

Overview of DNA and the Nevada Justice System – Brianna's Law

Bridgette Zunino Denison – Lauren Denison

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Adam Van Antwerp - The science of DNA and the function of CODIS

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- The science of crime: How DNA is currently used in the justice system
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Valarie Van Antwerp - DNA testing upon felony arrest and preventable crimes

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DNA testing upon felony arrest and cost savings

- Case studies – why it works

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Bring Bri Justice Foundation – About us



Mission statement and focus-

The Bring Bri Justice Foundation will use all available resources about violent crimes, personal safety, and ensuring justice is served.

The current focus of the Foundation is on the following:

DNA Legislation-

- Assist in finding funding for the currently un-funded DNA laws in Nevada.
- Aid in broadening the sampling of DNA to include all felony arrests.
- Assist in funding backlog of samples already taken in the state of Nevada.
- Change and broaden DNA legislation nationally in order to create a consistent database, aiding law enforcement.

Brianna Guide – kits designed to aid those with missing loved ones.

Creating a package of material and teams of volunteers that are available in the event there is a missing person that includes the following:

- Directions for setting up a recovery center
- Media guide
- Law enforcement communication
- Community contacts for both volunteers and aid

Bring Bri Justice Search Team – in conjunction with the Brianna Guide, the Foundation is prepared to step in as liaisons between families of missing persons, law enforcement, and the public.

- Coordinate volunteer citizen search teams
- Report to law enforcement any findings
- Coordinate with local media

Community Personal Safety-

- Safety awareness kits
- Community safety events
- ASUN Campus Escort Service - UNR student courtesy vans

The Bring Bri Justice Foundation Board Members:

- Bridgette Zunino, president
- Valarie Van Antwerp, vice president
- Teri Boland, treasurer
- Amy Waddell, secretary
- Lauren Denison, center coordinator
- Richard Campbell, legal counsel
- Mary-Ann Brown, board advisor

DNA: The Science and its role in the judicial system

What is DNA?

Deoxyribonucleic acid, or DNA, is the chemical form in which all living forms (and some viruses not considered to be alive) store their genetic blueprint.

Why do we test it?

Genetic marker testing is more accurate than fingerprints as far as providing a link between a sample found at a crime scene with a control sample from a known suspect. Not only does this mean swifter and more definitive justice, but also absolution of the innocent and reduced cost of investigations.

How does it work?

Currently DNA, when examined as a piece of evidence in the justice system, is not tested for every marker available (which would be an exhausting process). Instead, the loci (genetic location) of 13 to 15 key markers is all that is necessary to provide a statistically unique sample and effectively eliminate other suspects in question. A sample of unknown origin is entered into the CODIS system and compared against a database of markers from those already tested.

What is CODIS?

Currently CODIS is the national database that local and national authorities use to compare an unknown sample against a database of known markers. The CODIS database includes only a very small amount of identifying information for each individual, referred to as a DNA profile or DNA fingerprint. CODIS DNA profiles include only 13 “short tandem repeat” (“STR”) regions found on nuclear DNA. See DNA Initiative, Research (www.dna.gov/research). The likelihood that any two individuals (except identical twins) will have the same 13-loci DNA profile can be as low as one in one billion, or lower. See DNA Initiative, STR Analysis (www.dna.gov/basics/analysis/str). DNA profiles included in CODIS include only non-coding DNA (sometimes referred to as “junk” DNA). The 13 chosen STR loci identify an individual uniquely, but do not disclose traits, disorders, or dispositions. These STR loci are non-genetic stretches of DNA not presently recognized as being responsible for trait coding, and were purposely selected for DNA analysis because they are not associated with any known physical or medical characteristics. Reflecting Congress’s intent to maintain CODIS strictly as an identification tool, no change may be made to the core genetic markers used in CODIS unless the Department of Justice notifies Congress at least 180 days beforehand and explains the reasons for such change.

Presently, no individual prediction of future disease status can be made from an STR profile in a law enforcement DNA database. CODIS operates much like an old-fashioned fingerprint database. Profiles are entered into CODIS from laboratories at the local, state, and national levels. The database includes forensic profiles, including those from cases where the perpetrator is not known, often called “cold” cases. It also includes profiles from convicted felons. And as in

this case, the federal government and 21 states have passed laws to allow for collection of arrestee profiles. See DNA Resource

(www.dnaresource.com/documents/statequalifyingoffenses2009.pdf). With the passage of the DNA Fingerprint Act, state arrestee profiles can be uploaded into CODIS. The CODIS software permits the more than 170 law enforcement laboratories throughout the country that use it to share and compare DNA identification data by providing a central database of the DNA profiles from all user laboratories, known as the National DNA Index System (NDIS). See FBI, CODIS Combined DNA Index System (www.fbi.gov/hq/lab/html/codisbrochure_text.htm). A match made between forensic profiles can link crime scenes to each other, possibly identifying serial offenders. Identification matches between forensic and offender profiles can provide investigators with the identity of a suspect. When a hit is made, a new DNA sample is typically obtained from that suspect so the match can be confirmed by a crime laboratory before a new arrest is made.

What states DNA test after arrest?

21 states: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Kansas, Louisiana, Maryland, Michigan, Minnesota, Missouri, New Mexico, North Dakota, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, the Federal Government.

Under the revised Nevada statute 176.0911 “Genetic Marker Testing”

The defendant must surrender their DNA after being *convicted* of one of these crimes:

Class A Felonies:

- First degree intentional homicide, murder

Class B Felonies:

- Second degree intentional homicide (manslaughter), first degree reckless homicide, conspiracy, first degree sexual assault, kidnapping

Class C felonies involving the use or threatened use of violence against the victim:

- Felony drunk driving (5th offense or more), second degree sexual assault, kidnapping, arson, robbery, vehicular homicide while intoxicated
- A crime against a child
- A sexual offense
- Abuse or neglect of an older person
- A second or subsequent offense of stalking
- Any attempt or conspiracy to commit any of these crimes

These do not include:

- Burglary, robbery (without a lethal weapon), theft, stalking, negligent homicide, and all levels of battery.

Currently the law appropriates that, should a defendant be ordered to surrender their DNA

Why we need genetic testing upon felony arrest in Nevada Preventable Crimes:

DNA identification saves lives:

90 percent of prisoners are repeat offenders. 70 percent of crimes are committed by 6 percent of criminals. Many of the perpetrators have been arrested, but not convicted, before finally being brought to justice for a later crime. Preventable crimes are those where the perpetrator commits a crime in the time period between his or her first felony arrest and a felony conviction. In a state which allows genetic testing upon felony arrest, the defendant's unique DNA would already be in the system, and would allow investigators to solve crimes immediately. In a state that does not allow genetic testing after arrest (such as Nevada), this criminal is allowed to walk since law enforcement is blindfolded to their identity until other evidence allows for either a warrant or until that suspect is convicted on another charge.

DNA identification gets results.

CODIS has already achieved remarkable success, in large part due to the number of available profiles. As of December 2009, the NDIS contains over 7,743,329 offender profiles and 298,369 forensic profiles. FBI, CODIS – NDIS Statistics (www.fbi.gov/hq/lab/codis/clickmap.htm). CODIS has produced over 103,700 hits assisting in more than 101,700 investigations. Adding DNA profiles of arrestees has expanded the database of DNA profiles, and with it, the number of hits that can solve crimes and prevent others.

The State of Virginia, which began arrestee DNA testing in 2003, has shown that arrestee profiles can assist in solving and preventing crimes. As of November 30, 2009, there were 303,265 DNA samples in the state database, resulting in 5,972 hits. See Virginia, Department of Forensic Science, DNA Databank Statistics (www.dfs.virginia.gov/statistics/index.cfm). These hits had assisted 5,829 investigations, including nearly 500 murders and 900 sex crimes. A total of 555 of the hits were obtained from the Arrestee Database, 89 of those associated with sexual assault cases.

The City of Denver is also a national leader in expanding the use of forensic DNA to improve public safety. See DNA Initiative, Denver DNA Cold Case Project (www.dna.gov/solving-crimes/cold-cases/denver); see also Denver District Attorney's Office, DNA Cold Case Project (www.denverda.org/DNA/DNA_Cold_Case_Project.htm). By March 2009, Denver had completed investigations of 478 cold case sexual assaults and homicides, with 819 DNA samples analyzed and 217 profiles submitted to CODIS. This produced 91 CODIS hits, a hit rate of 42%. As a result, cases have been filed in 50 crimes with 37 cases adjudicated. Arrestee DNA can also catch repeat offenders before they continue a protracted pattern of violent crime. 70 percent of America's crime is committed by only six percent of its criminals. From 1990-2002, 56% of violent offenders had prior convictions. And this does not include the many crimes that are never resolved. Studies have shown that for every burglary conviction obtained through DNA matches, 7.4 additional crimes are avoided. In some cases, serial burglars can be individually responsible for more than 200 crimes a year. Sexual assault offenders have been documented to commit an average of eight sexual assaults for every one detected. The following general statistics are also borne out by individual case profiles:

- In 2005, the City of Chicago looked at the criminal history of eight convicted felons. See Chicago Study on Preventable Crimes (www.denverda.org/DNA_Documents/Chicago%20Preventable%20Crimes%20%20DNA.pdf). Because Chicago did not take DNA samples on arrest, the eight offenders accumulated a total of 21 felony arrests before they were convicted of violent crimes allowing their DNA to be sampled. But if samples could have been taken upon a first arrest, as many as 22 murders and 30 rapes, plus other attempted rapes and aggravated kidnapping, could have been prevented—an average of about 7.5 crimes per offender.
- A study prepared for the State of Maryland traced the records of three convicts, and concluded that if DNA samples had been required upon arrest for these three individuals, 20 crimes could have been prevented. Maryland DNA Arrestee Study (www.denverda.org/DNA_Documents/MarylandDNA_arresteestudy.pdf).
- The Denver District Attorney's Office has found, based on the activities of just five individuals, that 52 violent crimes, including three murders and 19 sexual assaults, could have been prevented if DNA had been taken upon arrest. See Denver DA, Denver's Study on Preventable Crimes (www.denverda.org/DNA_Documents/Arrestee_Database/Denver%20Preventable%20Crime%20Study1.pdf).
- The U.S. Department of Justice has found that “at least seven deaths, 89 rapes, 14 rape/deaths, nine sexual assaults, 14 robberies, three assaults, one burglary, and several property crimes could have been prevented had a DNA sample been taken earlier.” (www.ncjrs.gov/pdffiles1/nij/grants/203970.pdf).

The same is true elsewhere. In Texas, Christopher Dye raped three women before being arrested in 1993 for burglary. Unaware he was a serial rapist, authorities released him on bail. Over the next six months, Dye raped four more women before being arrested again for burglary. He served two months in jail, and then raped seven more women before finally being caught. Testing Dye upon his first burglary arrest could have led to a DNA match from his first three crimes, and prevented 11 others. See Laylan Copelin, Texas Legislature Expands Use of DNA Testing, Cox News Service (June 8, 2001).

In 1987, in California, Chester Turner was arrested for assault, but set free due to lack of evidence. At that time, California law did not require that his DNA be taken on arrest. Turner continued to terrorize a Los Angeles community and was subsequently arrested 19 more times before he was convicted of rape in 2002. Only then was his DNA taken, and it matched the evidence found on twelve rape and murder victims, the first of whom was murdered only two months after his 1987 arrest. See Andrew Blankstein, DNA Analysis Links Inmate to 12 slayings (July 29, 2005). All these crimes could have been prevented had Turner's DNA been taken upon his initial arrest, rather than only after a qualifying conviction. This statistical and anecdotal information confirms what common sense teaches: that **DNA sampling upon arrest—even for non-violent crimes—prevents crimes and saves lives.**

Why we need genetic testing after arrest in Nevada It Saves Money:

It would relieve pressure on the justice system

Although initially funds would need to be available to pay for the increase in genetic testing by the state, arrestee testing would pay off in the long run. In their study "Why Arrestee DNA Legislation Can Save Indiana Taxpayers Over \$60 Million Per Year", Jay Siegel and Susan D. Narveson compare the increased cost of arrestee testing with the cost of investigation in Indiana. The statistics:

Indiana Taxpayers spend approximately \$1.5 billion per year funding the direct state and local government costs of police protection and judicial services.

The Indiana government estimated it's increased costs of testing to support arrestee testing at \$9.5 million/year, which, the study claims, can be recouped by increasing the state mandated DNA processing fee from \$2 to \$24 which would make the law budget neutral from inception.

The study estimates the average cost of over \$2000 to Indiana taxpayers for each crimes officer response, investigation, prosecution, and adjudication. Therefore, since criminals statistically tend to be repeat offenders, each arrest, on average, prevents 7 to 8 future crimes, yielding a potential fiscal benefit of \$15,000 per conviction to Indiana's taxpayers.

Even though CODIS has only 6.3 million records and has only been used to aide 77,000 crimes to date (as per January 2009), they report matches an astounding 40 percent of the time.

This adds up to a potential savings of up to \$60 Million per year for Indiana taxpayers alone. This, after the \$9.5 million dollar estimated cost of the legislation, means that, theoretically and eventually, DNA arrestee testing could save the state of Indiana's budget over \$50 Million per year, and that savings would rise as more states join the program and CODIS becomes more comprehensive.

This estimate is conservative

The study does not take into account that an investigation with little or no leads, other than recovered genetic material, requires much less in the way of monetary resources when investigated using genetic testing as compared to without.

This leads to more effective prosecutions. Because DNA testing is relatively infallible, the resources required by a prosecutor are much fewer when DNA evidence is available to present in a court of law and makes conviction more attainable. In a similar study, 70 percent of cases with genetic evidence received the highest available charge while only 30 percent of cases without genetic evidence received the maximum sentence.

Eventually, criminals committing these crimes would be arrested and prevented from committing further crimes.

What this could mean for Nevada:

- A streamlined justice system
- Fewer crimes (and the investigations they initiate)
- More law enforcement officers free to serve the public
- Money to improve the system in other ways

Preliminary Brianna's Law

Adapted from Assembly Bill 234 of the 2009 Nevada Legislature and SB09-241 of the Colorado State Legislature: This law would require that a biological specimen be obtained if a person is arrested for a felony. It would provide that if the person is convicted of the felony, the specimen must be kept. If it is determined that this person already has a specimen on file with the central repository for Nevada Records of Criminal History, another specimen does not need to be obtained. If the person is acquitted or the criminal charges against him are dismissed, the forensic laboratory testing the biological specimen, the law enforcement agency collecting the specimen and the central repository for Nevada Records of Criminal History shall destroy the specimen and all records related thereto, including those held with the federal combined DNA index system, only upon the specific written request of the person the specimen was taken from.

Funding for this law will come from several, as of yet undetermined, mechanism that may include: additional fees for violation of public safety laws, increases in "sin" taxes or other applicable taxes, federal grants and private donations. Once a secure and recurring funding source has been identified, said funds will be deposited in the "Genetic Marker testing fund" and specifically used to counteract the funding needs of this law.

Public Safety Fees for DNA Programs

ALABAMA

DNA Database Fund

“In all municipal, district and circuit court cases, both criminal and civil, in bond forfeiture proceedings, upon initiation of attachment, garnishment or execution proceedings and upon the issuance of any alias or capias warrant of arrest, a fee in the amount of \$2.00 shall be assessed and collected. The fee shall be collected by the court clerk and remitted to the Alabama DNA Database Fund. Provided, however, that there shall be no additional fees imposed for violations relating to parking tickets or small claims cases.”

Increased to \$12 in 2009 to pay for arrestee DNA testing.

ARIZONA

DNA Identification System Fund

3% additional penalty assessment on every fine, penalty and forfeiture imposed and collected by the courts for criminal offenses and for civil traffic violations (state and local).

Increased in 2007 to 7% to pay for arrestee testing.

CALIFORNIA

DNA Identification Fund

\$1 is levied for every \$10 in criminal penalties – including Vehicle Code infractions, but excluding parking offenses -- with revenues shared by the state and local governments. The state would receive 70 percent of the revenue in the first two years, 50 percent in the third year, and 25 percent annually thereafter. Local government will receive the difference to support DNA sample collection, as well as other related activities such as analysis, tracking, and processing of crime scene samples. (California has a large system of local labs who are responsible for the DNA analysis of criminal cases).

\$7 million was “borrowed” from the state General Fund for first year implementation costs, to be paid back as collections grow.

Furthermore, if an offender sample has been backlogged for 6 months, the state is required by law to send the sample to a private lab for analysis.

Increased to \$2 in 2006 due increases in demand for DNA testing in forensic cases.

COLORADO

\$2.50 on each criminal conviction or in a deferred judgment and sentence for a felony, a misdemeanor, or misdemeanor traffic offense, charged pursuant to state statute.

INDIANA**DNA Sample Processing Fund**

\$1 is assessed for any action in which a person is: convicted of an offense; required to pay a pretrial diversion fee; found to have committed an infraction; or found to have violated an ordinance.

MISSOURI**DNA Profiling Analysis Fund**

\$30 surcharge in all circuit court proceedings filed in the state and for all felony convictions (including "guilty" and "no contest" pleas), and a \$15 surcharge for all misdemeanor convictions (including "guilty" and "no contest" pleas). Surcharge is \$60 if the person is convicted of a serious drug offense. Additionally, if in the prior fiscal year, the state's general revenue did not increase by 2% or more, the money from the surcharges will be deposited into the state's general revenue fund. Otherwise, this money is deposited into the "DNA Profiling Analysis Fund."

NEW JERSEY**Forensic DNA Laboratory Fund**

\$2 is added to every fine or penalty imposed and collected by a court for any criminal violation and for any motor vehicle or traffic violation in the state.

Brianna's Law – Preliminary

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