examination. Read details about the grant at NIJ.gov, keyword: 2014-MU-MU-0001.

Secondary victimization of rape survivors: To better inform criminal justice practices and policies, it is important to understand how particular groups of people tend to react to sexual assault victims. Using the Social Reactions Questionnaire, researchers at the University of Denver are studying responses from (1) a victim's social support system, such as her family, partner, or friends; (2) criminal justice-based personnel from law enforcement, system-based advocates, and prosecution; and (3) community-based victim service providers, such as rape crisis personnel, medical personnel, and counselors. The researchers will identify case and victim characteristics involving positive and negative social reactions, with a particular focus on potential secondary victimization of rape survivors. The researchers are also examining whether women from different racial or ethnic groups, sexual orientations, and socioeconomic statuses experience different social reactions. Read details about the grant at NIJ.gov, keyword: 2012-W9-BX-0049.

Evaluating the Sexual Assault Justice Initiative: Researchers at the RAND Corporation are evaluating eight sites that are implementing the Office on Violence Against Women (OVW)–funded Sexual Assault Justice Initiative (SAJI). SAJI is designed to improve how the justice system in general and prosecutors in particular handle sexual assault cases. Funded by NIJ in 2015, the researchers will look at case charging and judicial outcomes, victims' perceptions of the process, and the costs and benefits of training and technical assistance. One of the significant features of the evaluation is that it is being designed in conjunction with OVW's site selection and other strategic decision-making, a combination that should improve the success of case processing and offer important information about the effectiveness — and challenges — of using innovative measures of prosecutor performance in sexual assault cases. Read details about the grant at NIJ.gov, keyword: 2015-ZD-CX-K002.

Reviewing forensic evidence and prosecution: Building on earlier work, researchers from the University of Illinois at Chicago are studying the relationship between the existence of physical and forensic evidence in a sexual assault case and the subsequent arrest, filing of charges, and prosecution outcomes, including case dismissals, guilty pleas, convictions, and sentence length. Looking at a random sample of 300 cases that were filed in Boston, Massachusetts, between 2005 and 2011, the researchers are examining the probative value of specific types of biological evidence (e.g., sperm, blood), as well as whether Sexual Assault Nurse Examiners (SANEs) are more likely to retrieve physical and forensic evidence and whether that evidence is more probative than evidence collected by non-SANE medical providers. Read details about the grant at NIJ.gov, keyword: 2013-NE-BX-0005.

Detecting genital tears: Documenting tears and abrasions to a woman's external genitalia can be an important part of the sexual assault forensic medical exam. In fact, the presence of injuries more than doubles the likelihood of a successful prosecution. But genital injuries experienced as a result of sexual assault are often small and difficult to see on visual examination, particularly when the victim has dark skin. Recently, researchers at the University of Virginia confirmed that a dye called fluorescein sodium permits the visualization of dermal tears and abrasions that are otherwise impossible to detect. In this current study, the researchers are determining whether fluorescein sodium dye may help document genital injuries in darker-skinned rape victims. Read details about the grant at NIJ.gov, keyword: 2013-NE-BX-0004.

Analyzing rape exams: Researchers at the Urban Institute, collaborating with the New York State Division of Criminal Justice Services, are studying 1,500 sexual assaults that occurred from 1997 to 2012 to determine what evidence and other case characteristics influence the proportion of cases that result in arrest and conviction, the identification of serial rapists, and the number of profiles entered into the state DNA database. The study, which focuses on the forensic medical exam, is expected to yield important information regarding evidence collection, investigation, and prosecution that could improve training and technical assistance for a wide range of practitioners who work on sexual assault cases. Read details about the grant at NIJ.gov, keyword: 2013-NE-BX-0007.

Find more information on NIJ's extensive sexual violence research portfolio — including findings related to the effectiveness of SANEs and Sexual Assault Response Teams in solving sexual assaults and improving case outcomes — at NIJ.gov, keywords: rape and sexual violence.

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