INNOCENCE PROJECT: DNA EXONERATIONS, 1989-2014:
REVIEW OF DATA AND FINDINGS FROM THE FIRST 25
YEARS

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I. INTRODUCTION

During the last quarter century there have been 325 DNA exonerations in the United States (1989-2014). What seemingly started out as a few tragic examples of wrongful convictions has turned into a growing body of cases (and individuals), allowing for deep investigation and research to determine why these injustices occur and how they might be prevented.

This 25-year mark provides a meaningful opportunity to reflect on what we have learned about the wrongful convictions and how they can inform the conversation around criminal justice policies and practices. As such, this report offers a first-time comprehensive review of data collected by the Innocence Project (IP) on DNA exonerations. It is designed to be a useful tool to better understand what these wrongful convictions involved and to promote more discourse and action on the issues across multiple arenas (academia, policy, litigation, journalism and the public).

The data presented in this report comes from a comprehensive database developed by research staff at the IP. The information contained in the database comes from trial transcripts, police and forensic laboratory reports, public appeal decisions, post-conviction lawyers representing the

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exonerees and reputable media sources.[1]

The cases in the database and profiled on the IP website are not limited to those for which the IP provided counsel. While the IP played a role in the majority of these DNA exonerations, others were the result of dedicated representation by Innocence Network member organizations, and/or by unaffiliated legal organizations or private lawyers.[2]

Cases that appear on the IP list include post-conviction DNA exonerations in the United States where DNA testing results were central to establishing the innocence of the wrongfully convicted individual. The definition of a post-conviction DNA exoneration that qualifies for this list is a case where DNA testing results were dispositive of actual innocence and central to vacating the conviction and/or dismissing the indictment. The indictment must have been dismissed, the defendant pardoned on the grounds of innocence or acquitted at a retrial.

As a result of the aforementioned criteria, the exonerations represented here are made up largely of sexual assaults and murders, as these are the types of cases that are most likely to have biological evidence left behind by the perpetrators that can be subjected to DNA testing and where the DNA is most likely to be dispositive of innocence.

This report will provide rich details on case facts and demographics including crime facts (dates, geography and type of crime), exoneree and crime victim characteristics, data on guilty pleas and sentences and information on the real perpetrators of these crimes. This will be followed by detailed sections on each of the main contributing factors associated with these wrongful convictions (misidentification, the misapplication of forensic science, false confessions and use of informants), along with brief descriptions of relevant research, as applicable, to help frame each issue.

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[1] The Innocence Project is grateful to the exonerees and post-conviction attorneys who were willing to share their case information, and to staff at Winston & Strawn, LLP, who collected and organized an enormous number of these source documents into an online repository, the Innocence Record (https://www.innocencerecord.org). This detailed analysis would not have been possible without this resource.

[2] The Innocence Project was attorney of record or consulted in just over half of the cases. Network projects were attorneys of record or consulted in just over one-quarter of cases, and 30% of exonerees were represented by other unaffiliated legal organizations or private lawyers.

The next section will include information on financial compensation sought and received in the aftermath of these wrongful convictions. The report will conclude with final remarks and reflections.

It is important to highlight what is *not* included in this report as well. To begin with, while we address many factors that contributed to these wrongful convictions, some factors are more difficult to document, define and uncover, therefore they are not offered in the analysis here. Prosecutorial misconduct is one such example. We know of examples from the DNA exonerations of cases where prosecutors withheld exculpatory evidence from the defense—a legal and ethical violation.[3] We also know of some cases—through publicly available court decisions—where appellate courts confirmed prosecutorial misconduct at the trial-level prior to an individual's exoneration based on DNA evidence.[4]

However, it is very difficult to determine the full scope of prosecutorial misconduct in these cases. First, there is little consensus on how to define prosecutorial misconduct (e.g., Any ethical violation? Only misconduct confirmed through courts? Only egregious cases where intent is established?). Second, it is impossible to document/discover all potential misconduct cases. Whereas one can without too much effort determine whether a case involved a misidentification by a witness, determining whether a prosecutor turned over any/all exculpatory evidence to the defense is a much more difficult task. Similar definitional and discovery problems are present when trying to measure ineffective assistance of counsel, police misconduct and issues of racial discrimination.[5]

Next, while applicable research is described briefly when it is relevant to placing statistics in perspective, this report will not offer a rich literature review on each of the contributing factors. To do justice on this front would necessitate a much lengthier paper or book and the focus of this report is the comprehensive data available on these DNA exonerations.

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[3] *See infra* Appendix A.

[4] EMILY M. WEST, COURT FINDINGS OF PROSECUTORIAL MISCONDUCT CLAIMS IN POST-CONVICTION APPEALS AND CIVIL SUITS AMONG THE FIRST 255 DNA EXONERATIONS 6–11 (2010), https://www.nacdl.org/WorkArea/DownloadAsset.aspx?id=21946.

[5] *See* EMILY M. WEST, COURT FINDINGS OF INEFFECTIVE ASSISTANCE OF COUNSEL CLAIMS IN POST-CONVICTION APPEALS AMONG THE FIRST 255 DNA EXONERATIONS 1 (2010), http://www.innocenceproject.org/wp-content/uploads/2016/05/Innocence_Project_IAC_Report.pdf; WEST, *supra* note 4, at 4.

Finally, this is a research report, not one focused on policy. Therefore, while the lessons learned from DNA exonerations drive the IP's policy goals, those complex and detailed efforts are not presented here. The IP website contains a wealth of information on policy reform for those interested in this aspect of the IP's work.[6]

II. DATA SOURCES ON WRONGFUL CONVICTIONS

To date, there are two central national lists of known wrongful convictions.[7] The first is the IP list, which is limited to exonerations based on DNA evidence.[8] The second list includes both DNA and non-DNA exonerations and comes from the National Registry of Exonerations (NRE)—a joint project of the University of Michigan Law School and the Center on Wrongful Convictions at Northwestern University School of Law.[9]

The total number of exonerations nationwide on the NRE list stood at 1,529 by the end of 2014. While the NRE list contains the IP DNA exonerations, the majority of the cases are convictions that were overturned on grounds relating to innocence but based on evidence other than DNA. As the keepers of that list readily admit, without DNA it can be very difficult to definitively prove innocence, and they are careful to review cases, to the best of their ability, to only include those where there is compelling evidence of innocence.

There are important distinctions that emerge when comparing the contributing factors among the wrongful convictions across the IP and NRE lists. For example, while eyewitness misidentification continues to be the overall leading contributing factor in DNA exoneration cases, false accusation/perjury is the leading contributor among the cases listed on the NRE website. This has to do with the very different distributions of crime types across these two lists, as

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[6] *See Improve the Law*, INNOCENCE PROJECT, http://www.innocenceproject.org/policy/ (last visited Aug. 18, 2016).

[7] *See About*, INNOCENCE PROJECT, http://www.innocenceproject.org/about/ (last visited Aug. 18, 2016); *About the* Registry, NAT'L REGISTRY OF EXONERATIONS http://www.law.umich.edu/special/exoneration/Pages/about.aspx (last visited Feb. 21, 2016).

[8] *See About*, *supra* note 7.

[9] Elizabeth Webster & Jody Miller, *Gendering and Racing Wrongful Conviction: Intersectionality, "Normal Crimes," and Women's Experiences of Miscarriage of Justice,* 78 ALB. L. REV. 973, 980 (2015).

well as additional types of crimes that are not represented on the IP list, such as fraud, drug crimes and crimes that never happened (e.g., fabricated child abuse cases, deaths later determined to be of natural causes).

Additionally, in cases where DNA is not available to prove innocence, deeper investigation into the cases is needed and often reveals problems that may also have been present in some DNA cases, but not discovered because the investigation ended when exonerating DNA evidence was obtained.[10]

Due to these aforementioned differences, it is important to note that the patterns and trends discussed in this report are limited to the types of crimes represented in the DNA exoneration cases—again, largely sexual assault and homicide or other violent crimes where biology from perpetrators is left behind. Despite the IP's list being a subset of all exonerations, interest in the IP list remains steadfast, as it represents the "gold-standard" of cases where innocence is established by undisputed science.

It is also worth noting that the IP's list—and indeed the NRE list—represent but a fraction of all wrongful convictions. This is because most wrongful convictions are never brought to light. Professor Samuel Gross has written on this subject frequently and discusses why we know so little about the true rate of false convictions.[11]

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[10] *See infra* Appendix B (discussing a more detailed comparison of the cases and contributing factors represented on these two lists).

[11] Samuel R. Gross & Barbara O'Brien, *Frequency and Predictors of False Conviction: Why We Know So Little, and New Data on Capital Cases*, 5 J. EMPIRICAL LEGAL STUD. 927, 927 (2008).

The wrongful convictions that have been uncovered tend to be for serious crimes that result in long prison sentences (sexual assaults, homicides and other violent crimes). Innocent people sentenced to short jail/prison terms may never seek help, either because they do not know how to get help, or because it is easiest to just serve the time and attempt to move on. Those who do seek help are not likely to find someone able to take on their claims of innocence. Most lawyers and organizations that provide services to those claiming innocence focus on prisoners who still face years behind bars. Further, crimes like robbery, involving strangers are likely to rely heavily on eyewitness identification, similar to sexual assault. However, the reason we know about the dangers of misidentification in sexual assaults is because in those cases there was probative biological evidence left behind, allowing for DNA testing to identify the perpetrator. In most robbery cases there is no useful biological evidence left behind to identify the perpetrator and therefore potential innocence cannot be established, but certainly the same pitfalls of eyewitness identification exist in those crimes, too.

*In 1984, a woman was raped in the Bronx. Twenty-three-year-old **Alan Newton** was mistakenly identified and wrongfully convicted of the crime the following year. In 2006, he was finally exonerated when he was excluded as a contributor of DNA recovered from swabs collected from the victim after the crime. Alan had first requested DNA testing over a decade earlier, but had been told repeatedly that the evidence in his case had been lost or destroyed. If he and his advocates had believed that first report and stopped searching for the evidence, Alan might still be in prison today.*

Source: Alan Newton was an IP client.

Finally, there is a certain amount of luck involved in the exonerations that have occurred. An exoneration may depend on such things as a prisoner getting the attention of a dedicated advocate who pushes the case forward; witnesses or informants coming forward years later to say they lied; or a

real perpetrator offering a confession which is then corroborated with other evidence. In addition, in cases where forensic science evidence is central to establishing innocence, there is sometimes luck involved in finding the crime scene evidence years after a conviction.

For example, in a review of cases closed at the IP between 2004 and 2010, approximately one-quarter were closed because evidence could not be found or was confirmed destroyed. There are at least twenty-eight DNA exonerations, which were nearly closed for this reason, but persistence and luck eventually uncovered the evidence in the cases.[12]

III. DNA EXONERATIONS: BASIC FACTS AND CHARACTERISTICS

A. Exonerations over Time

As of the end of 2014 there were a total of 325 DNA exonerations, representing 283 crimes (twenty-three cases involved multiple exonerees—sixty-five individuals in total). The first known DNA exonerations occurred in 1989 (n=2), with 2002 setting a record number of DNA exonerations in one year (n=25). Since then, the number has tended to fluctuate from mid- to high-teens each year, with thirteen DNA exonerations occurring in 2014.[13]
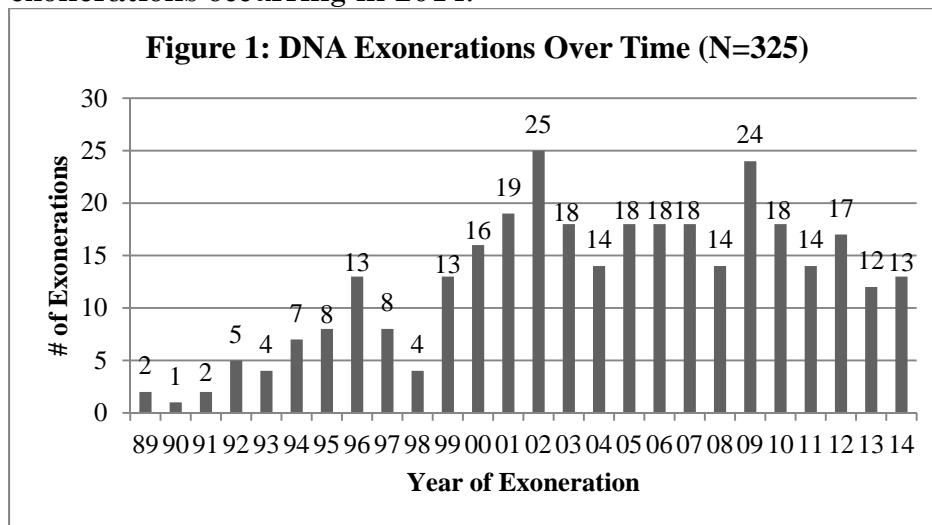

Figure 1: DNA Exonerations Over Time (N=325)

B. Crime Facts

Crime Dates. The crimes associated with these wrongful convictions took place over a broad time period with the earliest occurring in 1973 and the latest occurring in 2007. About one-third of crimes occurred before 1984 (34%), and another 36% occurred in the mid- to late 80s. The remaining 30% took place in the 1990s and 2000s.[14]

Figure 2: Crime Dates
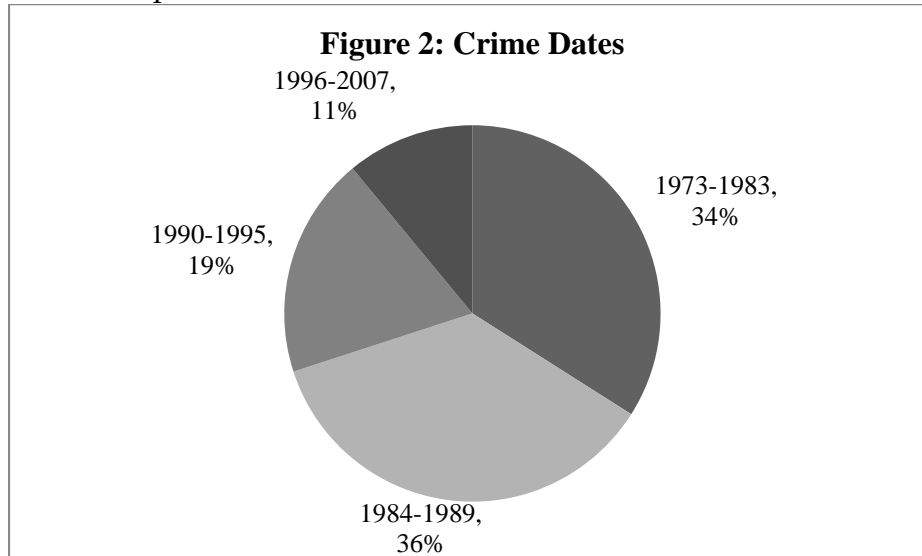
Geography. These wrongful convictions occurred in 37 states, as well as in the District of Columbia. The states with the greatest number of exonerations include Texas (n=52), Illinois (n=43), New York (n=29), Virginia (n=15) and Louisiana (n=14). It is important to note that these states do not necessarily represent those with the highest rate of convicting the innocent. For example, exonerations may be more likely in states with a greater presence of defense lawyers and organizations that help prisoners with post-conviction appeals. Also, DNA exonerations can only occur if the biological evidence is found and in a condition suitable for testing, therefore states that properly preserve evidence may identify and remedy more wrongful convictions.[15]

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[14] *See infra* Figure 2.

[15] *See infra* appendix D (detailing a complete list of number of exonerations by state and county).

Type of Crime.   As figure 3 displays, nearly all of the wrongful convictions included here (91%) contain a sexual assault element to the crime (64% sexual assault; 27% sexual assault and homicide).   Fewer than 10% represent homicides without a sexual assault or other violent crimes (e.g., home invasions or carjackings).   Further, nearly three-quarters of these exonerations represent crimes where the victims and the exonerees did not know one another (71%) and in 16% of cases there were multiple crime victims (data not shown).

Figure 3: Types of Crimes
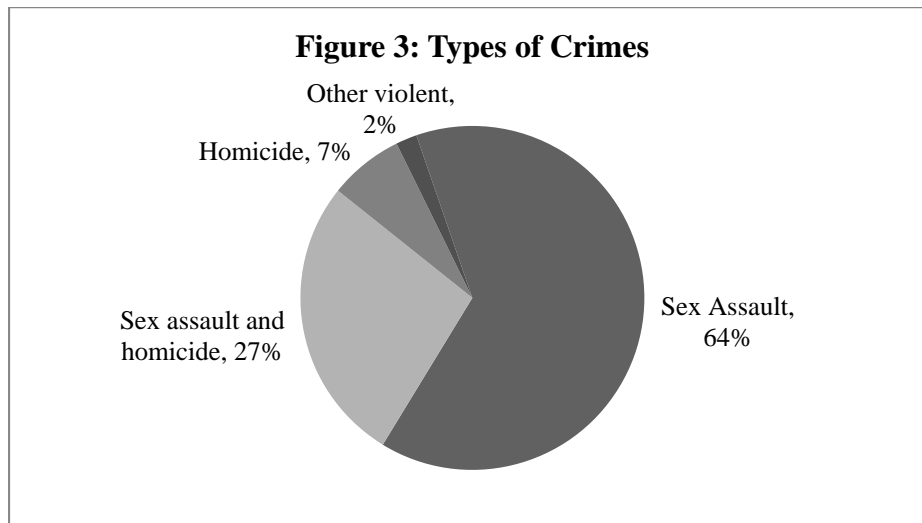
Pleas.   Thirty-one DNA exonerees (10% of the 325) entered guilty pleas for crimes they did not commit.   Since it is difficult to imagine why someone would plead guilty to a crime he or she did not commit, social scientists and legal scholars are increasingly focused on investigating this phenomenon.[16] In fact, the National Science Foundation recently funded an interdisciplinary effort known as the Research Coordination Network (RCN), whose explicit goal is to foster new research on the decision-making process that generates guilty pleas.

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[16] *See* Allison D. Redlich, *False Confessions, False Guilty Pleas: Similarities and Differences*, *in* POLICE INTERROGATIONS AND FALSE CONFESSIONS: CURRENT RESEARCH, PRACTICE, AND POLICY RECOMMENDATIONS 49, 53, 58 (G. Daniel Lassiter & Christian A. Meissner, eds., 2010); Lucien E. Dervan & Vanessa A. Edkins, *The Innocent Defendant's Dilemma: An Innovative Empirical Study of Plea Bargaining's Innocence Problem*, 103 J. CRIM. L. & CRIMINOLOGY 1, 33–34 (2013); Jed S. Rakoff, *Why Innocent People Plead Guilty*, N.Y. REV. BOOKS (Nov. 20, 2014), http://www.nybooks.com/articles/2014/11/20/why-innocent-people-plead-guilty/.

As the body of research on guilty pleas expands, the DNA exoneration cases provide us with poignant examples of some of the pressures and incentives that can influence an innocent person's decision to plead guilty. For example, innocent suspects may be wary of racism in the criminal justice

> *Chris Ochoa* and *Richard Danziger* were suspects in a 1988 rape and murder of a young woman in Austin, Texas. The state offered to give Ochoa a life sentence if he agreed to plead guilty and testify against Danziger at trial. Under threat of receiving the death penalty and by the advice of his attorney, Ochoa agreed to their terms. Years later, the real perpetrator, Achim Marino, began writing letters to the governor and police, confessing to this crime, and providing accurate details. Police began investigating, and Ochoa and Danziger were ultimately exonerated when DNA results confirmed Marino's confession. Ochoa and Danziger each served over a decade in prison before being exonerated.
>
> *Source: Richard Danziger was an IP client.*

system: Michael Phillips, a recent DNA exoneree, is a black man who was accused of raping a white girl. He and his attorney feared that a jury would not be able to look past his race to his innocence, so he pleaded guilty. In fact, the majority (24 of 31) of the DNA exonerees who pleaded guilty were people of color.[17] The majority (20 of 31) of the guilty plea cases also involved false confessions. Innocent suspects and their attorneys may recognize that confessions are very difficult to overcome in court and may opt to enter guilty pleas rather than risk almost-certain conviction (and harsher sentences) at trial.

Innocent suspects may also fear the death penalty. We know that in 12 of these guilty plea cases, the exoneree was threatened with death and felt pressured to plead guilty to avoid this ultimate punishment. Even if they are not threatened with death, innocent suspects may wish to avoid

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[17] *See infra* Figure 4.

long sentences if convicted at trial and agree to plea deals in the hope of being released in time to watch their children grow, to participate in the workforce, or to care for aging family members. Ten of the exonerees who pleaded guilty received lighter sentences in exchange for testifying against their co-defendant(s). When faced with situations like these, innocent people reasonably weigh their options and some choose to plead guilty to crimes they did not commit.

Figure 4: Guilty Plea Cases (n=31)
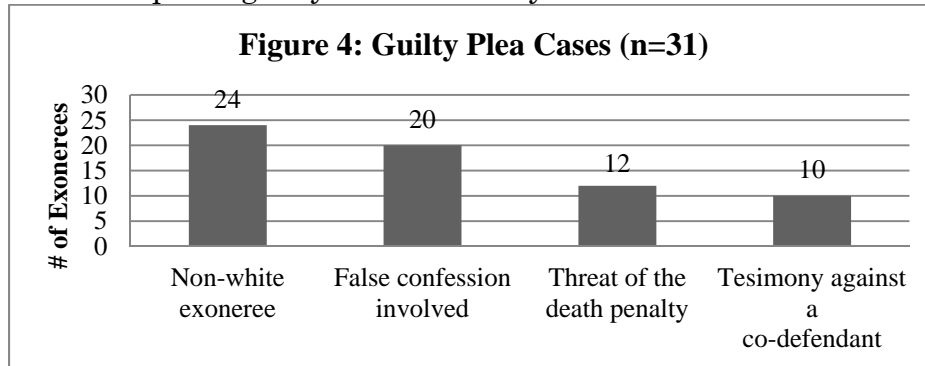
Sentences Received and Time Spent in Prison. In terms of time spent in prison, on average, these 325 innocent men and women spent nearly 14 years of their lives in prison for crimes they did not commit, with 19% serving 20 years or more. As figure 5 shows, over one-third were sentenced to life (≥99 years) or death. Beyond the 20 DNA exonerees who were sentenced to die, another 16 were charged with the death penalty but the jury or judge rejected it. And finally, another 17 exonerees were threatened with the death penalty, 14 of whom falsely confessed or pleaded guilty to try to avoid a death sentence.

Figure 5: Life Sentence and Use of the Death Penalty
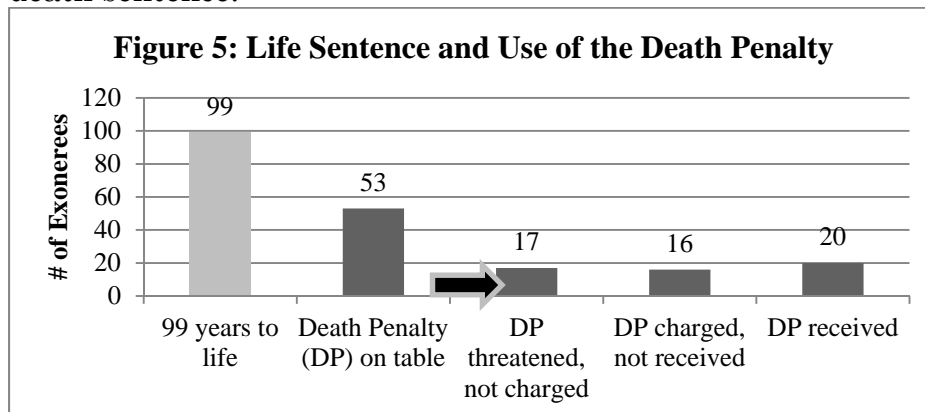
C. Exoneree and Victim Data

Gender and Age. Table 1 displays information on gender and ages of both the exonerees and the crime victims. All but four of the 325 DNA exonerees were male, with all the females being part of crimes that involved male co-defendants. Nearly all victims were female, however 10% were male.

In terms of ages, exonerees were, on average, 26 years old when they were wrongfully convicted and 42 years old when they were exonerated. Thirty-four of the DNA exonerees were arrested when they were under 18 years old.[18] Victims were, on average, 28 years old at the time of the crime. However nearly one-third of victims were children or seniors (29%)— vulnerable populations whose cases often incite heightened fear and anger in the public eye, leading to greater pressures on police and prosecutors to solve such crimes.

Table 1: Gender and Age

	Exoneree	Victim
Gender **Male** **Female**	 99% 1%	 10%[a] 95%
Age at crime or conviction **Range** **Mean**	 15-56 years old 26 years old	 0-90 years old 28 years old
Age at exoneration **Range** **Mean**	 21-67 years old 42 years old	—

ᵃ These victim gender percentages do not add to 100 because 16% of cases involved more than one victim.

Race. Figure 6 shows that of the 325 DNA exonerees, 70% were non-white, while the majority of crime victims were white (62%). Further, as figure 7 presents, just under half of the crimes were cross-racial in nature (43%). Of these, the overwhelming majority were crimes with black defendants and white victims (80%).

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[18] *See infra* Appendix E (showing a complete list of DNA exonerees arrested as juveniles).

Figure 6:
Exoneree & Victim Race

Data not shown: Two exonerees were Asian and one victim was Asian.

Figure 7:
Cross-Race Crimes

Data not shown: One Asian defendant, white victim.
Note: Missing race of victim in 39 cases.
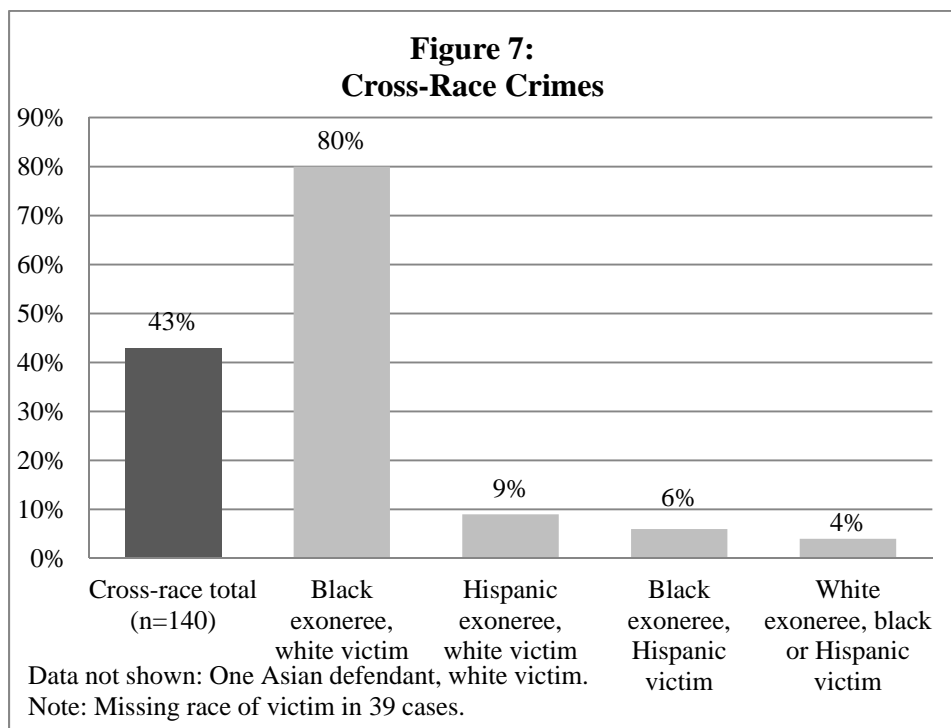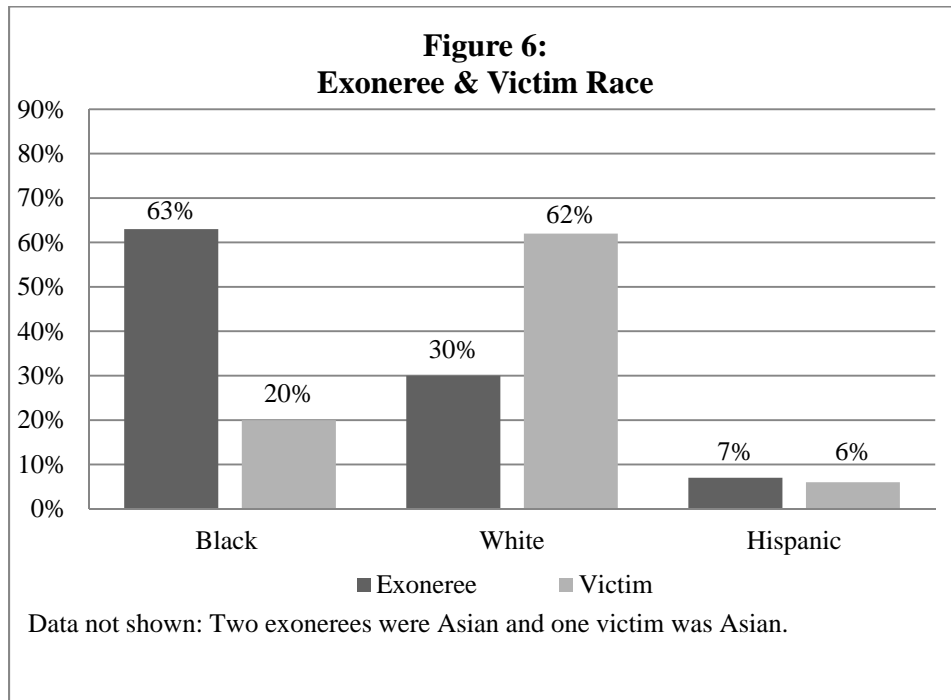
The overrepresentation of black exonerees is striking here. We know from prison statistics that while blacks make up just 13% of the U.S. population, they account for over one-third of the male federal and state prison population.[19] And while we cannot obtain prison statistics for more specific comparable crimes (e.g., sexual assault crimes involving strangers by race), it is clear that blacks are grossly overrepresented in this pool of wrongfully convicted people.

This overrepresentation is particularly notable in exonerations of sexual assault. When examining sexual assault crimes (non-homicide), 68% involved black defendants and of these, well over half (62%) were cross-racial in nature. We know from psychology research that cross-racial identifications are particularly unreliable.[20]

In 1982, a white woman reported being attacked by a black man and told police that the rapist had told her he "had a white girl." **Marvin Anderson** *became a suspect because he was the only black man that police knew to be living with a white woman in Hanover, Virginia. He was wrongfully convicted and served 20 years in prison before being exonerated by DNA evidence.*

Source: Marvin Anderson was an IP client.

Unfortunately, investigating the complex ways in which race played a role in these wrongful convictions is beyond systematic data collection. However, there are examples from these exonerations which highlight the more obvious ways race factored into the case.[21]

D. Real Perpetrators in These Wrongful Convictions

The real perpetrators were identified in nearly half of all DNA exonerations.[22] Most of these real perpetrators were

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[19] E. ANN CARSON, DEP'T OF JUSTICE, NCJ 247282, PRISONERS IN 2013, at 1 (2014); SANDRA L. COLBY & JENNIFER M. ORTMAN, U.S. CENSUS BUREAU, PROJECTIONS OF THE SIZE AND COMPOSITION OF THE U.S. POPULATION: 2014 TO 2060, at 9, tbl.2 (2015).

[20] Christian A. Meissner & John C. Brigham, *Thirty Years of Investigating the Own-Race Bias in Memory for Faces: A Meta-Analytic Review*, 7 PSYCHOL, PUB. POL'Y & L., 3, 21–22, 23–25 (2001).

[21] *See, e.g.*, *supra* (describing Marvin Anderson's account).

[22] *See infra* Figure 8.

identified via state or national DNA databases. Here, the DNA profiles that excluded exonerees were uploaded to state databases or the national Combined DNA Index System (CODIS) to determine whether they produced a "hit" to a profile in the system. In another 29% of these cases, the identification of the real perpetrator was the result of a direct DNA comparison to a known alternate suspect.

Figure 8: Real Perpetrators Identified

	49%	71%	29%
	Real Perp Identified	Database Hit	Direct DNA Comparison
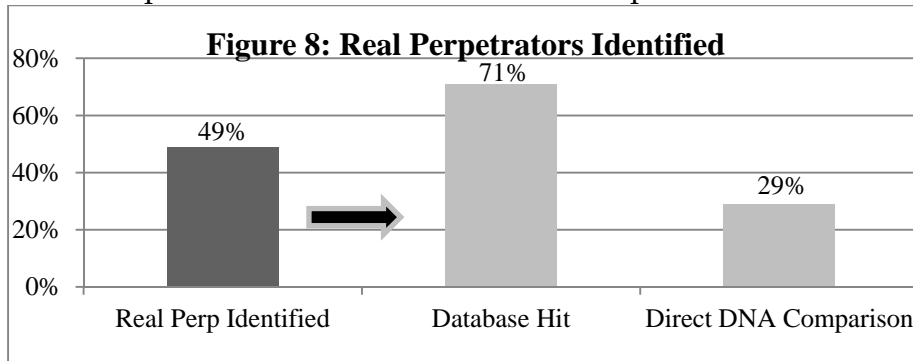
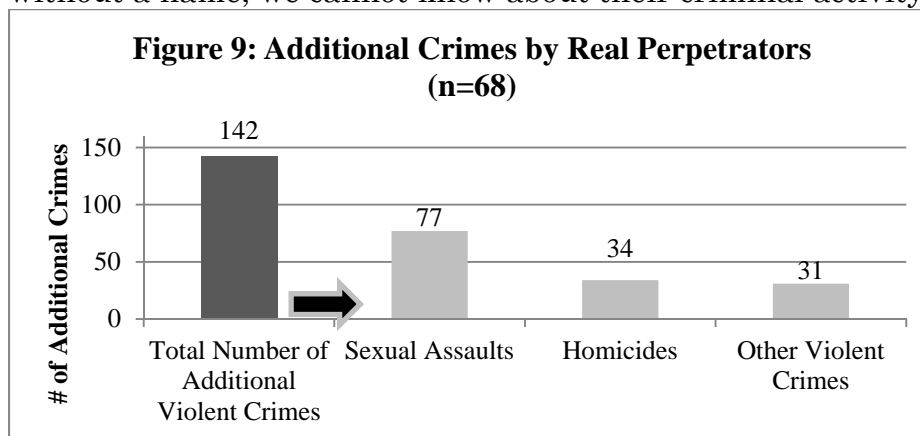Tragically, many of these real perpetrators went on to commit additional violent crimes, leaving more victims and their families to suffer avoidable crimes. As figure 9 demonstrates, 68 perpetrators went on to commit 142 violent crimes (based on convictions for subsequent violent crimes). Of these, 77 were rapes, 34 were homicides and 31 were other violent crimes (e.g., armed robbery, attempted homicide). These known additional crimes represent just a fraction of all subsequent criminal activity, as the real perpetrators have not been identified in half of these DNA exoneration cases and without a name, we cannot know about their criminal activity.

Figure 9: Additional Crimes by Real Perpetrators (n=68)

# of Additional Crimes

142	77	34	31
Total Number of Additional Violent Crimes	Sexual Assaults	Homicides	Other Violent Crimes

IV. CONTRIBUTING FACTORS OF WRONGFUL CONVICTIONS BASED ON DNA EVIDENCE

As more people were exonerated with DNA evidence and their case facts were added to the IP's research database, patterns began to emerge. Certain elements appeared repeatedly in these cases of wrongful conviction, including eyewitness misidentification, the misapplication of forensic science, false confessions and the use of informants, and consequently the research staff began to systematically track these factors. As mentioned in the introduction, while other factors may contribute, they are not well documented and defined.[23] As seen in figure 10, the overall most common factor in these DNA exonerations is eyewitness misidentification (72%), followed by the misapplication of forensic science (47%), false confessions (27%), and the use of informants (15%).[24]
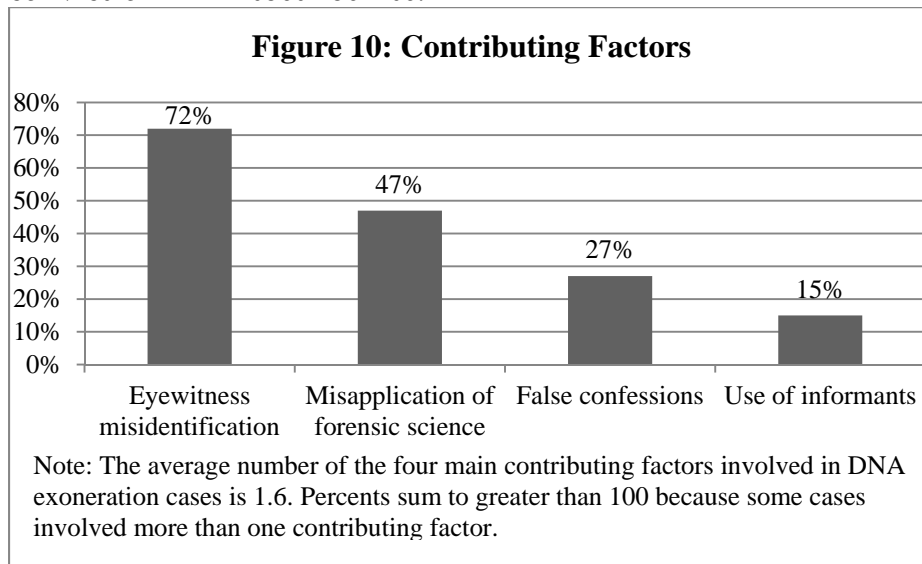
Fifty-two percent of the exonerees had more than one of these four contributing factors involved in their cases. In fact, in 34 cases there were three to four main contributing factors involved. A possible explanation for this confluence of seemingly incriminating evidence against innocent people is cognitive bias. For the purposes of this discussion, we use cognitive bias as a general term to refer to patterns of thought and behavior that can lead to erroneous conclusions (e.g., the tendency for people to seek out and interpret information that confirms their already-held beliefs, or the way in which extraneous contextual information can influence a person's interpretation of seemingly-objective evidence).[25]

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[23] For more information on these issues, the IP website provides descriptions of some of these other problems and case examples. *See, e.g.*, *Causes: Government Misconduct*, INNOCENCE PROJECT, http://www.innocenceproject.org/causes/government-misconduct/ (last visited Aug. 18, 2016) (detailing instances where attorneys have contributed to wrongful convictions); *Causes: Inadequate Defense*, INNOCENCE PROJECT, http://www.innocenceproject.org/causes/inadequate-defense/ (last visited Aug. 18, 2016) (discussing misconduct by government actors which have lead to wrongful convictions). *See supra* Part I (explaining that it is difficult to determine the full scope of prosecutorial misconduct).

[24] *See infra* Figure 10.

[25] *See* Raymond S. Nickerson, *Confirmation Bias: A Ubiquitous Phenomenon in Many Guises*, 2 REV. GEN. PSYCHOL. 175, 181, 182, 183, 185–86 (1998); *see generally* Itiel E. Dror et al., *Contextual Information Renders Experts Vulnerable to Making Erroneous Identifications*, 156 FORENSIC SCI. INT'L 74, 75, 76, 77 (2006) (describing biases and contextual influences that have occurred in fingerprint identifications).

Cognitive bias is not the product of intentional dishonesty or malice, but is simply a side-effect of the way in which human brains are wired.[26] Despite this, cognitive bias still has the potential to negatively affect all stages of a criminal investigation—from the initial investigation of suspects, to analysis of forensic evidence to interpretation of post-conviction DNA test results.

Figure 10: Contributing Factors

Note: The average number of the four main contributing factors involved in DNA exoneration cases is 1.6. Percents sum to greater than 100 because some cases involved more than one contributing factor.

The distribution of these contributing factors is related to the types of crimes represented in these DNA exoneration cases. For example, in sexual assault cases, there is often a victim who is able to make a positive identification of a suspect, so these tend to be cases characterized by mistaken identification. In homicide cases, unless there is a surviving eyewitness, other factors lead to convictions, including false confessions and use of informants.

While these cumulative percentages presented in figure 10 are often cited when referring to contributing factors, interestingly, DNA exonerations with convictions that occurred more recently provide slightly different distributions. As figure 11 shows, later convictions were slightly less likely

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[26] *See generally* SHANKAR VEDANTAM, THE HIDDEN BRAIN: HOW OUR UNCONSCIOUS MINDS ELECT PRESIDENTS, CONTROL MARKETS, WAGE WARS, AND SAVE OUR LIVES 4, 15, 18, 87 (2010) (explaining how the human mind's unconscious decisions influence our behavior, and expose biases).
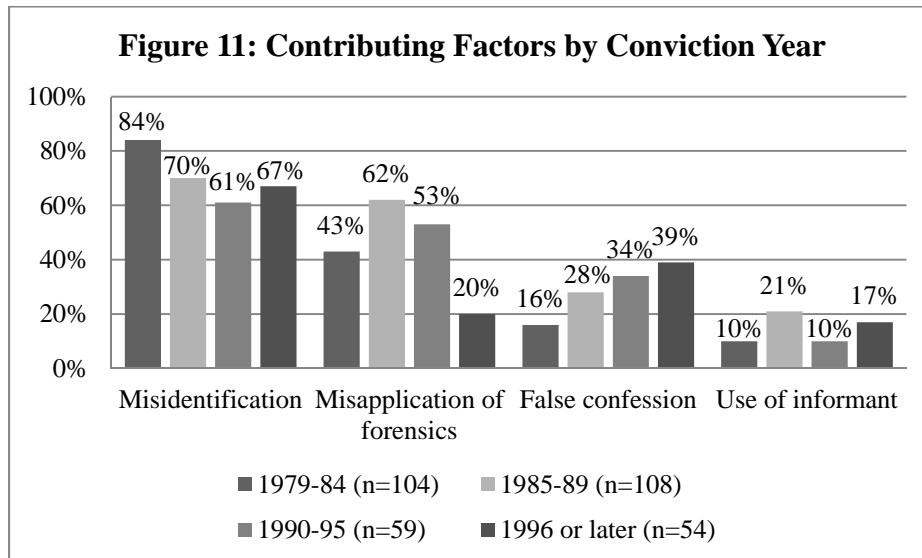
to involve misidentification, although it has always remained the most common factor (67% in convictions post 1995). This decline coincides with a decline in the number of sexual assault/non-homicide crimes in the dataset which represent 64% of all DNA exonerations, but just 39% of cases with convictions after 1995 (data not shown).

Similarly, while false confessions are involved in just over one-quarter of cases in the dataset overall, they contributed to 39% of exonerations with convictions after 1995. This increase coincides with an increase in homicide crimes in the dataset—while homicides represent approximately one-third of all DNA exonerations, they represent nearly half (46%) of DNA exonerations with convictions post 1995 (data not shown).

Finally, while about half of all DNA exonerations involved the misapplication of forensic science, this factor contributed to 20% of cases with convictions post 1995. Such a decline does not by definition suggest that the misapplication of forensic science is becoming less of an issue in modern times (certain disciplines still lack rigorous scientific standards), but rather that in cases where DNA is left behind by the perpetrator and testing is possible, more and more cases are now subjected to such testing prior to convictions.

Regular use of pre-trial DNA testing has increased since the mid-1990s, but we have learned from the exoneration cases that even when it is conducted, exculpatory DNA results are sometimes explained away (as they were in 28 cases here), or the DNA analysis and testimony were improper (eight cases).[27]

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[27] *See* discussion *infra* Section IV.B (providing more details on these issues in the Misapplication of Forensic Science section).

Figure 11: Contributing Factors by Conviction Year

Legend:
- 1979-84 (n=104)
- 1985-89 (n=108)
- 1990-95 (n=59)
- 1996 or later (n=54)

A. Eyewitness Misidentification

As mentioned earlier, eyewitness misidentification is the most common contributing factor of these wrongful convictions (72%). A case is counted as having involved a misidentification if a victim or other witness positively identified the exoneree as the perpetrator during the police investigation. Typically, these identifications occurred through police-initiated procedures, however other identification methods were counted including victims/ witnesses who identified the exoneree by name, or those who later "recognized" him/her on the street or in a store after the crime and then reported it to the police.

Over the past 40 years, there have been hundreds of studies on human perception and memory—both generally and applied to the criminal justice setting specifically. Researchers have thoroughly investigated a variety of factors that may influence the accuracy of eyewitness identification and have grouped these factors into two main categories: "estimator" and "system" variables.[28]

Estimator variables are characteristics of the witness, perpetrator or event itself—including things like duration of the witnessed event, presence of a weapon, lighting,

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[28] State v. Henderson, 27 A.3d 872, 895 (N.J. 2011).

eyewitness distance from the event, eyewitness stress level, age, alcohol intoxication, and race (e.g., other-race recognition is generally poorer than same-race recognition).[29]

In contrast, system variables are those that are—or can be—under the control of the criminal justice system, such as type of administrator (blind, blinded and non-blind), type and number of identification procedures used, lineup construction and administration and feedback to witnesses—for example, eyewitness confidence is malleable and can be altered by information received both before and after an identification procedure.[30]

Although individual studies have investigated a wide variety of research questions pertaining to these variables, when taken together, clear patterns of results emerge and inform our understanding of eyewitness identification.

Over the years, several groups have synthesized these findings into reports that continue to serve as useful resources. In 1998, a group of leading psychologists published the first white paper on eyewitness identification, *Law and Human Behavior*, in the official, peer-reviewed journal of the American Psychology-Law Society.[31] This review summarized the state of the science, provided examples of wrongful convictions and offered recommendations for best practices to avoid future miscarriages of justice.

More recently, in October 2014, the National Academy of Sciences (NAS)—a society of distinguished scholars charged with providing independent, objective advice to the nation on matters related to science and technology—released a landmark report evaluating the current state of eyewitness identification research. A committee of scientists, legal scholars, judges, prosecutors and defense attorneys reviewed research and other submissions from scholars and practitioners before publishing their conclusions and recommendations for the criminal justice system.

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[29] *Id.*

[30] *See* Donald P. Judges, *Two Cheers for the Department of Justice's Eyewitness Evidence: A Guide for Law Enforcement*, 53 ARK. L. REV. 231, 243–44 (2000); Richard A. Wise et al., *How to Analyze the Accuracy of Eyewitness Testimony in a Criminal Case*, 42 CONN. L. REV. 435, 483 (2009) ("Eyewitness confidence is highly malleable . . . ."). *See infra* Appendix F (defining the foregoing terms).

[31] Gary L. Wells et al., *Eyewitness Identification Procedures: Recommendations for Lineups and Photospreads*, 22 LAW & HUM. BEHAV. 603, 603 (1998).

As a result of what this research has shown and what these experts have recommended, we now know how to better protect memory and improve police procedures to reduce the potential for error in eyewitness identification.[32]

1. Details of Misidentification Cases

Case Characteristics. As figure 12 shows, the overwhelming majority of these misidentification cases involved crimes of sexual assaults without murders (83%) and misidentifications by victims (86%). In just over three-quarters of victim misidentification cases the victim did not know the exoneree. Conversely, more than 15% of these misidentification cases were those in which there was a confirmed prior familiarity with the exoneree.[33] This fact is important to consider, as people generally have difficulty comprehending how someone can misidentify a person with whom they are familiar. Yet it happened in at least 31 DNA exoneration cases.[34]   This phenomenon is not limited to these cases; there is social science research that investigates "unconscious transference" to explain how witnesses misidentify familiar persons.[35] Almost half of these cases involved cross-racial misidentifications (41%).[36] As mentioned earlier, research has established that people often have a more difficult time discerning facial features of people of different races than themselves, resulting in less accurate perpetrator identifications.[37]

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[32] *See generally Eyewitness Misidentification*, INNOCENCE PROJECT, http://www.innocence project.org/causes/eyewitness-misidentification (last visited Aug. 18, 2016) (listing relevant authority, as well as providing additional information about eyewitness identification).

[33] In 7% of cases the relationship status is not known/clear.

[34] *See infra* Appendix G (listing cases where victims identified someone with whom they had prior familiarity); *see infra* p. 738 (explaining the story of Raymond Towler).

[35] David F. Ross et al., *Unconscious Transference and Mistaken Identity: When a Witness Misidentifies a Familiar but Innocent Person*, 79 J. APPLIED PSYCHOL. 918, 918 (1994).

[36] In 24% of identification cases the race of one or more witnesses was unknown.

[37] *See* Meissner & Brigham, *supra* note 20, at 7–8.

Interestingly, one-third of eyewitness cases here involved multiple witnesses misidentifying the exoneree as the perpetrator. In fact, 29 cases involved three or more witness misidentifications.[38] This finding is particularly striking, as prosecutors, judges and jurors often put great weight on the fact that more than one person identified the defendant, minimizing concerns of error in their minds. However, these exoneration cases provide caution to such a conclusion. Explanations for mistaken identification by multiple eyewitnesses may include a suspect that stood out too much from the others in an array, or looked most like the perpetrator; inadvertent or direct cues offered by the police officers administering an identification procedure; multiple witnesses participating in an identification procedure at the same time and witnesses who were permitted contact with one another between procedures.

> *In Cleveland, Ohio, **Raymond Towler** became a suspect in the 1981 rape of a young girl and the assault of her cousin after police stopped Towler in the same park where the assault occurred three weeks earlier and thought he resembled the composite sketch. Subsequently, both victims chose Towler from a photo array, although it took the boy nearly 10 minutes and the girl nearly 15 minutes to identify Towler. Two other witnesses who saw the perpetrator also chose Towler's photo. Based on these identifications, Towler was wrongfully convicted and spent nearly 30 years in prison before being exonerated.*
>
> *Source: Raymond Towler was an Innocence Network client.*

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[38] *See infra* Appendix H (listing the cases involving three or more witness misidentifications).

Figure 12: Eyewitness Misidentification Case Characteristics (n=235)
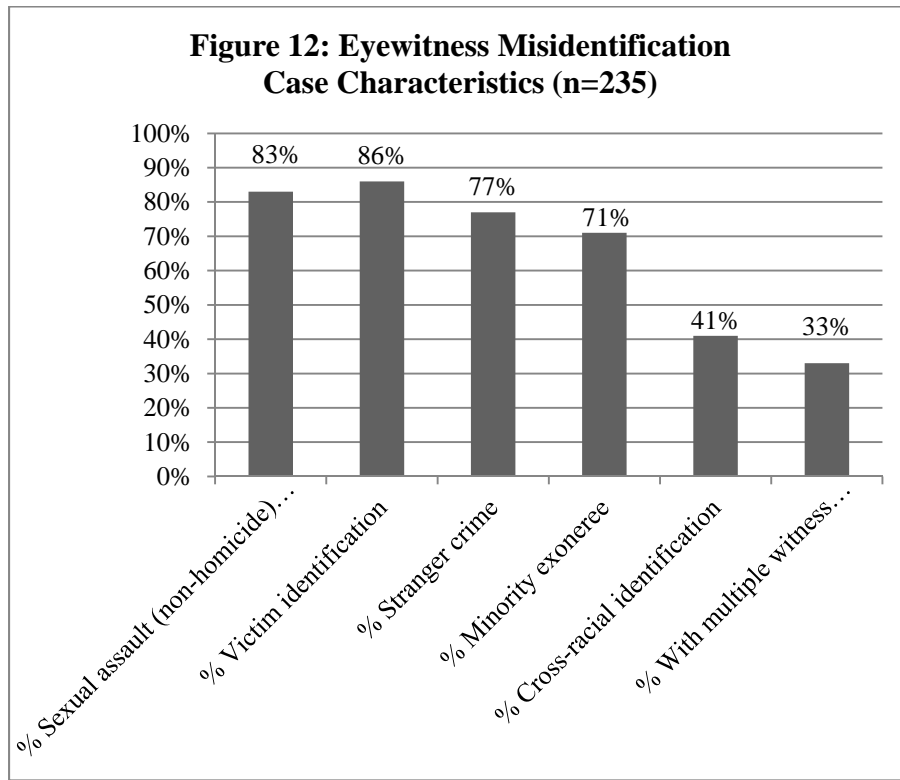
Types of Procedures. Witnesses in these cases participated in a variety of identification procedures.[39] The most frequent types of procedures administered in these misidentification cases included photo arrays: when an eyewitness views a group of photos to determine whether a culprit is among the group; in-court identifications: when a witness is asked on the stand if he/she sees the culprit in courtroom; and live lineups: when an eyewitness views a group of individuals in person to determine if the culprit is present.[40]

Other types of procedures used in these cases included show-ups: a procedure in which police present an eyewitness with a suspect—in person—shortly after the crime to determine if witness can identify him/her as the culprit; reviews of mug shot books; single photo viewing; hypnosis and voice identification.

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[39] *See infra* Figure 13.

[40] *See infra* Appendix F (explaining specific definitions of each of these procedures).

*In 1981, **Wilton Dedge** became the suspect of a rape in Florida after the victim saw a man in a store days later and told her sister that he resembled her attacker, only he was shorter. The victim's sister tentatively identified the man as someone she knew from the area named "Walter Hedge." The police arrested Wilton Dedge's brother, Walter. After seeing Walter's picture, the victim's sister told police it was Wilton, not Walter that the victim had seen at the store. Wilton Dedge's picture was placed in a photographic array and the victim identified him. He was immediately arrested and ultimately spent 22 years in prison before he was exonerated.*

Additionally, just over one-quarter of cases involved victims or witnesses developing composite sketches with the help of police and another 29% included victims or other witnesses who identified the exoneree in some other way, such as mentioning the exoneree by name or "recognizing" the exoneree as the perpetrator in the neighborhood/on the street sometime after the crime and reporting it to police.

In the overwhelming majority of these cases, victims/ witnesses made positive identifications through multiple procedures/methods (79%). As an example, in some of these cases once the police had a suspect in mind, they created a photo array for the victim or witness to view. If a positive identification of the suspect was made, subsequently, the police had the witness view a live lineup including the suspect again—often with a whole new set of fillers so that the suspect was the only one in both.

While a second positive identification in the live line-up may intuitively signal a strong witness, because the witness already became familiar with the suspect's face in the first procedure, this second identification can both create a false sense of confidence in the witness and also work to further contaminate the witness's original memory of the perpetrator.[41]

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[41] *See* Kenneth A. Deffenbacher et al., *Mugshot Exposure Effects: Retroactive Interference,*

The viewing of a second identification procedure where only the suspect is repeated is similarly problematic for a witness who did not make a positive identification in the first procedure, but then identifies the suspect in a subsequent one. Here again, the witness may now recognize the suspect from the first lineup and confuse that image with the image of the perpetrator. In fact, one-fifth of these cases involved a witness who at some point could not identify the exoneree (most non-identifications happened before a later positive identification).

Figure 13: Types of Identification Procedures Used (n=235)

Category	Percentage
Photo lineup/array	53%
Person/live lineup	36%
In-court	54%
Show up	15%
Composite	28%
Voice	12%
Other	29%
>1 Positive ID per…	79%
Non-ID	19%

Note: Categories not displayed if <10%:
mugshot viewing (7%); single photo (4%); hypnosis (2%).
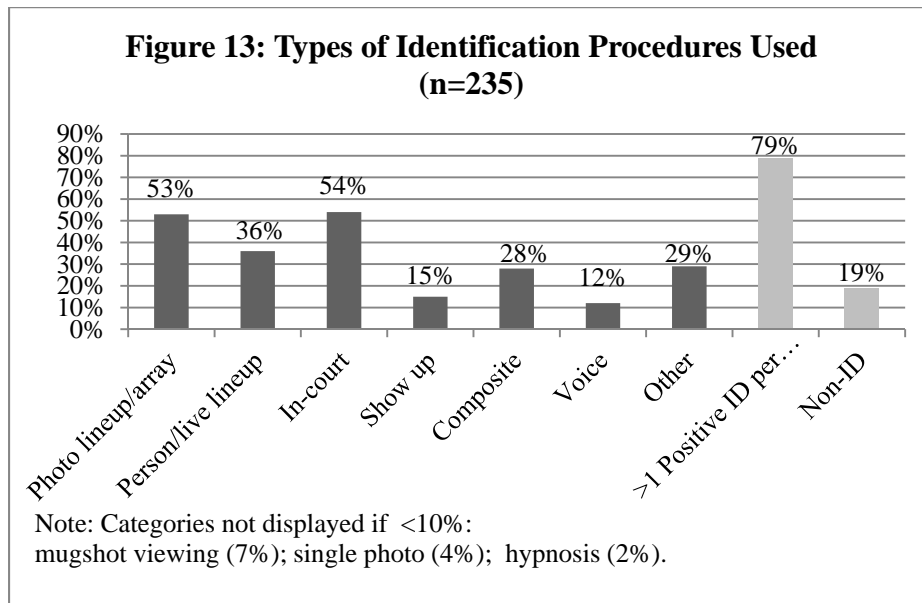
2. Other Contributing Factors Involved in Misidentification Cases

In nearly half of these cases, it was the eyewitness testimony alone (no misapplication of forensic science, false confessions or informant testimony) that contributed to the wrongful conviction.[42] However, when other factors were involved, it was most often misapplication of forensics (44%), followed by false confessions (11%) and informant testimony (7%). On average, 1.6 of the four main contributing factors played a role in these misidentification cases.

Mugshot Commitment, Source Confusion, and Unconscious Transference, 30 LAW & HUM. BEHAV. 287, 287–88 (2006).
   [42] *See infra* Figure 14.
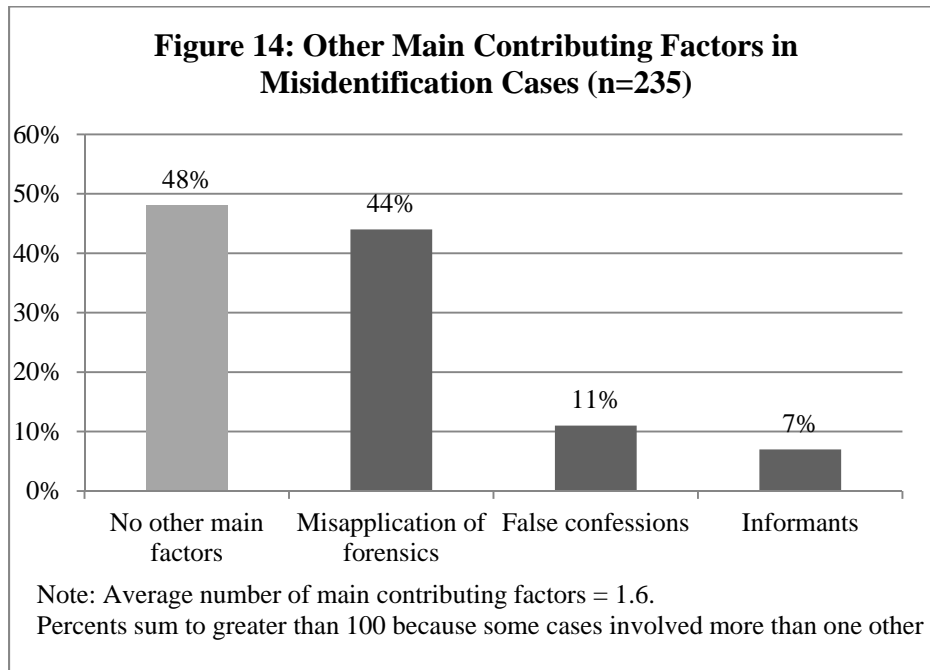
Figure 14: Other Main Contributing Factors in Misidentification Cases (n=235)

Note: Average number of main contributing factors = 1.6.
Percents sum to greater than 100 because some cases involved more than one other

3. Real Perpetrators Identified and Their Additional Crimes

The real perpetrator was identified in 39% of the 235 misidentification exonerations. Some of these real perpetrators were subsequently convicted of other violent crimes which might have been avoided had the correct perpetrator been apprehended during the original investigation. In all, these perpetrators committed 100 additional violent crimes (based on criminal convictions), including 64 sexual assaults, 17 homicides and 19 other violent crimes.

Table 2: Real Perpetrators in Misidentification Cases

	%
% of Misidentification cases (n=235) where the real Perpetrator was identified (n=92)	**39%**
	n
# of Additional violent crimes	**100**
# of sexual assaults	64
# of homicides	17
# of other violent crimes	19

B. Misapplication of Forensic Science

The misapplication of forensic science played a role in the convictions of 47% (154) of the 325 individuals exonerated by DNA nationwide, making it the second most common contributing factor. For the purposes of IP research, the misapplication of forensic science is defined as an instance in which we know that forensic evidence was used to associate, identify or implicate someone who was later conclusively proven innocent with post-conviction DNA testing, thereby demonstrating that the original forensic evidence was incorrect.[43]

In 2009, the National Academy of Sciences (NAS), a society of distinguished scientists charged with providing independent, objective advice to the nation on matters related to science and technology, released a comprehensive report, *Strengthening Forensic Science in the United States: A Path Forward*, evaluating the status of forensic science in the United States.[44] This report reviewed numerous forensic disciplines and concluded that many lacked scientific validation and acceptable standards.[45] In the report, the NAS called for strengthened oversight, research and support to ensure more reliable testing, analysis and conclusions.[46]

The DNA exonerations offer insight into the real costs of the misapplication of forensic disciplines.[47] The cases include a wide range of forensic disciplines, from those well established like DNA, to those with little or no scientific merit, such as bite mark analysis.[48] Forensic examiners "misapplied" these techniques in multiple ways, from error to overstatement to gross negligence and misconduct.[49]

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[43] We do *not* count instances in which forensic science was applied properly (e.g., early DNA testing in 1989 correctly included Christopher Ochoa as a potential donor of the biology recovered from a rape/murder, along with 16% of the population; later, as DNA testing technology became more refined, Mr. Ochoa was excluded as a possible contributor and his wrongful conviction was ultimately righted in 2002).

[44] NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 2 (2009).

[45] *See id.* at 6.

[46] *See id.* at 8.

[47] *See id.* at 42.

[48] *Id.*

[49] *See, e.g.*, *id.* at 211–12.

Types of Misapplication. In some of these cases, well validated disciplines (i.e., DNA and serology)—those the NAS report deemed "built on solid bases of theory and research"— were misapplied because of scientific error, overstatement, gross negligence, or misconduct.[50]

Other cases involved disciplines with the ability to make an association, however the probative value, the interpretation of the data, or the ability to express how common or rare the characteristics found in the pattern data are, have not yet been empirically proven.[51] In the words of the NAS, "more research is needed regarding the discriminating value" of the various characteristics of the pattern found in finger and palm prints, for instance.[52]

In other cases, a forensic technique was used to make an association despite the finding by the NAS that there is no empirical evidence demonstrating that the method can accurately and reliably make an association.[53] In their evaluation of hair comparison analysis, for example, the NAS noted that there "appear to be no uniform standards on the number of features on which hairs must agree before an examiner may declare a 'match.'"[54]

Finally, in some cases, the forensic discipline that was used was described by the NAS report as inherently weak and disputed.[55] Wrongful convictions based on evidence like this were not based on scientific evidence. In other words, there has been no research proving the technique's ability to make a reliable association or research illuminating the meaning of any possible association.[56] For example, in describing bite mark analysis, the NAS said "there is considerable dispute about the value and reliability of the collected data for interpretation" noting that there have been no scientific studies to support its use for positive identifications and no large population studies to identify common or rare characteristics.[57]

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[50] *See id.* at 100, 128.
[51] *See id.* at 38, 102, 128.
[52] *Id.* at 144.
[53] *See id.* at 38, 161.
[54] *Id.* at 160.
[55] *Id.* at 176.
[56] *See id.* at 8, 145, 176.
[57] *Id.* at 176.

1. Details of the Cases Involving Misapplication of Forensic Science

Reflecting the population of DNA exoneration cases in general, the majority of the cases involving misapplication of forensic science were sexual assaults (63%), stranger crimes (71%), involved a non-white defendant (68%) and were cross-racial in nature (51%).

Figure 15: Misapplication of Forensic Science Case Characteristics (n=154)
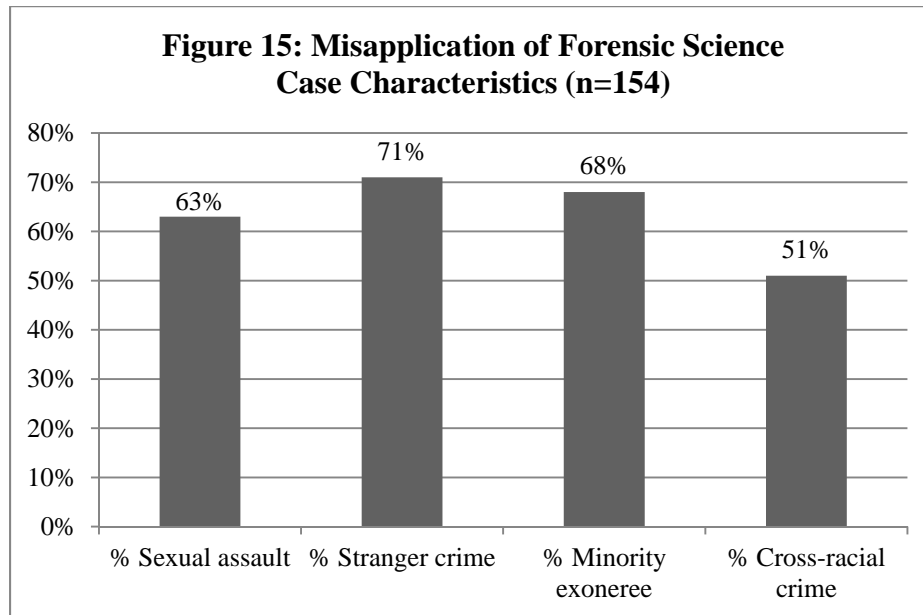
The disciplines represented in these forensic science cases included serology, hair microscopy, bite mark analysis, DNA, dog scent, and fingerprints.[58]   A few other—less common types—of forensic evidence were found among these cases as well (e.g., fiber, shoe print, voice comparison).   Thirty-seven cases involved the misapplication of forensic science in more than one discipline (thirty-five cases involved two different disciplines, and two additional cases involved three different disciplines).

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[58] *See infra* Figure 16.

**Figure 16: Misapplication of Forensic Science:
Number of Cases by Discipline
(n=154 (47%) of 325 DNA exonerations)**
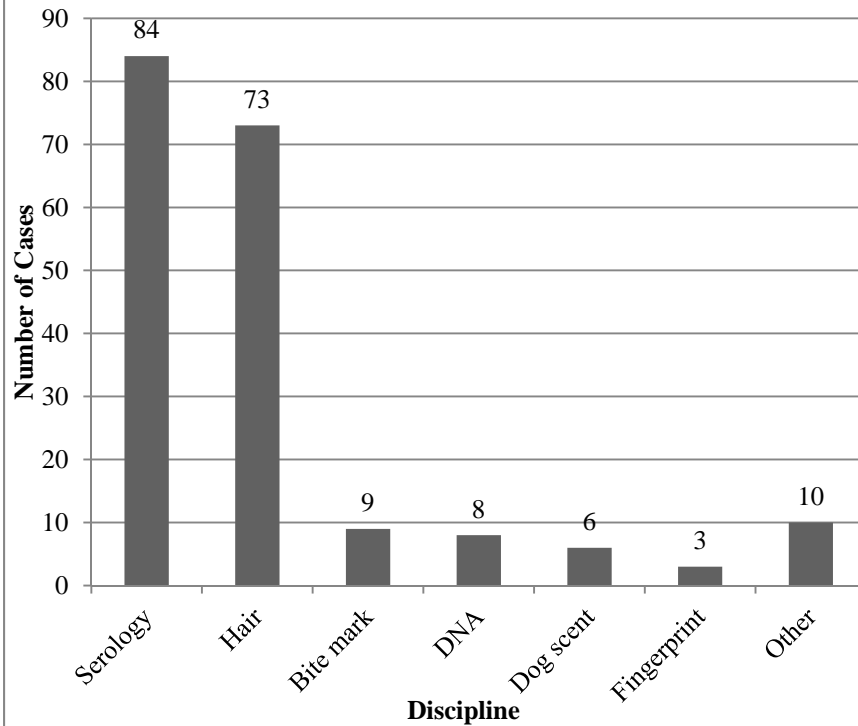
Note: Numbers sum to greater than the total of 154 cases because some cases involved misapplication of forensic science in more than one discipline.

Disciplines.   Serology: The discipline that appeared most frequently among the 154 misapplication of forensic science cases was serology (55%).   Serology, or the study of bodily fluids,[59] was often used to include or exclude suspects in criminal cases before DNA testing became widely available. Conventional serology involves determining an individual's blood type (A, B, AB or O) by identifying the antigens present in a blood sample.   Notably, most people secrete their blood type antigens into other bodily fluids, so their type can be detected not only in their blood, but also in semen, saliva, or vaginal fluid.   Despite the fact that this science is valid and reliable, and the significance of results is based on clear, relevant population data, analysts in many of these cases improperly interpreted the results, often exaggerating their conclusions to tie the exoneree to the crime.

__James Bain__ served thirty-five years—the longest of any DNA exoneree to date—for a 1974 rape in Florida that he did not commit. James Bain is an AB secretor, meaning his blood type is AB and antigens indicating this are secreted and detectable in his bodily fluids. A forensic analyst in his case testified that semen found on the victim's underwear came from a person with type B blood. Three separate stains were tested, all with the same result. Despite this, the analyst testified that he could not exclude Bain, hypothesizing that perhaps Bain was only a weak A secretor. A defense expert testified that Bain's blood group was AB with a strong A factor, undermining this hypothesis. Nevertheless, James Bain was convicted and waited until 2009 to be vindicated.

See BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG app. at 3 (2011); *James Bain,* INNOCENCE PROJECT, http://www.innocenceproject.org/cases/james-bain (last visited Aug. 21, 2016).

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[59]   *See* NAT'L INST. OF JUSTICE, DNA FOR THE DEFENSE BAR 8 (2012) ("The term serology is used by many forensic laboratories to refer to the initial examination of items of evidence to test for the presence of biological materials . . . .   Serologic testing can be used to indicate or identify the presence of a particular body fluid—such as blood, saliva, semen or urine—in the investigation of a crime.").

Hair Microscopy: The next most common discipline present in these 154 cases was hair microscopy (47%). The practice of hair microscopy involves the examination of hairs (generally human-head, pubic and body hairs) under a microscope.[60] In this way, forensic analysts identify notable features and characteristics of the hairs in question. Forensic hair analysts also compare unidentified and identified hairs side by side (e.g., a questioned hair from a crime scene and a reference hair sample from a suspect) in an attempt to determine whether or not the two specimens are sufficiently similar. However, researchers have yet to establish a standard number of features necessary to declare two hairs a match, have yet to establish an error rate, and have yet to compile relevant

> *The "**Ford Heights Four**" DNA exoneration case illustrates the limitations of hair analysis testimony. In this case, four Illinois men—Kenneth Adams, Verneal Jimerson, Willie Rainge and Dennis Williams—and one woman, Paula Gray, were accused of a rape and double-murder. At trial, a forensic scientist testified about hair evidence. Specifically, this analyst compared a known hair from one of the victims to hairs recovered from Dennis Williams' car and stated that the hairs looked "[j]ust like if you dropped two dollar bills and you see two dollar bills on the floor. You see two one dollar bills. It's obvious." Fortunately, all of the defendants were eventually exonerated, some after serving time on death row.*
>
> *See* People v. Rainge, 445 N.E.2d 535, 540 (Ill. App. Ct. 1983); Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 56 (2009); *Kenneth Adams*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/kenneth-adams (last visited Aug. 21, 2016); *Paula Gray*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/paula-gray (last visited Aug. 21, 2016).
>
> For a complete list of the DNA exonerees who served time on death row, see *infra* App. I.

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[60] *See* COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., NAT'L RESEARCH COUNCIL, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 156, 157 (2009) (explaining that the process of hair microscopy includes placing hairs from different parts of the body on microscopic slides); NAT'L INST. OF JUSTICE, *supra* note 59, at 152.

population data to make it possible to state the probative value of an association. Since it is not known how many people in a particular population share various hair characteristics, the most an analyst can say is that hairs from the crime scene were similar to or consistent with those of the defendant. Yet numerous analysts went beyond this set boundary, using terms such as "match" or "identical" or providing made up population statistics.[61]

  Bite Mark Analysis: The NAS found that bite mark analysis is among the most controversial of the forensic disciplines. Bite mark analysis is part of the field of forensic odontology, or the application of dentistry to the legal context.[62] Bite mark identification and comparison involves the interpretation of suspicious lacerations, abrasions and bruises on decomposing skin and is based on several assumptions. The first assumption is that a properly trained forensic dentist can determine whether or not an injury to a person's skin is, in fact, a bite mark. The next is that the dentist can determine whether or not the bite mark and a suspect's dentition (i.e., the biting surface of the teeth) match. Finally, when an association is made, there is a presumption that a forensic dentist can provide a scientifically valid estimate of the rareness or frequency of that association. None of these hypotheses have ever been scientifically validated, however. According to the NAS report, "[s]ome of the key areas of dispute include the accuracy of human skin as a reliable registration material for bite marks, the uniqueness of human dentition, the techniques used for analysis, and the role of examiner bias."[63]

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[61] *See* COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 60, at 160, 161. Further support for the need for more oversight, standards, and research in hair analysis and testimony came in 2015 when the FBI released the preliminary results of an audit of cases in which their examiners provided hair testimony and found that at least 90% of the cases contained erroneous statements. For the FBI's full press release, see *FBI Testimony on Microscopic Hair Analysis Contained Errors in at Least 90 Percent of Cases in Ongoing Review*, FBI (April 20, 2015), https://www.fbi.gov/news/pressrel/press-releases/fbi-testimony-on-microscopic-hair-analysis-contained-errors-in-at-least-90-percent-of-cases-in-ongoing-review.

[62] *See* COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 60 at 173.

[63] *Id.* at 176.

The report went on to conclude that "[a]lthough the majority of forensic odontologists are satisfied that bite marks can demonstrate sufficient detail for positive identification, no scientific studies support this assessment."[64]

Indeed there has been some research conducted since the publication of the NAS report in 2009, and these studies continue to suggest that bite marks cannot be used to make an association.[65] Bite mark analysis appeared less frequently in these cases, but was still seen in nine cases (or 6% of this sample of 154).

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[64] *Id.*

[65] *See, e.g.*, Mary A. Bush et al., *Statistical Evidence for the Similarity of the Human Dentition*, 56 J. FORENSIC SCI. 118, 118, 122 (2011); Mark Page et al., *Expert Interpretation of Bitemark Injuries—A Qualitative Study*, 58 J. FORENSIC SCI. 664, 664, 671 (2013).

Kennedy Brewer had been babysitting his girlfriend's young daughter Christine on the night she disappeared from her home in Mississippi in 1992. When Christine's body was discovered in a creek two days later, Brewer was suspected of her rape and murder. The medical examiner who conducted the autopsy noticed marks on the child's body that he believed were bite marks. A forensic odontologist was then consulted and ultimately testified that "[w]ithin reasonable medical certainty, the teeth of Kenneth—uh, Mr. Kennedy Brewer inflicted the patterns described on the body" of the victim. Brewer was convicted and sentenced to death. Years later, post-conviction DNA testing on semen recovered from the victim's body excluded Brewer and identified the true perpetrator, Justin Albert Johnson. Johnson had been living in the area at the time of the crime and was actually an initial suspect. After he was identified by DNA, he confessed to Christine's rape and murder and to a similar crime that took place two years earlier. Both crimes were abduction rape-murders of three-year-old girls in the same town, both victims' bodies were found in water (a creek and a pond), and both cases involved testimony linking bite marks on the victims to the suspects on trial. In this other case, the victim's mother's ex-boyfriend, a man named **Levon Brooks**, was wrongfully convicted. Although there was no DNA available to test in his case, the strikingly similar modus operandi and the true perpetrator's confession (and assurance that he committed both crimes alone) were enough to exonerate Brooks as well.

See BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG app. at 6 (2011).

DNA: DNA testing is the only forensic discipline that has been recognized as a scientifically valid and reliable method of differentiating individuals.[66] As the authors of the NAS report explain, "[w]ith the exception of nuclear DNA analysis . . . no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source."[67] Although many of the wrongful convictions in this dataset occurred before the era of regular pre-trial DNA testing, some did involve DNA testing and in eight (or 5% of this sample of 154) cases, the DNA analysis or testimony was incorrect.

These cases remind us that even the most scientifically sound forensic disciplines are only as good as the humans analyzing and reporting on the evidence.

> *In **Steven Barnes**' case, soil from Barnes' truck was deemed similar to soil at the scene of a 1989 rape/murder in upstate New York, and a fabric impression taken from dirt on Barnes' truck was deemed similar to the pattern of the victim's jeans. Several people told police that they had seen the victim walking along a busy street between 5:30 p.m. and 6 p.m. Others said they saw Barnes' distinctive truck on that road around the same time. He became a suspect based on these statements. After serving more than two decades in prison, DNA testing exonerated Barnes.*
>
> *Source: Steven Barnes was an IP client.*

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[66] *See* COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 60, at 130. For a detailed description of the science of DNA typing, see NAT'L INST. OF JUSTICE, *supra* note 59, at 4, 5–8, 12.

[67] COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 60, at 7.

Notably, there are also examples of cases in which pre-trial DNA testing *properly excluded* the accused, yet they were convicted anyway. In fact, twenty-eight DNA exoneration cases involved proper DNA exclusions prior to wrongful conviction.[68] Twenty-one of these included a confession and/or testimony from an informant who claimed that the defendant confessed. Clearly, confessions are extremely difficult to challenge, even in the face of powerful scientific evidence of innocence.[69] These twenty-eight people were ultimately proven innocent when additional post-conviction DNA testing was conducted or when the true perpetrator was identified through a database hit to the existing DNA profile.

Dwayne Jackson *was charged with a 2001 kidnapping, burglary and robbery in Nevada after he provided a DNA sample and it was matched to DNA recovered from the perpetrator's discarded clothing. Facing a life sentence if convicted at trial, Jackson entered a guilty plea in exchange for a shorter sentence. As it turned out, however, there had been a mistake: Jackson's DNA sample had accidentally been switched with that of the real perpetrator's (his cousin). Later, when Jackson's cousin's DNA was entered into the FBI's Combined DNA Index System (CODIS) for unrelated charges, the error was discovered. Dwayne Jackson was exonerated in 2011.*

Source: James R. Acker, *The Flipside Injustice of Wrongful Convictions: When the Guilty Go Free*, 76 ALB. L. REV. 1629, 1654–55 (2013); Maurice Possley, *Dwayne Jackson*, NAT'L REGISTRY OF EXONERATIONS, https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3 821 (last visited Mar. 15, 2016).

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[68] For a complete list of these cases, see Appendix J (showing twenty-eight DNA exoneration cases that involved DNA exclusions at the time of trial, which still resulted in wrongful convictions).

[69] *See infra* Section IV.C.

Dog Scent: Dogs' acute sense of smell has been used to the advantage of the military and the police who have trained them to "alert" (i.e., signal to their handlers) in the presence of bombs, drugs, or the scent of a missing person or wanted suspect.[70] Although a dog's sense of smell is undisputedly superior to a human's, this application has never been

> *When police responded to a 2005 carjacking in California, they thought that the victims' descriptions of the perpetrator sounded like* **James Ochoa***. Earlier that night, Ochoa was sitting with a couple friends outside of his house, which was a few blocks from the crime. The responding officer had approached them and searched them, but found nothing illegal. A bloodhound dog was brought in and over the course of an hour, followed the scent from a swab from the perpetrator's hat (which had been found in the recovered stolen car) to Ochoa's front door. After Ochoa pleaded guilty, a routine run of a DNA profile from the crime scene evidence through CODIS produced a match to a different man who was in custody for a different carjacking and who subsequently confessed to this crime, exonerating James Ochoa in 2006.*
>
> *Source*: Maurice Possley, *James Ochoa*, NAT'L REGISTRY OF EXONERATIONS, https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid =3512 (last updated Feb. 18, 2014); *see generally* Ochoa v. Buena Park, No. SACV 07-00443-JVS (MLGx), 2008 WL 2003761, at *14 (C.D. Cal. Apr. 8, 2008) (granting in part and denying in part Defendant-City Buena Park's motion for summary judgment in opposition to numerous claims brought by Plaintiff Ochoa after his release from custody); R. Scott Moxley*, Oops*, OC WKLY. (Oct. 26, 2006, 3:01 PM), http://www.ocweekly.com/2006-10-26/news/oops/ (providing press coverage of Ochoa's experience in and release from prison).

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[70] *See* Irus Braverman, *Passing the Sniff Test: Police Dogs as Surveillance Technology*, 61 BUFF. L. REV. 81, 105, 163, 164 (2013); Leslie A. Lunney, *Has the Fourth Amendment Gone to Dogs?: Unreasonable Expansion of Canine Sniff Doctrine to Include Sniffs of the Home*, 88 OR. L. REV. 829, 834 & n.14, 881 (2009).

scientifically validated. For example, there are no rigorous scientific studies to tell us how often dogs accurately detect a scent versus how often they get it wrong. Six cases (or 4% of this sample of 154) involved dog scent evidence.

Fingerprints: The science of fingerprint analysis involves examination of fingerprints for notable features or "minutiae," and sometimes the comparison of unidentified prints to known prints (e.g., a latent print from a crime scene to a suspect's reference print).[71] Three cases (or 2% of this sample of 154) involved problematic fingerprint evidence.

*In 1996 a man was brutally stabbed in Rochester, New York, and a latent print was found on the murder weapon. When **Doug Warney** was put on trial for this crime, an analyst initially testified that the print was of insufficient quality for comparison, but went on to say that the print showed a particular pattern that enabled him to exclude the victim and another suspect but that he could not exclude Warney, whose fingerprint showed that pattern. However, a post-conviction investigation by an independent expert concluded that Warney should have been excluded and that the analyst had tried to "bolster the value of the fingerprint evidence in the eyes of the jury."*

Source: Doug Warney was an IP client.

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[71] *See* Jennifer L. Mnookin, *The Courts, the NAS, and the Future of Forensic Science*, 75 BROOK. L. REV. 1209, 1217–18 (2010).

Other Forensic Disciplines: The following types of evidence were also involved in the 154 misapplication of forensic science cases: shoe print (n=2), polygraph results improperly admitted at trial (n=2), dog hair (n=1), fiber (n=1), geology and metallurgy (n=1 (i.e., one case with both)), rubber/foam (n=1), soil and tire print (n=1 (i.e., one case with both)) and voice comparison (n=1). Additional forensic disciplines that have recently come under increased scrutiny (e.g., fire investigation/arson, Shaken Baby Syndrome) are not represented among the population of DNA exonerees because, as described earlier, the DNA exoneration cases are not a random sample of all wrongful convictions; instead they represent a small subset in which biological evidence is available to test and prove innocence.[72]

Finally, while these instances appear to be the exception rather than the rule, there were also examples of scientific misconduct among the DNA exoneration cases. Post-conviction DNA exonerations and other independent investigations have uncovered patterns of scientific misconduct by a few now-notorious forensic analysts.[73] These analysts were ultimately exposed, moved to administrative positions or were fired, but unfortunately only after they each touched the lives of multiple criminal defendants by concealing and/or misrepresenting scientific evidence (e.g., contradicting laboratory notes in sworn testimony). Since there is no way to know with certainty whether or not there was scientific misconduct in a case (e.g., it may have been present in a case, but simply never discovered), we cannot offer an estimate of the scope of this problem, but there are certainly illustrative examples like the case of DNA exoneree Gene Bibbins.[74]

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[72] Since the publication of the NAS report, new research has been initiated to address these areas of concern in forensic science and various groups have been convened to review the latest research. *See Center for Statistics and Applications in Forensic Evidence*, NAT'L INST. OF STANDARDS & TECH., http://www.nist.gov/coe/forensics/ (last visited Mar. 15, 2016); *Forensic Science Assessments: A Quality and Gap Analysis*, AM. ASS'N FOR THE ADVANCEMENT OF SCIENCE, http://www.aaas.org/page/forensic-science-assessments-quality-and-gap-analysis (last visited Mar. 15, 2016).

[73] *See, e.g.*, Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 79 n.255, 80–81 (2009); Paul C. Giannelli, *Departments, Scientific Evidence: Bench Notes and Lab Reports*, 22 CRIM. JUST. 50, 50 (2007).

[74] *See infra* p. 755 (explaining the story of Gene Bibbins).

Gene Bibbins' wrongful conviction rested, in part, on testimony from a forensic analyst who claimed that latent fingerprints found at the crime scene were "'unidentifiable'" and that she had double-checked this conclusion with the state crime laboratory and they had reached the same conclusion. This was false. In fact, Bibbins was excluded as the source of the prints and this was documented by a state crime laboratory report.

Source: Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions,* 95 Vᴀ. L. Rᴇᴠ. 1, 78 (2009).

2. Other Contributing Factors Involved in Misapplication of Forensic Science Cases

In the overwhelming majority of the misapplication of forensics cases, there was at least one other main contributing factor involved. Most frequently, eyewitness misidentification was also a factor (67%), followed by false confessions (27%) and informants (19%). On average, there were 2.1 of the four main contributing factors involved in these forensic cases.
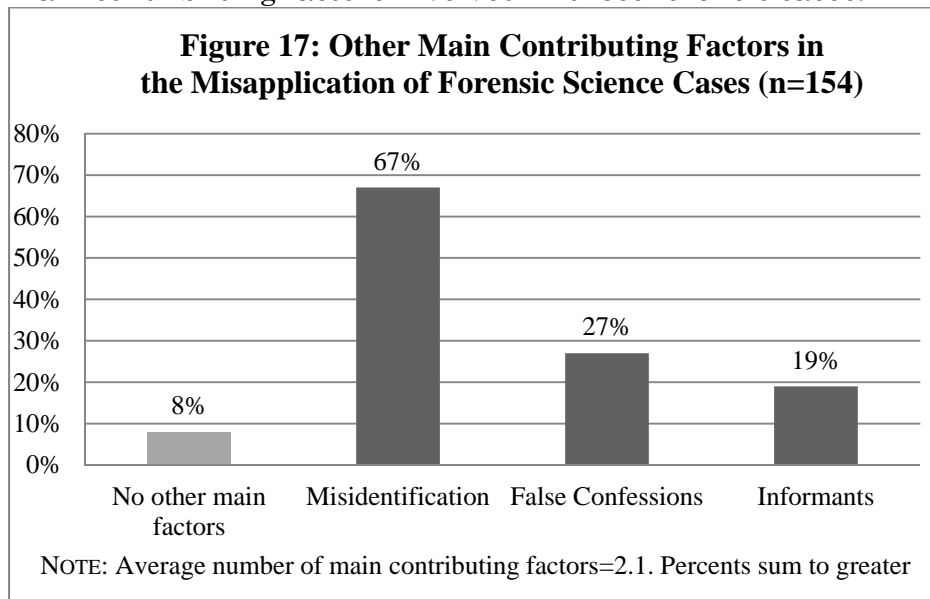
Figure 17: Other Main Contributing Factors in the Misapplication of Forensic Science Cases (n=154)

Nᴏᴛᴇ: Average number of main contributing factors=2.1. Percents sum to greater

3. Real Perpetrators Identified and Their Additional Crimes

The real perpetrator was identified in 46% of cases involving the misapplication of forensic science. Some of these real perpetrators were subsequently convicted of other violent crimes which might have been avoided had the correct perpetrator been apprehended during the original investigation. In all, these perpetrators committed 58 additional violent crimes (based on criminal convictions), including 33 sexual assaults, 13 homicides and 12 other violent crimes.

Table 3: Real Perpetrators in Cases Involving the Misapplication of Forensic Science

	%
% of Cases involving the Misapplication of Forensic Science (n=154) where the Real Perpetrator was Identified (n=71)	46%
	n
# of Additional Violent Crimes	58
# of sexual assaults	33
# of homicides	13
# of other violent crimes	12

C. False Confessions

False confessions seem unimaginable to most people. Common sense tells us that no one would admit to a crime—especially a violent rape or murder—that they did not commit. However, more than one-quarter of DNA exonerations involved false confessions.

For the purposes of IP research, a false confession is defined as a statement admitting to some aspect of participation in a crime—including just being present—to a state actor.[75] The statement must have been undisputed (i.e., there is a signed/recorded statement and/or the defendant acknowledges *making* the statement, though claims it was false), or if the

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[75] Alleged confessions to informants who are not state officials are not counted as part of the false confession data here. Such cases are captured in our informant count, presented in the next section.

statement is disputed (i.e. the defendant says he/she never *made* false statements and there is no signed/recorded statement) it must have been used as evidence at trial to count as a confession.

The DNA exoneration cases present a spectrum of false statements about participation in crimes ranging from a simple, "I did it," to a fully detailed description. Some exonerees made hypothetical statements (e.g., when investigators presented Anthony Michael Green with a crime scenario, he responded "I could have said that"[76]) or "dream statements" (e.g., Steven Linscott reported that he had a dream of a woman being murdered and the dream contained many similarities to the crime in question[77]) which authorities interpreted as confessions and used against them. Consequently, these statements are also included in the following analyses. Scholarly research has shed light on the ways in which certain interrogation tactics and personal risk factors can lead an innocent person to confess. Contrary to popular belief, interrogations are not information-gathering procedures, but rather guilt-presumptive processes.[78] For example, the most widely used technique in modern police investigation is the Reid Technique.[79] Initially developed in the 1940s to replace the physically violent interrogation tactics of the 1930s, the Reid Technique focuses instead on psychological pressure.[80]

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[76] Transcript of Record at 120, 123, State v. Green (Ct. of Com. Pl. 1988) (No. 228250). For background information on the Green decision see State v. Green, 585 N.E.2d 990, 991 (Ohio Ct. App. 1990); *Michael Green: 13 Years in Prison: Innocent*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/michael-green (last visited Aug. 22, 2016).

[77] *Steven Linscott: 10 Years in Prison: Innocent*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/steven-linscott (last visited Aug. 22, 2016).

[78] *See* Keith A. Findley & Michael S. Scott, *The Multiple Dimensions of Tunnel Vision in Criminal Cases*, 2006 WIS. L. REV. 291, 334; Saul M. Kassin, *On the Psychology of Confessions: Does Innocence Put Innocents at Risk?*, 60 AM. PSYCHOLOGIST 215, 219 (2005).

[79] *Company Information*, JOHN E. REID & ASSOC., INC., https://www.reid.com/r_about.html (last visited Mar. 15, 2016).

[80] *Critics Corner: The Reid Technique*, JOHN E. REID & ASSOC., INC., www.reid.com/educational_info/critictechnique.html. (last visited Mar. 15, 2016). The Reid Technique involves a three-step process: a factual analysis stage in which investigators develop leads and possible suspects, a non-accusatory interview stage in which investigators remain neutral and gather information, and—if the interviewer is "reasonably certain of a suspect's guilt"—an accusatory interrogation stage in which the investigator actively persuades the suspect to tell the truth. FRED E. INBAU ET AL., ESSENTIALS OF THE REID TECHNIQUE: CRIMINAL INTERROGATIONS AND CONFESSIONS 4, 5, 10 (2d ed. 2015); Brandon L. Garrett, *The Substance of False Confessions*, 62 STAN. L. REV. 1051, 1097 (2010); *Critics Corner: The Reid Technique, supra* note 80.

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During interrogation, investigators may manipulate suspects by isolating them from outside support, lying about supposedly incriminating evidence that does not actually exist, encouraging confession by minimizing the moral seriousness of the offense and repeatedly rejecting proclamations of innocence. Additionally, because there is no legal time limit on interrogations, these sessions can last for hours.[81]

Together, these elements can create an environment from which suspects see confession as the only means of escape. In fact, several exonerees who confessed falsely have reported that they thought they would be allowed to go home after they finally "confessed" (e.g., Kharey Wise, one of boys wrongfully convicted in the infamous "Central Park jogger" case[82]).

Furthermore, certain populations of people (e.g., adolescents, those with mental health issues or impaired mental capacity, innocent people who mistakenly believe in the transparency of their innocence) appear to be especially vulnerable during interrogation.[83] After considering these factors, it becomes easier to understand how someone could be influenced to do something as counterintuitive as falsely confessing.

Finally, when innocent people have falsely confessed in laboratory studies, they have explained that they wished to escape the unpleasant situation in that moment and believed that their innocence would come to light later.[84] Of course, exoneration cases have shown that in the real world, once a confession is obtained, the investigation into evidence of innocence tends to stop.[85]

Such a phenomenon is often referred to as confirmation bias, or tunnel vision. It refers to the natural tendency for people to seek out and interpret evidence that confirms their

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[81] *See* Steven A. Drizin & Richard A. Leo, *The Problem of False Confessions in the Post-DNA World*, 82 N.C. L. REV. 891, 948 (2004); Barry C. Feld, *Criminology: Police Interrogation of Juveniles: An Empirical Study of Policy and Practice*, 97 J. CRIM. L. & CRIMINOLOGY 219, 307–08 (2006); Brandon L. Garrett, *Contaminated Confessions Revisited*, 101 VA. L. REV. 395, 402 (2015).

[82] Drizin & Leo, *supra* note 81, at 896–97, 897 n.18.

[83] *See* Kassin, *supra* note 78, at 218; Saul M. Kassin et al., *Police-Induced Confessions: Risk Factors and Recommendations*, 34 LAW & HUM. BEHAV. 3, 5 (2010).

[84] *See* Jennifer T. Perillo & Saul M. Kassin, *Inside Interrogation: The Lie, the Bluff, and False Confessions*, 35 LAW & HUM. BEHAV. 327, 328, 332 (2010).

[85] *See* Richard A. Leo & Deborah Davis, *From False Confession to Wrongful Conviction: Seven Psychological Processes*, 38 J. PSYCHIATRY & L. 9, 37 (2010).

already-held beliefs/hypotheses. As Professors Keith Findley and Michael Scott explain: "While biases thus affect the acquisition and interpretation of information, and thereby impede rational or logical adjustments of hypotheses or conclusions to reflect new information, natural tendencies also make people resistant to change even in the face of new evidence that wholly undermines their initial hypotheses."[86]

While not unique to exonerations involving false confession, tunnel vision is particularly salient in these cases. For example, in Frank Sterling's case, after a lengthy interrogation, Sterling confessed to killing an elderly neighbor.[87] This confession was perceived as such strong evidence of guilt that other exculpatory evidence was ignored, including an airtight alibi and an early alternate suspect— someone named Mark Christie.[88] These facts did not persuade police, prosecutors, the judge or jury of Frank's innocence and he was convicted, spending 18 years in prison before DNA testing proved his innocence and implicated the alternate suspect, Christie, who was also convicted of killing a young girl subsequent to the murder of the elderly woman.[89]

1. Details of False Confession Cases

As shown in figure 18, over a quarter (27%) of the 325 DNA exoneration cases involved false confessions—either by the exoneree him or herself, or by a co-defendant. Sixty-nine exonerees falsely confessed. In 29 of those cases, the exoneree's co-defendant(s) also falsely confessed. Another 19 exonerees did not confess themselves, but were implicated through false confessions made by co-defendants.

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[86] Findley & Scott, *supra* note 78, at 314.
[87] James R. Acker, *The Flipside Injustice of Wrongful Convictions: When the Guilty Go Free*, 76 ALB. L. REV. 1629, 1636, 1637 (2013).
[88] *Id.* at 1637–38.
[89] *Id.* at 1638, 1639.

Figure 18: False Confessions (n=88)
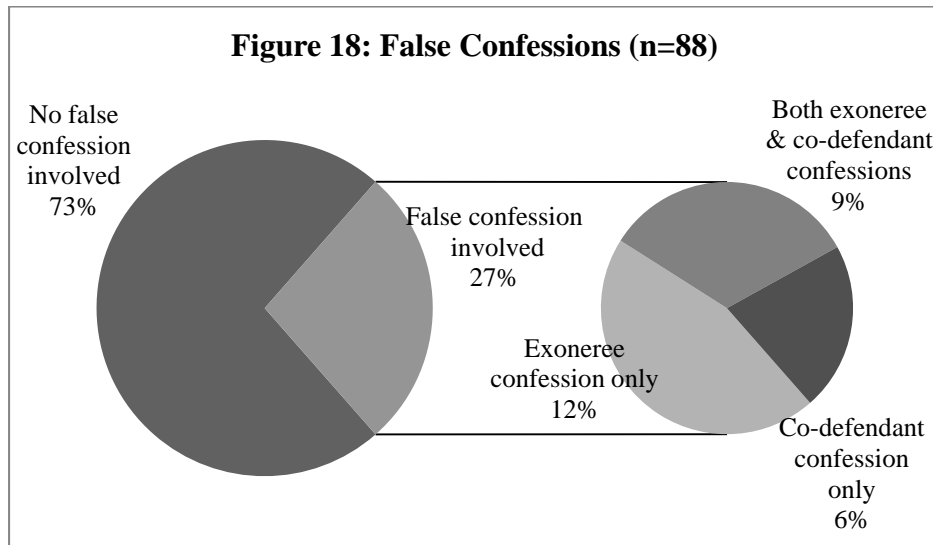
Case Characteristics. As shown in figure 19, while approximately one-third of all DNA exoneration cases involved homicides, 78% of these false confession cases were homicides (68% homicide & sex assault; 10% homicide alone). The victim and the exoneree were slightly less likely to be strangers in these confession cases, though stranger crimes were still the majority (60% in false confession cases; 71% among all DNA exonerations). Similar to the overall pattern in these DNA exonerations, the majority of exonerees in false confession cases were black or Hispanic (68%), and just under half involved a cross-race crime (43%).

Additionally, 56% of these exonerations involving false confessions were part of "group exoneration" cases in which multiple people were wrongfully convicted and ultimately exonerated of the same crime. With just 20% of all DNA exoneration cases involving group exonerations, this over-representation highlights the pressures placed on defendants when police round up multiple suspects and pit them against one another to obtain incriminating statements. In fact, in nearly half of these group exoneration cases involving false confessions, three or more co-defendants falsely confessed.[90]

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[90] *See, e.g., Jonathan Barr*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/ jonathan-barr (last visited Aug. 22, 2016); *Kevin Richardson*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/kevin-richardson (last visited Aug. 22, 2016); *Michael Saunders*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/michael-saunders

Finally, these false confession cases were more likely than overall to involve defendants under the age of 18 (11% overall; 30% in confession cases) and crimes involving children or seniors (29% overall; 43% in confession cases). As mentioned earlier, young people are more susceptible to falsely confessing and cases involving especially vulnerable victims often influence the way police investigate a case, due to both internal and outside pressures.[91]

Figure 19: False Confessions Case Characteristics (n=88)

A bar chart showing percentages for various case characteristics:
- % Homicide crimes: 78%
- % Stranger crimes: 60%
- % Minority exoneree: 68%
- % Cross-racial crime: 43%
- % With co-exonerees in case: 56%
- % Exoneree under 18: 30%
- % With child/senior victim: 43%
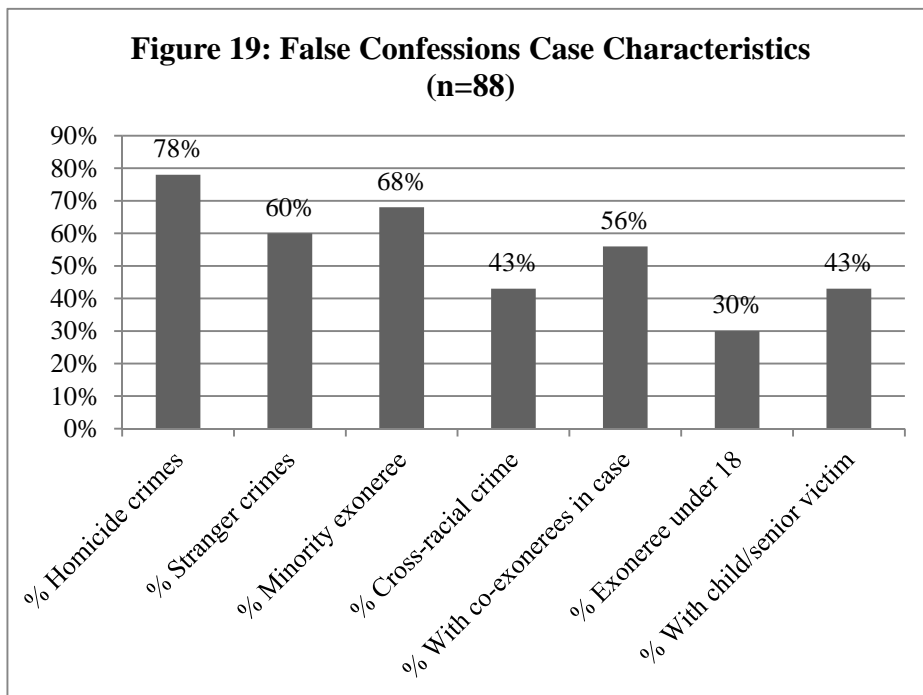
Details of the Interrogations. Since interrogations were not routinely recorded in the 1980s or 1990s (the decades in which the majority of the DNA exoneration crimes took place), we have limited systematic information about the actual interrogation techniques that were used in these cases. Anecdotally however, there are plenty of examples of cases in which exonerees were subjected to coercive interrogation strategies and ultimately falsely confessed: John Kogut was

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(last visited Aug. 22, 2016); *Thomas Winslow*, INNOCENCE PROJECT, http://www.innocence project.org/cases/thomas-winslow (last visited Aug. 22, 2016).

[91] *See supra* notes 78–83 and accompanying text.

interrogated for over 15 hours before he confessed; Anthony Gray was given false information about being implicated by co-defendants; and Ronald Jones was physically beaten.[92]

Furthermore, Virginia School of Law Professor Brandon Garrett recently conducted an in-depth study of 66 false confessions among the DNA exonerations and discovered some information about interrogation techniques in the process.[93] According to Garrett, 92% of the false confessions came after interrogations that lasted longer than three hours.[94] He also found that 94% of the confessions were contaminated with "inside information" (i.e., details about the crime that only the true perpetrator would know).[95] Inside information makes a confession appear particularly credible and serves as an antidote to questions about the veracity of the statement. Of course, since all of these confessors have been proven actually innocent with DNA testing, the presence of inside information in their confessions suggests that investigators inadvertently or intentionally communicated confidential crime facts to the suspects during the interrogations (which they ultimately incorporated into their false confessions).

2. Other Contributing Factors Involved in False Confession Cases

In nearly one-third (31%) of these cases, it was the false confession alone (i.e., no eyewitness misidentification, the misapplication of forensics or informants) that contributed to the wrongful conviction.[96] When other factors were involved, it was most often the misapplication of forensics (69%) that also contributed to the wrongful conviction, followed by the use of informants (61%) and eyewitness misidentification (43%).

Of particular interest here is the percentage involving use of informants: while just 15% of all DNA exonerations involved this factor, it was present in well over half of confession cases.

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[92] *See Anthony Gray*, INNOCENCEPROJECT.ORG, http://www.innocenceproject.org/cases/anthony-gray (last visited Aug. 22, 2016); *Ronald Jones*, INNOCENCEPROJECT.ORG, http://www.innocenceproject.org/cases/ronald-jones (last visited Aug. 22, 2016); *John Kogut*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases/john-kogut (last visited Aug. 22, 2016).

[93] *See* Garrett, *supra* note 81, at 396, 397 (examining sixty-six exonerees who had previously falsely confessed to crimes for which they served time).

[94] *Id.* at 404 fig.I.

[95] *Id.*

[96] *See infra* Figure 20.
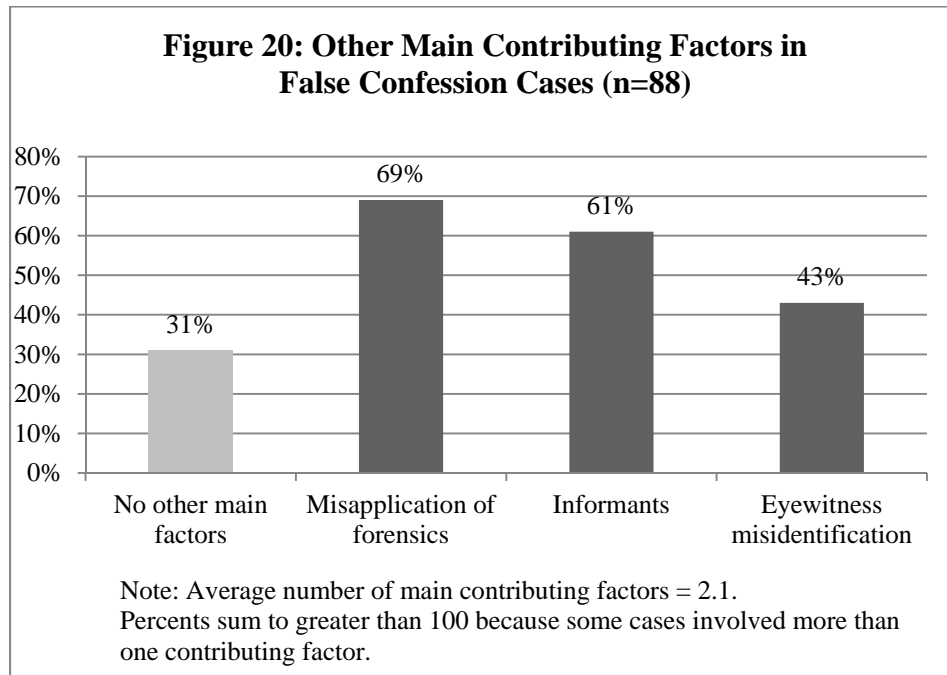
**Figure 20: Other Main Contributing Factors in
False Confession Cases (n=88)**

Note: Average number of main contributing factors = 2.1.
Percents sum to greater than 100 because some cases involved more than
one contributing factor.

3. Real Perpetrators Identified and Their Additional Crimes

The real perpetrator was identified in 74% of false
confession exonerations. This percentage is overrepresented
compared to all DNA exonerees where the real perpetrator
was identified (49%). The most likely explanation for this
disparity is that the impact of a confession on a judge or jury
can be very difficult to overcome, even when exculpatory DNA
evidence is presented. Indeed, in 24 of these false confession
cases there was exculpatory DNA evidence presented at the
time of trial, yet they were still convicted. Thus, false
confession cases typically require more than exculpatory DNA
in order to secure an exoneration. Often that has come in the
form of a "hit" to the real perpetrator when that DNA is
entered into a state or national database.

Some of these real perpetrators that were identified went on to be convicted of other violent crimes which might have been avoided had the correct perpetrator been apprehended during the original investigation. In all, these perpetrators committed 43 additional violent crimes (based on criminal convictions), including 11 sexual assaults, 24 homicides and 8 other violent crimes.

Table 4: Real Perpetrators in False Confession Cases

	%
% of False Confession Cases (n=88) where the Real Perpetrator was Identified (n=65)	**74%**
	n
# of Additional Violent Crimes	**43**
# of sexual assaults	11
# of homicides	24
# of other violent crimes	8

D. Use of Informants

Informants contributed to wrongful conviction in 15% (48) of the 325 DNA exonerations. The use of informants in criminal cases remains controversial, given the incentivized nature of their testimony. Informants often receive reward money or strike deals with authorities to have their charges dropped or sentences reduced in their own criminal cases.

The IP's definition of informant falls under two categories. The first is the jailhouse informant who was in physical police custody when providing information about the case implicating the exoneree—generally that the exoneree made an incriminating statement and/or confessed to him or her. This person is counted as a jailhouse informant regardless of whether or not the record contains proof that an incentive was explicitly promised and/or received.

The second category includes a person not in physical police custody when they claimed to have information about the case implicating the exoneree. This person is counted as an informant only if there is a record that an explicit incentive was available to them. For example, during the investigation into the rape and murder of a young woman, an informant came forward telling police that Omar Saunders, one of four

co-defendants in the case, had told him that he and co-defendant Marcellius Bradford watched while the other two defendants assaulted the victim.[97]   The informant later admitted lying, saying that he hoped for reward money and was also worried that police would have charged him with the murder had he not falsely implicated Saunders.[98]

1. Details of Informant Cases

   The overwhelming majority of these 48 cases involved jailhouse informants, however nine cases involved informants who were not in the custody of law enforcement at the time they provided incriminating information about the exoneree.
   Case Characteristics.   As figure 21 illustrates, 83% of informant cases involved homicide crimes. This makes sense given that more serious crimes, especially capital crimes, tend to lead to more lucrative deals/rewards for informants.[99]   In fact, cases where the death penalty was considered are overrepresented here—while such cases made up 16% of all DNA exonerations, they made up nearly half among the informant cases (44%). Similarly, like confession cases, these cases were more likely to have had a child or senior victim, compared to overall (42% versus 29%). Interestingly, while white defendants made up 30% of all DNA exonerees, they represented the majority in informant cases (63%). Further, compared to all DNA exonerations, informant cases were less likely to be cross-racial in nature (25% versus 43%).

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[97] *See* Drizin & Leo, *supra* note 81, at 983.

[98] *See id.*

[99] *See* Samuel R. Gross, *Lost lives: Miscarriages of Justice in Capital Cases*, 61 LAW & CONTEMP. PROBS. 125, 138, 139 (1998); *see also infra* Figure 21.

Figure 21: Informant Case Characteristics (n=48)
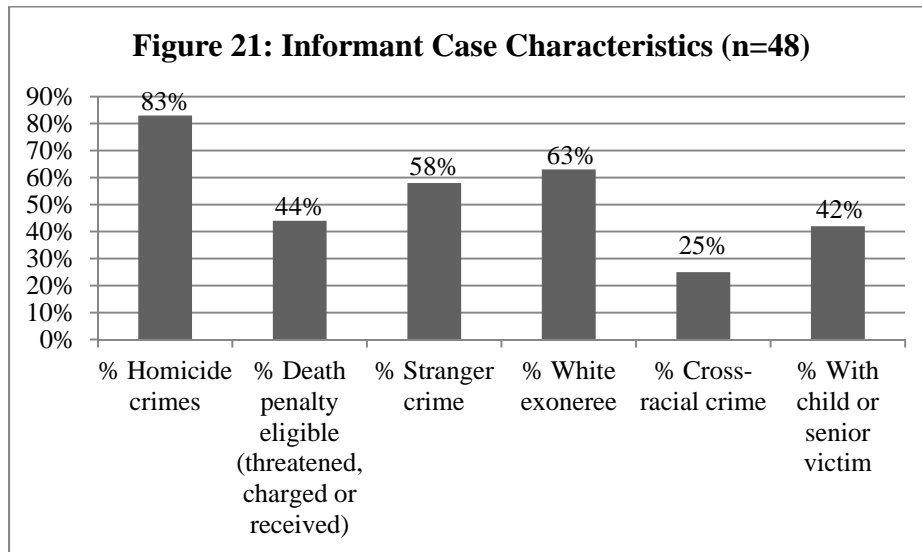
One might assume that given the incentivized nature of informant testimony, juries in these cases would not have considered such evidence strong. However, in many of these informant cases the prosecutors did not formalize deals with informants until after their testimony—thus minimizing the appearance of incentives when the informant testified. Further, as law professor Brandon Garrett explained in his book *Convicting the Innocent: When Criminal*

*In 1978, a woman was raped in her home in Illinois. The victim was shown a photo array including **David Gray's** picture and she mistakenly identified him as her attacker. When Mr. Gray's fingerprints were not found at the scene of the crime, an informant was used to explain away this lack of forensic evidence. The jailhouse informant testified that Mr. Gray confessed to him on numerous occasions and admitted that he "had some gloves or something on his hands" when he committed the crime.[a] David Gray was wrongfully convicted in 1979 and exonerated by DNA evidence in 1999.*

[a] *See* BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG 118–20, 123 (2011).

Prosecutions Go Wrong: "I was most amazed by how the most aggressive informants delivered 'made to order' statements neatly molded to the litigation strategy of the State. Their testimony included details designed to undermine the defendant's alibi, address weaknesses in the prosecution's case, or enhance prosecution evidence."[100]

2. Other Contributing Factors Involved in Informant Cases

The overwhelming majority of informant cases contained other main factors, with less than 10% relying on informant testimony only (no misapplication of forensics, false confessions or misidentifications). Most commonly, the misapplication of forensics was also involved (60%), followed by false confessions (50%) and misidentification (35%). On average, there were 2.1 contributing factors involved in these informant cases.

Figure 22: Other Main Contributing Factors in Informant Cases (n=48)

Note: Average number of main contributing factors = 2.1.
Percents sum to greater than 100 because some cases involved more than one contributing factor.

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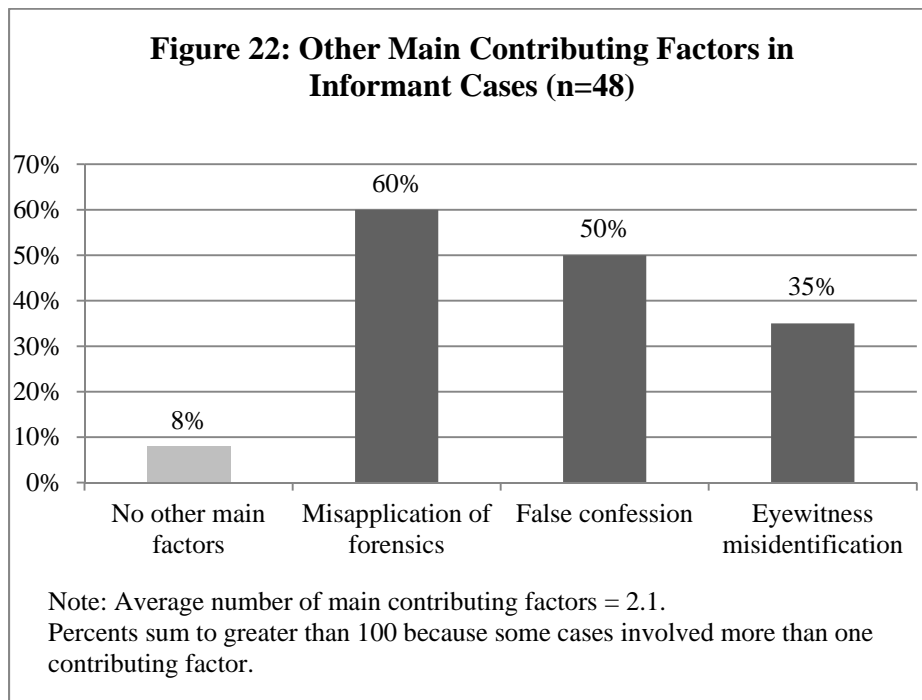
[100] BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG 124 (2011).

3. Real Perpetrators Identified and Their Additional Crimes

The real perpetrator was identified in about half of informant exonerations (52%).   Some of these real perpetrators that were identified went on to be convicted of other violent crimes which might have been avoided had the correct perpetrator been apprehended during the original investigation.   In all, these perpetrators committed 15 additional violent crimes (based on criminal convictions), including three sexual assaults, six homicides, and six other violent crimes.

Table 5: Real Perpetrators in Informant Cases

	%
% of Informant Cases (n=48) where the Real Perpetrator was Identified (n=25)	52%
	n
# of Additional Violent Crimes	15
# of sexual assaults	3
# of homicides	6
# of other violent crimes	6

V. COMPENSATION

On average, the first 325 DNA exonerees served 14 years in prison for crimes they did not commit. During those years, they lost time with loved ones, opportunities for education and work experience, and endured the daily dehumanization and violence of prison life.

No amount of money can truly compensate exonerees for all that they lost as a result of wrongful conviction, but it can help them begin to rebuild their lives in a dignified way. Instead of struggling with issues like homelessness, joblessness, and untreated medical conditions—often created or exacerbated by the injustice of wrongful conviction—exonerees who receive monetary compensation and support services have resources to help them face the challenges of reentry after incarceration.

Research has shown that the process of successfully reintegrating into society after incarceration is difficult.[101] After years of institutionalization, innocent men and women face the same obstacles as other former prisoners, and unfortunately, they also face additional, unique challenges. For example, a correctly convicted prisoner may be released on parole, assigned a parole officer, and enrolled in a mandatory counseling program to assist with the transition from prison to the outside world. In contrast, exonerees generally leave prison with no organized support. Ironically, because they are innocent, they do not qualify for the services that benefit typical parolees.

Studies have shown that individuals who were wrongfully convicted adopt coping strategies to survive in prison, and struggle with anxiety, depression, and Post-Traumatic Stress Disorder after release and desire compensation—both for its actual and symbolic value.[102] In the absence of immediate and sufficient compensation upon release, exonerees are forced to rely on family members, other private citizens, and charitable organizations to step in and help.

A. Description of Methods of Compensation

There are three ways in which exonerees are generally compensated: through state statutes, private bills, and/or civil suits.

In states with compensation statutes, qualifying exonerees are automatically awarded compensation in accordance with the law. The federal government, the District of Columbia, and 30 states have compensation statutes on the books.[103]

These laws vary dramatically with regard to requirements for compensation and award amount. In New Hampshire, for

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[101] *See* Jeremy Travis & Joan Petersilia, *Reentry Reconsidered: A New Look at an Old Question*, 47 CRIME & DELINQ. 291, 291, 301 (2001).

[102] *See* Kathryn Campbell & Myriam Denov, *The Burden of Innocence: Coping with a Wrongful Imprisonment*, 46 CANADIAN J. CRIMINOLOGY & CRIM. JUST. 139, 146, 155 (2004); Adrian Grounds, *Psychological Consequences of Wrongful Conviction and Imprisonment*, 46 CANADIAN J. CRIMINOLOGY & CRIM. JUST. 165, 168, 169 (2004); Jennifer Wildeman et al., *Experiencing Wrongful and Unlawful Conviction*, 50 J. OFFENDER REHABILITATION 411, 413 (2011).

[103] *See infra* Appendix K; *see also Improve the Law*, INNOCENCE PROJECT http://www.innocenceproject.org/policy (last visited Aug. 22, 2016) (providing information regarding specific state-level compensation for exonerees in all 50 states and the District of Columbia).

instance, compensation is capped at $20,000 total,[104] whereas in Texas, exonerees are entitled to $80,000 per year of wrongful incarceration, plus an annuity of $80,000 per year until death, and other social benefits.[105] Furthermore, some state statutes include restrictions on who qualifies for compensation, or they attach conditions to the compensation. For example, some states will not compensate those who "contributed" to their own wrongful conviction by falsely confessing or pleading guilty (e.g., Wisconsin),[106] other states will not compensate those with a prior criminal record (e.g., Florida),[107] and some states require exonerees to waive their right to sue for additional compensation in order to receive the statute award (e.g., Missouri).[108]

In states without compensation statutes, the legislature may consider a private bill to compensate one individual victim of wrongful conviction. For example, Georgia has no compensation statute, so when Clarence Harrison was exonerated there in 2004, after serving more than 17 years for a rape he did not commit, he was forced to lobby the state government for compensation.[109] In 2005, a group of state representatives and senators introduced a resolution before the Georgia General Assembly on behalf of Mr. Harrison. House members voted 136-22 to adopt the bill, and the senate passed the measure unanimously.[110] Once the legislature was convinced of the need to compensate Mr. Harrison, the governor signed the bill into law.[111]

If there were civil rights violations in the case, exonerees may file a civil suit for compensation as well. This is not a guaranteed route to compensation and the process can be expensive, time consuming, and stressful for both plaintiffs and defendants. For instance, after their DNA exonerations

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[104] N.H. REV. STAT. ANN. § 541-B:14(II) (West 2015).

[105] TEX. CIV. PRAC. & REM. CODE ANN. § 103.052(a)(1) (West 2015); *id.* §§ 103.053(a)–(b).

[106] WIS. STAT. ANN. § 775.05(2), (4) (West 2015).

[107] FLA. STAT. ANN. §§ 961.03(1); 961.04 (West 2015).

[108] MO. ANN. STAT. § 650.058(4) (West 2015).

[109] *Cleared by DNA, 1 Gets $1 million, 2 Get Nothing: How Much Money Is Enough to Undo Damage for an Unjust Sentence?*, NBCNEWS.COM (July 18, 2009, 8:33 PM), http://www. nbcnews.com/id/31983859/ns/us_news-crime_and_courts/t/cleared-dna-gets-million-get-nothing/#.VrN9qxEfX-Y.

[110] *Governor Signs Compensation Measure for Wrongly-Convicted Man*, GA. INNOCENCE PROJECT (May 17, 2005), http://www.ga-innocenceproject.org/News%20Release%20Archive /Clarence%20Harrison.htm.

[111] *Id.*

for the rape of a jogger in Central Park, the Central Park Five—Antron McCray, Kevin Richardson, Yusef Salaam, Raymond Santana, and Kharey Wise—were forced to continue to fight the city of New York for 12 years until they were finally collectively awarded a $40 million civil settlement in 2014.[112]

B. Compensation Statistics

As illustrated in figure 23, 73% of DNA exonerees have been awarded some type of compensation. Of those who were awarded compensation, state statute compensation was the most common type (56%), followed by civil suit awards (44%) and private bills (11%). Twenty-nine people have been awarded compensation through multiple methods (e.g., statute and civil suit).

Figure 23: Compensation Awarded to Exonerees (n=238)

Note: Twenty-nine exonerees were awarded compensation through more than one method.

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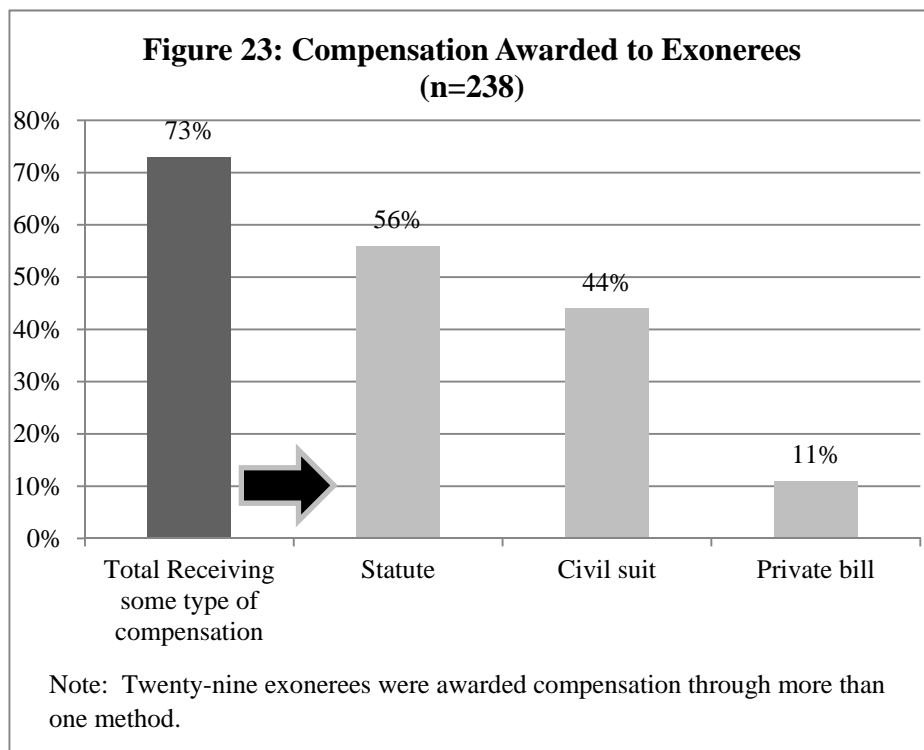
[112] Amy Davidson, *Donald Trump and the Central Park Five*, NEW YORKER (June 23, 2014), http://www.newyorker.com/news/amy-davidson/donald-trump-and-the-central-park-five.

The time it took for exonerees to be compensated and their award amounts varied greatly depending on the type of compensation, therefore, the following information is separated by type. On average, innocent men and women waited two to two-and-a-half years to be compensated through state statutes or private bills (2.5 and 2.2, respectively) and nearly four-and-a-half years (4.4) to be awarded civil settlements after exoneration. The median amount awarded through state statutes is $328,200, with a range of $11,250 to $6 million; the median amount awarded through private bills is $500,000, with a range of $11,200 to $5 million; and the median amount awarded through civil suits is $3.6 million, with a range of $30,000 to $53.7 million. The grand total amount awarded to these exonerees to date is nearly $600 million ($597,031,409).

Table 6: Amounts of Compensation Awarded to Exonerees

Type of Award	Median Award Amount	Range	Sum	Average per Year Served
State Statute (n=133)	$328,200	$11,250–$6 million	$80,416,939	$42,720
Private Bill (n=25)	$500,000	$11,200–$5 million	$22,410,479	$58,123
Civil Suit[a] (n=105)	$3.6 million	$30,000–$53.7 million	$494,203,991	$486,407

[a] In civil suits it is not always known whether the exoneree actually received all of the awarded money.

VI. FINAL REMARKS

This report marks the 25th anniversary of the first DNA exoneration with a comprehensive review of what these wrongful convictions involved. The data collected from these DNA exoneration cases to date are more comprehensive than any other source, allowing researchers, policy makers, attorneys, legal scholars, journalists and others to obtain more detailed statistics than are otherwise available.

The information gleaned from these cases influences reform efforts meant to improve policies and practices in the criminal justice system that will reduce the prevalence of wrongful convictions. Additionally, litigators have made important strides in court reform efforts by educating judges, attorneys and policymakers about the fallibility of certain evidence that is associated with wrongful convictions and still brought before criminal courts.

The focus of this report has been on trends and statistics relating to these DNA exoneration cases, however, it is essential to remember that behind these statistics are real people—the exonerees, the original crime victims and family members whose lives have been forever changed because of these wrongful convictions. True understanding of the causes and consequences of wrongful conviction demands looking beyond the data at the personal, human stories of injustice, heartache and helplessness, but also often redemption, forgiveness and joy.

I can remember my first day coming home from prison, I sat up and watched the sun come up that morning, you know. And you see the sunlight every morning rise in prison, but to actually feel it, you know, as a free man outside of the fences it was a totally different experience. And the whole time I am watching it come up I am saying I'm free, you know, I am truly free.[a]

-Marvin Anderson*, exoneree*

The night he was freed I was at my home. I was told that it would be on the news and so I turned it on and watched it . . . . And that was the first time I had actually seen him since 1987. And of course, seeing his family around him and that he was so happy and I remember feeling frightened. I remember feeling sick, but also I remember feeling just an overwhelming sense of just guilt that if indeed we had made a mistake and I had contributed to taking away 11 years of this man's life, and if indeed we had been wrong—I felt so bad. I fell apart. I cried and cried and I wept and I was angry at me and I beat myself up for it for a long time.[b]

-Jennifer Thompson*, crime survivor and innocence movement activist*

My mom was suffering from dementia and congestive heart failure. Despite of what her body was saying, her spirit was like I can't die until my son gets out of prison. And she was able to see me completely exonerated on TV. And right after that, she died. She died at peace.[c]

-Bennie Starks*, exoneree*

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[a] The Innocence Project, *The Innocence Project* (Dec. 16, 2014), https://www.youtube.com/watch?v=Cgg35eNBllA.

[b] *What Jennifer Saw*, FRONTLINE, http://www.pbs.org/wgbh/pages/frontline/shows/dna/interviews/thompson.html (last visited Mar. 15, 2016).

[c] The Innocence Project, *The Innocence Project* (Dec. 16, 2014), https://www.youtube.com/watch?v=Cgg35eNBllA.

APPENDICES

Appendix A

At least 14 DNA exoneree cases involved known *Brady* violations (prosecutors withheld exculpatory evidence from the defense at the time of trial):

Roy Criner	Donald Reynolds
Rolando Cruz	Billy Wardell
James Giles	Jerry Watkins
Nathaniel Hatchett	Ron Williamson
Alejandro Hernandez	John Willis
Lesley Jean	Glen Woodall
Michael Morton	James Lee Woodard

Appendix B
Comparing the National Registry of Exonerations (NRE)
Data to Innocence Project (IP) Data

The summary presented below is based on the data in the NRE and IP databases as of December 2014.

Comparing Case Demographics:

The 325 DNA exonerations on the IP list represent approximately one-fifth (21%) of all known exonerations included on the NRE list (N=1,529).

The NRE website uses an asterisk (*) to indicate cases that involved DNA evidence, but are not included on the IP list because some other non-DNA evidence was central to proving actual innocence (65 to date).

The majority (63%) of DNA exonerees on the IP list are black, while just under half (46%) of those on the NRE list are black.

While only 1% (four) of the DNA exonerees on the IP list are women, 9% (133) of those on the NRE list are women. In 64% of these 133 cases, a woman was wrongfully convicted of a crime that never happened.[113]

Nearly all (91%) of the DNA exonerations on the IP list involved a sexual assault, compared to just under one-quarter (23%) of those on the NRE list.[114]

Only about one-third (34%) of the DNA exonerations on the IP list involved homicide, while 45% of those on the NRE list involved homicides.

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[113] The NRE defines a "no crime" case as one in which the exoneree was convicted of a crime that did not occur, either because an accident or a suicide was mistaken for a crime, or because the exoneree was accused of a fabricated crime that never happened (e.g., "Shaken Baby Syndrome" death, false rape claim recanted, drug conviction for possession of a substance that turned out not to be drugs, etc.). *See November 2013 Newsletter*, NAT'L REGISTRY OF EXONERATIONS, (Nov. 13, 2013) http://hosted.verticalresponse.com/1438491 /60b961faeb/546806695/7fdb8c3575/; *Glossary*, NAT'L REGISTRY OF EXONERATIONS, http://www.law.umich.edu/special/exoneration/Pages/glossary.aspx (last visited Mar. 15, 2016).

[114] Child sex abuse cases are not included in these percentages as they represent mostly child sex abuse hysteria cases which are very different than the mainly adult sexual assaults represented on the IP list. *See* NAT'L REGISTRY OF EXONERATIONS, THE FIRST 1600 EXONERATIONS 4 tbl.1 (2015); *Glossary*, NAT'L REGISTRY OF EXONERATIONS, http://www.law.umich.edu/special/exoneration/Pages/glossary.aspx (last visited Mar. 15, 2016.

Only two DNA exoneration cases on the IP list are for crimes that never happened, compared with over one-quarter (26%) of those on the NRE list.

The top three states with the highest numbers of exonerations on the IP list are Texas, Illinois and New York; the top three states on the NRE list include Texas, New York and California.

Comparing Definitions of Contributing Factors:

There are a few notable differences in the way some of the contributing factors are defined on the two lists.

Mistaken Identity: The IP definition does not differentiate between deliberate misidentifications and mistaken ones, although based on the facts of the cases, most are assumed to be mistaken identifications. The NRE includes only mistaken identifications in this category (deliberate ones are counted in the perjury/false accusation category).

False Confession: The IP definition includes false confessions of exonerees and their co-defendants. The NRE reports only confessions of the exonerees (although they do code separately for co-defendant confessions so we were able to run statistics based on a comparable definition). Further, they count disputed confessions (e.g., a police officer's word against an exoneree's) even if the confession was not introduced in court, while the IP does not.

Informants (IP)/Perjury/False Accusation (NRE):

Informants: The IP definition includes statements made by a jailhouse or other informant who provided information which implicated the exoneree in the crime.

Perjury/False Accusation: At the time of this analysis, the NRE did not have a separate category for informants, but rather had a larger umbrella category to include any false accusation by a victim, witness or informant.[115] Their

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[115] In their May 2015 newsletter, after analysis was completed using their data through 2014, the NRE announced that they added a jailhouse informant category to their database

umbrella definition includes a case in which a person other than the exoneree falsely accused the exoneree of committing the crime for which the exoneree was later exonerated, either in sworn testimony or otherwise.

Official Misconduct: The IP does not systematically track this information, as it is very difficult to define and uncover. The NRE does systematically track this information and includes cases where police, prosecutors, or other government officials significantly abused their authority or the judicial process in a manner that contributed to the exoneree's conviction. The significantly lower rate of official misconduct documented among the DNA exonerations, as coded by the NRE, may be due to the fact that in non-DNA cases, investigators have to dig deeper into the case to secure an exoneration, thus potentially uncovering official misconduct more often, whereas in DNA exonerations the exclusion of probative DNA evidence is often enough to establish innocence (and therefore no deeper investigation is required).

Comparing Differences in Rates of Contributing Factors:[116]

Mistaken Identity is the most common known contributing factor in the 325 DNA exoneration cases (72%). However, it contributed to only 34% of the 1,529 exonerations included on the NRE list.

This is not surprising given that the majority of DNA exoneration cases involve non-homicide crimes where identifications are central to convictions. In contrast, the

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that identifies cases in which a person who was incarcerated with the exoneree testified or reported that the exoneree confessed to him or her. *May 2015 Newsletter*, NAT'L REGISTRY OF EXONERATIONS (May 12, 2015), http://us10.campaign-archive1.com/?u=86fc3b614e73affdc 18bf5a93&id=4bd88489da&e=b3140804f2. In future analyses of these two sources of information about exonerations, we will be able to directly compare informant data in the IP and NRE cases.

[116] The statistics provided for the IP DNA exoneration cases come from the internal IP database. Sometimes the NRE statistics for DNA exoneration cases are slightly different because of slightly different definitions. We used definitions and statistics from the IP database, unless otherwise noted. *See* NAT'L REGISTRY OF EXONERATIONS, *supra* note 114, at 6; *About Us*, INNOCENCE RECORD, https://www.innocencerecord.org/Pages/Home.aspx? ReturnUrl=%2f_layouts%2fAuthenticate.aspx%3fSource%3d%252f&Source=%2f (last visited Mar. 15, 2016); *The Innocence Project and Winston & Strawn Launch First Online Database of DNA Wrongful Convictions*, WINSTON & STRAWN LLP (Sept. 27, 2010) http://www. winston.com/en/thought-leadership/the-innocence-project-and-winston-strawn-launch-first-online.html.

most common type of crime among the NRE cases is homicide, which generally means there is no surviving victim to identify the perpetrator.

Perjury/False Accusation is the most common known contributing factor among the exoneration cases on the NRE list, present in over half of the cases (55%). However, it was discovered in only one-third of DNA exonerations (using the NRE count).

Among the perjury/false accusation cases on the NRE, the majority were homicide crimes (54%), the type of crimes among the subset of DNA exoneration cases with perjury/false accusations are somewhat more evenly-distributed (32% sexual assault, 40% sexual assault + murder, 24% murder).

False Confessions occurred in 27% of DNA exoneration cases and 20% of NRE cases.

At least three-quarters of both DNA exonerations involving false confessions and all exonerations on the NRE involving false confessions involved homicide crimes (78% and 75%, respectively).

Misapplication of Forensic Science was discovered in 47% of DNA exoneration cases compared to 23% of NRE cases.

Sixty-three percent of DNA exoneration cases involving the misapplication of forensics related to non-homicide sexual assaults, compared to 25% in the NRE.

Official Misconduct was discovered in just under half (46%) of NRE cases, compared to just under one-third (30%) of DNA exonerations (using NRE count).

The cases on the NRE list that included official misconduct were most-commonly (58%) homicide cases. The type of crimes among the subset of DNA exoneration cases with official misconduct are somewhat more evenly-distributed (33% sexual assault, 38% sexual assault + murder, 20% murder).

Appendix C

The following 28 DNA exoneration cases are examples of those in which biological evidence was initially reported lost or destroyed, but eventually something was found and tested:

Marvin Anderson	Calvin Johnson
Jonathan Barr	Barry Laughman
Johnny Briscoe	Eddie Joe Lloyd
Roy Brown	Dennis Maher
David Johns Bryson	Arthur Mumphrey
Terry Chalmers	Alan Newton
Sedrick Courtney	Julius Ruffin
Dwayne Allen Dail	Ben Salazar
Scott Fappiano	Shainne Sharp
Joseph Fears	Robert Taylor
Bruce Godschalk	Robert Lee Veal
James Harden	Arthur Lee Whitfield
Clarence Harrison	Drew Whitley
Henry James	John Willis

Appendix D

There have been DNA exonerations in 37 states, plus the District of Columbia. The numbers of DNA exonerations by jurisdiction are presented in the following table:

State	County	Number of DNA Exonerations in County	Number of DNA Exonerations in State
AL	Jefferson	2	3
	Tuscaloosa	1	
AZ	Maricopa	2	3
	Pima	1	
CA	Alameda	1	11
	Contra Costa	1	
	Los Angeles	3	
	Orange	2	
	Riverside	1	
	San Diego	2	
	San Joaquin	1	
CO	Mesa	1	1
CT	Hartford	3	4
	New Haven	1	
DC	DC	4	4
FL	Brevard	2	12
	Broward	3	
	Duval	1	
	Hillsborough	1	
	Manatee	1	
	Miami-Dade	1	
	Monroe	1	
	Palm Beach	1	
	Polk	1	
GA	Chatham	2	8
	Clayton	1	
	Cobb	1	
	Dekalb	1	
	Fulton	1	
	Hapeville	1	
	Meriwether	1	

State	County	Number of DNA Exonerations in County	Number of DNA Exonerations in State
ID	Canyon	1	1
IL	Cook	35	43
	DuPage	3	
	Lake	4	
	Madison	1	
IN	Allen	1	6
	Floyd	1	
	Hancock	1	
	Lake	1	
	Marion	2	
KS	Riley	1	2
	Shawnee	1	
KY	Jefferson	1	1
LA	Baton Rouge	1	14
	Caddo Parish	1	
	Calcasieu Parish	1	
	Jackson Parish	1	
	Jefferson Parish	6	
	Sabine Parish	1	
	St. Tammany Parish	1	
	Terrebonne Parish	1	
	Washington	1	
MA	Hampden	1	9
	Middlesex	3	
	Suffolk	5	
MD	Baltimore	2	4
	Calvert	1	
	Charles	1	

State	County	Number of DNA Exonerations in County	Number of DNA Exonerations in State
MI	Kalkasaka	1	5
	Macomb	2	
	Wayne	2	
MN	Ramsey	1	1
MO	Greene	1	9
	Jackson	1	
	St. Louis	6	
	Vernon	1	
MS	Forest	3	5
	Noxubee	1	
	Sunflower	1	
MT	Richland	1	3
	Silver Bow	1	
	Yellowstone	1	
NC	Alamance	1	11
	Buncombe	2	
	Forsyth	2	
	Onslow	2	
	Robeson	2	
	Wayne	1	
	Wilson	1	
NE	Gage	6	6
NJ	Burlington	1	8
	Essex	2	
	Middlesex	1	
	Somerset	1	
	Union	3	
NV	Clark	1	1
NY	Bronx	1	29
	Cayuga	1	
	Erie	3	
	Kings	4	
	Monroe	3	
	Nassau	3	
	New York	6	
	Oneida	1	

State	County	Number of DNA Exonerations in County	Number of DNA Exonerations in State
	Orange	1	
	Richmond	1	
	Suffolk	2	
	Westchester	3	
OH	Cuyahoga	5	10
	Franklin	3	
	Lucas	1	
	Summit	1	
OK	Cleveland	1	11
	Oklahoma	4	
	Pontotoc	3	
	Tulsa	3	
PA	Adams	1	11
	Allegheny	3	
	Chester	1	
	Cumberland	1	
	Dauphin	2	
	Delaware	1	
	Montgomery	1	
	Philadelphia	1	
SC	Lexington	1	1
TN	Shelby	2	2
TX	Collin	1	52
	Dallas	27	
	El Paso	1	
	Ellis	1	
	Harris	7	
	Houston	1	
	Lubbock	1	
	McLennon	1	
	Montgomery	2	
	Navarro	1	
	Smith	1	
	Tarrant	2	
	Travis	4	
	Uvalde	1	

State	County	Number of DNA Exonerations in County	Number of DNA Exonerations in State
	Williamson	1	
UT	Beaver	1	1
VA	Alexandria	2	15
	Arlington	1	
	Fauquier	1	
	Hanover	1	
	Nelson	1	
	Norfolk	3	
	Powhatan	1	
	Prince William	1	
	Richmond	2	
	Virginia Beach	1	
	Williamsburg	1	
WA	Clark	2	4
	Spokane	1	
	Yakima	1	
WI	Buffalo	1	7
	Dane	1	
	Manitowoc	1	
	Milwaukee	3	
	Winnebago	1	
WV	Cabell	1	6
	Kanawha	5	
WY	Laramie	1	1

Appendix E

The following 34 DNA exonerees were arrested for crimes they did not commit when they were younger than 18 years old:

Jonathan Barr	Larry Ollins
Marcellius Bradford	Harold Richardson
Dennis Brown	Kevin Richardson
Leon Brown	Lafonso Rollins
Harold Buntin	Yusef Salaam
Anthony Caravella	Raymond Santana
Jeffrey Deskovic	Michael Saunders
Alejandro Dominguez	Shainne Sharp
Michael Evans	Josiah Sutton
Paula Gray	Terrill Swift
James Harden	Robert Taylor
Nathaniel Hatchett	Paul Terry
Travis Hayes	Santae Tribble
Eugene Henton	Robert Lee Veal
Ryan Matthews	Michael Anthony Williams
Antron McCray	Sharif Wilson
Calvin Ollins	Kharey Wise

Appendix F
Eyewitness Identification Procedure Definitions

Blind: The lineup administrator does not know the identity of the suspect.

Blinded: The lineup administrator knows the identity of the suspect, but he or she does not know the position of the suspect in the lineup. In small police departments it may not be possible to find a lineup administrator who is not involved in the case, but it is still possible to protect eyewitness memory from inadvertent contamination by using something called the "folder shuffle method" in which photographs are placed in separate folders, shuffled, and passed to the witness to view. This way, the administrator does not know whose photograph—the suspect's or a filler's—the witness is viewing at any given time.

Composite: An image of a perpetrator constructed based on input from an eyewitness. Composites are of two general types: a sketch artist composite or a mechanical composite. Some mechanical composites are physical kits, such as the Identi-Kit, which has facial features on transparencies that are overlaid to create a face. Others, such as the FACES program, use computer software from which the witness selects facial features.

Filler: A known-innocent person or a photograph of a known-innocent person presented in a lineup along with the suspect. Fillers should resemble the eyewitness' description of the perpetrator, and the suspect should not stand out from the fillers (e.g., he should not be the only member of his race in the lineup, or the only one with facial hair).

Live lineup: A procedure in which a live suspect is embedded among fillers and shown to an eyewitness for purposes of helping to determine whether the suspect is the perpetrator of a crime that was witnessed. Sometimes called a corporeal lineup, in contrast to a photographic lineup.[117]

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[117] *See supra* Appendix F.

Mugshot search: A procedure in which an eyewitness is allowed to look through a large number of photos of known offenders to see if she or he recognizes the perpetrator. This procedure might be used if the investigators have no leads on a specific suspect.

Non-blind: The lineup administrator knows the identity of the suspect and where the suspect falls in the lineup. This scenario creates a risk of the administrator leading the witness to choose the suspect, either through inadvertent or intentional cues.

Photographic lineup: A procedure in which a photograph of a suspect is embedded among filler photographs for purposes of helping to determine whether the suspect is the perpetrator of a crime that was witnessed. Also called a photo-spread, photo-lineup or photo-array.

Other/Point-out/Seen in Neighborhood Identification: This category includes non-standard identification procedures like a witness identifying someone by name or "recognizing" him or her on the street or in a store after the crime and then reporting it to the police.

Show-up: A procedure in which an eyewitness is shown a single, live suspect without any fillers. Sometimes referred to as a "one-on-one" identification procedure or a "field identification" in some parts of the country.

Appendix G

The following 31 DNA exonerees were identified by victims who knew them or who were at least familiar with them (e.g., had previously seen them in the neighborhood):

Joseph Lamont Abbitt	Arthur Johnson
James Bain	Robert McClendon
Mark Diaz Bravo	Lawrence McKinney
Patrick Brown	Michael Mercer
Charles Chatman	Freddie Peacock
Sedrick Courtney	Michael Phillips
Calvin Cunningham	Brian Piszczek
Charles Dabbs	Ricardo Rachell
Willie Davidson	Peter Rose
Dewey Davis	Hubert Thompson
Gerald Davis	Johnny Williams
Clarence Elkins	Michael Anthony Williams
Joseph Fears Jr.	Calvin Willis
Kevin Green	Anthony D. Woods
Henry James	Kenneth York
Andrew Johnson	

Appendix H

The following 29 DNA exoneration cases involved three or more mistaken eyewitnesses:

Richard Alexander	Jerry Miller
Steven Barnes	Maurice Patterson
Michael Blair	Steven Phillips
Kirk Bloodsworth	Frank Lee Smith
Anthony Capozzi	Walter Smith
Alan Crotzer	Raymond Towler
Calvin Cunningham	Patrick Waller
Luis Diaz	Bernard Webster
Lonnie Erby	James Curtis Williams
Darryl Hunt	Johnny Williams
Calvin Johnson	Willie "Pete" Williams
Joe Jones	John Willis
Dennis Maher	Glen Woodall
Clark McMillan	Nicholas Yarris
Leonard McSherry	

Appendix I

The following 20 DNA exonerees served time on death row:

Michael Blair	Ryan Matthews
Kirk Bloodsworth	Curtis McCarty
Kennedy Brewer	Henry Lee McCollum
Leon Brown	Robert Miller
Rolando Cruz	Frank Lee Smith
Charles Irvin Fain	Damon Thibodeaux
Alejandro Hernandez	Earl Washington
Verneal Jimerson	Dennis Williams
Ronald Jones	Ron Williamson
Ray Krone	Nicholas Yarris

Appendix J

The following 28 DNA exoneration cases are examples of those which involved DNA exclusions at the time of trial, but still resulted in wrongful convictions:

Richard Alexander	Harold Richardson
Jonathan Barr	Kevin Richardson
Patrick Brown	Juan Rivera
David Camm	Mandel Rogers
Jeffrey Deskovic	Miguel Roman
Clarence Elkins	Yusef Salaam
Joseph Frey	Raymond Santana
James Harden	Michael Saunders
Nathaniel Hatchett	Shainne Sharp
Travis Hayes	Terrill Swift
Entre Nax Karage	Robert Taylor
Ryan Matthews	Vincent Thames
Antron McCray	Robert Lee Veal
Jamie Lee Peterson	Kharey Wise

Appendix K

The federal government, the District of Columbia and the following 30 states have compensation statutes of some form:

Alabama	Nebraska
California	New Hampshire
Colorado	New Jersey
Connecticut	New York
Florida	North Carolina
Illinois	Ohio
Iowa	Oklahoma
Louisiana	Tennessee
Maine	Texas
Maryland	Utah
Massachusetts	Vermont
Minnesota	Virginia
Mississippi	Washington
Missouri	West Virginia
Montana	Wisconsin