

dna and law enforcement

by Karen J. Maschke

Framing the Issue

The European Court of Human Rights in Strasbourg is expected to decide in 2008 whether the United Kingdom can permanently keep the DNA samples and profiles of criminal suspects who were never convicted of a crime. Since 2004, anyone aged 10 years or over arrested in England or Wales for a “recordable offense” must provide a DNA sample to law enforcement officials. Certain information from their DNA—known as the DNA profile—is then stored electronically in the National DNA Database. Containing 4.5 million DNA profiles, it was until recently the world’s largest DNA databank. Today, that distinction goes to the United States, where state and federal law enforcement databases combined contain about 5.6 million DNA profiles. Although the overwhelming majority of the DNA profiles in the United States are from convicted felons, a growing number are from parolees, probationers, and people under arrest.

Like a fingerprint, DNA is a type of bioinformation that can be used to identify people and is therefore a valuable tool in attempts to identify criminal offenders. Yet compelling persons to provide their DNA to law enforcement agencies raises concerns about informed consent, individual and familial privacy, the use of genetic information in the criminal justice system, and the retention and use of DNA profiles and samples.

Collecting DNA

In 1988 Colorado became the first state to require some criminals—in this case sex offenders—to provide a DNA sample to law enforcement officials. Two years later Virginia enacted a law requiring all convicted felons to provide DNA.¹ States initially collected DNA samples only from persons convicted of certain sex offenses and serious violent crimes under the assumption that these individuals were likely to be repeat offenders. It was also assumed that DNA might be the only biological evidence obtained at a crime scene.

Since then, states have expanded the categories of persons required to provide a DNA sample to law enforcement officials. Today, all states collect DNA from sex offenders, and 44 states collect it from all felony offenders. Kentucky is one of 31 states that collect DNA from juveniles convicted of certain crimes. The state’s court of appeals recently upheld a portion of the law that requires collecting DNA from juveniles convicted of felony sex offenses, though it ruled as unconstitutional the portion that

Karen J. Maschke, PhD, is a research scholar at The Hastings Center and editor of IRB: Ethics & Human Research.

HIGHLIGHTS

- DNA is a type of bioinformation that can be used to identify criminal offenders.
- The United States has the world’s largest databank of DNA samples of criminals and criminal suspects, with 5.6 million DNA profiles.
- Most of these samples are from convicted felons, but a growing number are from parolees, probationers, and even people under arrest.
- Dozens of state bills introduced each year would expand the categories of people required to provide DNA samples for law enforcement.
- Compelling people to give DNA samples raises concerns about informed consent and privacy.
- An emerging issue is the practice of “back-door” collection, in which law enforcement officials obtain DNA from items such as cigarette butts and coffee cups that have been discarded by criminal suspects.
- Another emerging issue is whether the potential use of DNA to reveal a genetic tendency to criminal behavior, such as violence, should be admissible in court.

EXPERTS TO CONTACT

Karen J. Maschke, PhD, *Research Scholar, The Hastings Center, and Editor, IRB: Ethics & Human Research* • maschkek@thehastingscenter.org, 845-424-4040, x223

Eric T. Juengst, PhD, *Director, Center for Genetic Research Ethics and Law, Department of Bioethics, Case Western Reserve University* • etj2@po.cwru.edu, 216-368-6207

Mark Rothstein, JD, *Herbert F. Boehl Chair of Law and Medicine and Director for Bioethics, Health Policy and Law, University of Louisville School of Medicine* • mark.rothstein@louisville.edu, 502-852-4980

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allowed for DNA collection from juveniles convicted of burglary. Over a third of the states also permit DNA collection from individuals convicted of certain misdemeanors. For instance, New Jersey permits DNA collection for misdemeanor offenses with a prison sentence of six months or more. Several states also collect DNA samples from some probationers and parolees, and 13 states have laws that compel persons to provide a DNA sample at the time of arrest. California, Kansas, and North Dakota have the broadest arrestee laws; they require a DNA sample from everyone arrested for any felony offense. Arrestee laws with a narrower scope include New Mexico's, which authorizes DNA collection from persons arrested only for specific violent felonies.²

State lawmakers continue to introduce bills to expand the categories of persons required to provide their DNA to law enforcement officials. In 2007 alone, 91 DNA expansion bills were introduced in 36 states. Almost half of the bills were aimed at people arrested for certain offenses. A total of 15 bills were passed in 12 states, though an arrestee bill in South Carolina never became law because two separate House votes failed to override the governor's veto. Of the 14 bills that became law, four authorize law enforcement officials to obtain a DNA sample from persons arrested for various felony offenses.

Congress authorized the collection of DNA samples for certain federal offenders under the DNA Analysis Backlog Elimination Act of 2000. The Act requires individuals in federal custody and those convicted of certain violent crimes who were probationers, parolees, or on supervised release to provide a DNA sample. The 2001 U.S.A. Patriot Act added additional categories of qualifying federal offenses, and the Justice for All Act of 2004 further expanded the definition of qualifying offenders to include all persons convicted of felonies under federal law.

Two recent federal actions again expanded DNA sample categories. When Congress renewed the Violence Against Women Act in 2006, it included an amendment that authorizes federal officials to collect DNA samples from individuals who are arrested and from non-United States persons detained under U.S. authority. (Non-United States persons are neither U.S. citizens nor lawful permanent resident aliens.) In April 2008 the Department of Justice published a proposed rule directing certain U.S. law enforcement agencies to collect DNA

KEY FEDERAL LEGISLATION ON DNA FORENSICS

- **DNA Analysis Backlog Elimination Act of 2000:** Authorized the collection of DNA samples from individuals in federal custody; probationers, parolees, and people on supervised release who were convicted of certain violent crimes.
- **Justice for All Act of 2004:** Authorized DNA collection from anyone convicted of a federal felony.
- **Violence Against Women Act of 2006; Adam Walsh Child Protection and Safety Act of 2006:** Both acts authorized federal officials to collect DNA samples from any federal arrestee and from individuals detained by federal officials who are not U.S. citizens or lawful permanent residents aliens.

samples from individuals who are arrested, facing charges, or convicted, and from non-United States persons who are detained under U.S. authority.

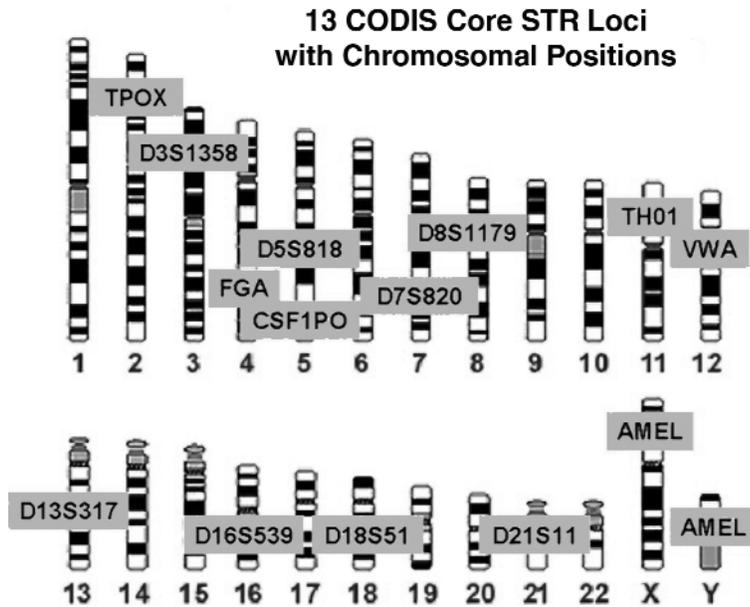
State and federal courts have upheld the constitutionality of some DNA statutes—including the DNA Analysis Backlog Elimination Act of 2000 and the Justice for All Act of 2004—on the grounds that the laws do not violate privacy rights or federal constitutional protections against unreasonable searches and seizures. However, in late 2006, the Minnesota court of appeals invalidated a portion of that state's DNA arrestee law. The court ruled that the privacy interest of a person charged with, but not convicted of, an offense outweighs the state's interest in that person's DNA. To compel someone who has not been convicted of a crime to provide a DNA sample, the court ruled that law enforcement officials must first obtain a warrant based on probable cause. To date, the U.S. Supreme Court has not ruled on the constitutionality of DNA collection laws.

The DNA Profile

State and federal forensic laboratories analyze DNA samples to obtain DNA profiles of people, and these profiles are stored in various electronic databases. The National DNA Index System (NDIS) contains the DNA profiles submitted by state and federal laboratories. The FBI's software program CODIS (Combined DNA Index System) links the profiles in these databases. For there to be a CODIS "hit," two DNA profiles must be perfect matches on 13 regions, or loci, of the individuals' DNA.

How the FBI's CODIS Works

An illustration of the 13 core regions of individual DNA that are used to match criminal suspects to DNA stored in various electronic databases.



Source: <http://www.cstl.nist.gov/biotech/strbase/fbicore.htm>

There is a growing dispute about whether the CODIS core loci constitute “junk DNA”—segments of genetic code that provide no information about a person’s physical characteristics (phenotype) or medical conditions. Several commentators raise concerns that advances in genetic testing technologies might eventually make it possible to obtain statistical approximations of an individual’s ancestry, addictive behaviors, sexual orientation, temperament, and other personal information from the genetic markers that make up the CODIS core loci. For instance, several attempts have been made to construct phenotypic profiles of criminal suspects using a new method of DNA analysis that purports to provide an inference of genetic heritage or ancestry. Obtaining such sensitive information from DNA samples collected without a person’s consent raises individual and familial privacy issues, especially if samples collected for law enforcement purposes are released to others for research purposes. Another privacy issue is the possibility that new technologies will be able to extract medical information from DNA profiles collected for law enforcement purposes.

A Hypothetical Scenario

New Orleans police collect a DNA sample from Anthony, a 16-year-old high school student arrested for allegedly assaulting his schoolteacher. However, the prosecutor does not bring charges against Anthony because the police investigation revealed that he was helping the teacher defend herself against an attack by another student. Even though Anthony was never charged with a crime, his DNA profile remains in the state’s DNA database, and his DNA sample stays in storage because state law permits samples of arrestees to be retained indefinitely.

A year later, police obtain DNA samples from a homicide scene and get a partial match to Anthony’s DNA profile; his DNA profile shares seven of the genetic markers of a profile in an offender DNA profile database. Thus, the partial match suggests that the crime scene DNA came from a genetic male relative. Using partial matches to support police investigations is known as “familial searching.” This practice was used 115 times in the United

Kingdom in 2006. Whether law enforcement agencies in other countries use this practice—and if they do, to what extent—is unknown.

Until recently, the FBI prohibited the release of identifying information attached to a DNA profile unless there was a complete CODIS match. However, in the summer of 2006, the agency issued an interim plan to release identifiable information from NDIS-participating laboratories when CODIS revealed a partial match. Some state crime labs have used partial matches, and at least two states (New York and Massachusetts) have laws permitting their databases to generate partial match profiles. In March 2008 the FBI held a symposium to address the privacy implications of familial searching. Representatives from law enforcement agencies and prosecutors offices argued that the practice should be used because it provides investigative leads that can result in arrests and convictions. Civil liberty and privacy advocates raised concerns about innocent people being put under what has been called “genetic surveillance” solely because they have a genetic relative whose DNA profile is in a law enforcement database.

After getting a partial match, New Orleans police ask Anthony's male relatives to give them a DNA sample voluntarily. Asking a certain population—such as all men in a geographic area—to provide a DNA sample to law enforcement officials is known as a DNA dragnet. Since 1987, at least 20 DNA dragnets have been conducted in the United States. Critics charge that in some communities the police have harassed individuals who refused to participate, and in one community the police obtained a warrant to collect DNA from a man after he declined to participate in a dragnet. In 2006, a federal appeals court ruled that the police violated the man's constitutional rights because they did not have probable cause to obtain a warrant to seize his DNA.³

Anthony's male relatives refuse to give police DNA samples, and the local judge refuses to issue a warrant compelling them to do so. As a consequence, the police follow the male relatives in the hope of getting discarded items like cigarette butts, coffee cups, and gum wrappers from which they hope to obtain a DNA sample. This "backdoor" method of collecting DNA raises questions about whether people under surveillance have a constitutional expectation of privacy concerning their abandoned DNA, which would mean that collecting the DNA without a warrant would be a violation of the Fourth Amendment's protection against unreasonable seizures. Sometimes referred to as "surreptitious sampling," this practice reportedly is growing in popularity in law enforcement agencies throughout the country.

While the police conduct their investigation, the state forensic laboratory uses new technology to analyze the crime scene DNA. The analysis suggests that the DNA is from a 20-to-30-year-old male of primarily African ancestry who has asthma and a genetic predisposition to hypertension. Four of Anthony's cousins partially fit this description. The police go to local hospitals, clinics, and pharmacies to obtain his cousins' medical records to see if one of the men has been treated for asthma or high blood pressure. The federal privacy rule under the Health Insurance Portability and Accountability Act of 1996 (HIPAA) permits hospitals, clinics, pharmacies, and other entities covered by the rule to disclose to law enforcement officials the medical, injury, and treatment information of a criminal suspect.

Based on information obtained from medical and pharmacy records, the police get warrants to

RESOURCES

Web sites

- www.aslme.org/dna_04 – the American Society of Law, Medicine and Ethics DNA Fingerprinting and Civil Liberties Project. Includes multimedia workshop presentations, reports, summaries of important legislation, cases and studies of note, news, and archives.
- www.dna.gov – the President's DNA Initiative. Includes information on forensic DNA and its uses, case studies, and statutes and case law, as well as a feature that sorts content by audience.
- www.denverda.org/DNA/DNA_INDEX.htm – the Denver District Attorney's DNA resource page. Includes rulings, statistics, forensic DNA articles, and links.

Recent news

- Rick Weiss, "DNA Tests Offer Deeper Examination of Accused," *Washington Post*, April 20, 2008.
- Amy Harmon, "Lawyers Fight DNA Samples Gained on the Sly," *New York Times*, April 3, 2008.
- Gautam Naik, "The Gene Police," *Wall Street Journal Europe*, February 20, 2008.
- Julia Preston, "U.S. Set to Begin a Vast Expansion of DNA Sampling," *New York Times*, February 5, 2007.
- Rick Weiss, "Vast DNA Bank Pits Policing vs. Privacy," *Washington Post*, June 3, 2006.
- Rick Weiss, "DNA of Criminals' Kin Cited in Solving Cases," *Washington Post*, May 12, 2006.

Further reading

- Nuffield Council on Bioethics, *The Forensic Use of Bioinformation: Ethical Issues*, 2007. Report available at www.nuffieldbioethics.org.
- Holly K. Fernandez, "Genetic Privacy, Abandonment, and DNA Dragnets: Is Fourth Amendment Jurisprudence Adequate?" *Hastings Center Report*, January-February 2005.

arrest two of Anthony's cousins. Because Louisiana has an arrestee DNA law, the cousins are required to give the police a DNA sample. The oldest cousin's DNA matches the DNA sample from the crime scene. After the cousin is charged with murder, he demands an independent analysis of his DNA to see if it can refute the state's claim. When the new DNA analysis confirms the state's finding, the cousin demands new genetic tests that might show whether he has a genetic predisposition to violence. No reliable data are available about how many criminal defendants have tried to "argue genetics" against charges of criminal offenses or to mitigate punishment, although reports in the

media and the legal literature suggest the number is low. These reports also indicate that judges have refused to let defendants use genetic information at trial, although at least one defendant was permitted to introduce it at sentencing.

Moreover, arguing genetics has implications beyond its use at trial and sentencing. Several commentators have suggested that genetic-based crime control strategies might include mandatory genetic screening to identify individuals predisposed to certain behaviors or deemed genetically predisposed to criminal offending. They might also include mandatory preventive treatment such as gene therapy or preventive detention policies. These and other potential crime control strategies raise questions about the ethical, legal, and social implications of new applications of genetic screening, about the loss of privacy and liberty for individuals identified as “genetically predisposed” to criminal offending, and about the potential for policies and practices that stigmatize and discriminate against such individuals.

Meanwhile, Anthony and his cousin who was not charged want the state to destroy their DNA samples and to remove their profiles from its DNA data-

base. State laws about retaining DNA samples and DNA profiles vary, and there is no national standard or guideline on the matter. Some commentators raise concerns that stored DNA samples and profiles collected for law enforcement purposes will be used for genetic research to examine whether there are genetic predictors of aggression, pedophilia, mental illness, and drug and alcohol addiction. Others contend that there are valid reasons for state and federal authorities to retain DNA samples and profiles, and that adequate safeguards are in place to limit access to them and disclosure of the information they contain. To date, the law on the matter remains inconclusive. 🌳

References

1. T. Shellberg, “DNA Justice Speaks,” Presentation for the American Prosecutors Research Institute, November 20, 2003, at <http://www.dnaresource.com/documents/Brasilia2.ppt#1>.
2. National Conference of State Legislatures, *State Laws on DNA Data BAAnks Qualifying Offenses, Others Who Must provide Sample*, January 2008. at <http://www.ncsl.org/programs/cj/dnadatabanks.htm>.
3. *Kohler v. Englade*, 470 F.3d 1104 (5th Cr. 2006).