

DNA, Privacy, and Social Justice: The Policy-making Process in the State of Maryland

Howard A. Palley¹, Charlotte Lyn Bright², Jenny Afkinich³

Abstract

When and how law enforcement is able to gather, store, and analyze DNA is a current social justice issue. This article considers the question of DNA analysis in terms of social justice and privacy concerns. Of particular interest are the issues of federalism and the role of the states in legislating the use of DNA; mitochondrial or familial DNA matching; expectations of privacy as documented in Supreme Court decisions and opinions; and the potential to collect and use DNA from individuals not convicted of a crime. We describe the unique situation of Maryland as the only state to legislate a ban on familial DNA but also as the impetus for a 5-4 Supreme Court decision affirming broad rights of states to collect and use DNA evidence. We consider the multiple stakeholders, including advocacy groups and policymakers, who contributed to the familial DNA ban, in the context of social justice questions and disproportionate minority contact with the criminal justice system.

Keywords: Familial DNA, privacy, federalism, social justice

1. DNA Evidence in Criminal Justice

The technology to gather, analyze, and interpret deoxyribonucleic acid (DNA) as evidence has revolutionized modern criminal justice proceedings. Unlike more subjective forms of evidence, such as eyewitness accounts, which are demonstrably unreliable (McGrath & Turvey, 2014), or less sensitive forms of biological evidence, such as blood typing, DNA evidence can point to a single individual or family based

¹ University of Maryland, School of Social Work, 525 W. Redwood St., Baltimore, Maryland 21201, USA

² University of Maryland, School of Social Work, 525 W. Redwood St., Baltimore, Maryland 21201, USA, cbright@ssw.umaryland.edu, (410)706-3605 (phone), (410)706-6046 (fax)

³ University of Maryland, School of Social Work, 525 W. Redwood St., Baltimore, Maryland 21201, USA

on unique genetic traits, allowing for much greater confidence in the quality and meaning of evidence in criminal cases (Strom & Hickman, 2010).

A particularly meaningful use of DNA, dating back to 1989, has been in the exoneration of previously convicted individuals, based on exculpatory DNA evidence (Findley, 2014). Although DNA evidence is not always gathered, due to barriers in cost, training, and expertise (White, Borrego, & Schroeder, 2014), the circumstances under which DNA can be used as evidence requires interpretation of legal precedent and constitutionality with respect to concerns about privacy and protection from undue or overzealous police and prosecutorial intervention. Previous scholarship has examined privacy and presumption of innocence concerns relative to collection of DNA. Campbell (2011) considered the practice in many countries of retaining DNA samples among those suspected or arrested, but never convicted, of crimes. Krimsky and Simoncelli (2012) identified the expansion of DNA databases, containing samples of those who were arrested and against whose DNA future evidence could be compared, raising concerns about privacy and stating the position that “[DNA technology] should be used in ways that reflect a society’s commitment to maintaining privacy and autonomy, minimizing racial discrimination and injustices, and contributing to overarching fairness in the criminal justice system” (p. XVII).

Of concern in the United States are differing policies and practices regarding DNA collection, storage, and applications, as well as the increase in gathering DNA from those not convicted of any crime (e.g., those arrested but never found guilty; Krimsky & Simoncelli, 2012). Related to this concern is the possibility of so-called “familial” or mitochondrial matching, in which a DNA sample is used to identify biological relatives, in essence widening the net of individuals who can be identified using a single sample. The application of DNA technology has social justice as well as privacy implications.

The United States, like many countries, has been generally expansive rather than restrictive in the uses and storage of DNA. This raises concerns around human rights (Campbell, 2011). Even from a pragmatic perspective, research has demonstrated that collecting DNA evidence rarely results in a usable match, despite the proliferation of DNA analysis (Mapes, Kloosterman, & Poot, 2015). What is missing from the literature on ethics and justice around DNA is a social policy analysis considering the multiplicity of factors that influence social welfare policy development and application. This paper discusses the historical, political, and social justice context in which DNA and privacy policy has developed in a single state, Maryland. The basis of this article involves the examination of how public policy has developed with respect to the technology of DNA analysis in terms of the variables that are involved in the determination of public policy regarding “privacy.” Of particular importance is the role of the judiciary in the federal system of the United States in the determination of public policy (Choper, 1993).

Institutional factors (March & Olsen, 1984; Okma & Marmor, 2015; Spithoven, 2011; Steinmo & Watts, 1995), such as the Bill of Rights in the U.S. Constitution as well as ideologies, are often expressed in judicial opinions, but also by other stakeholders in the public sphere. Also involved is how decisions in this area are made given the United States' emphasis on separation of powers and division of jurisdictional authority (Krane, 2007; Wright, 1993). Another dimension influencing the development of such public policy is the disposition to act by political leaders in terms of their perspectives as well as their sense of public pressure.

In further examining DNA public policy development within American federalism, regulatory policy and the examination of interest groups and societal pressures affecting such policy is a useful lens for focusing on DNA policy in the state of Maryland (Lowi & Nicholson, 2016). In this paper DNA policy-making is examined in detail (Brown, 1982; Filippov, Ordeshook & Shvetsova, 2004; Krane, 2007). DNA policies are constrained by judicial review at the Supreme Court level, particularly in the case of *Maryland v. King* (2013). Thus we will be examining the overlapping of national and state policy-making in this case study (Wright, 1993).

2. The U.S. Constitutional Context

Examining balance between privacy rights and the usefulness of DNA data in the solving of crimes has become an important subject in public policy with respect to the criminal justice system. The right of the criminal justice system to investigate is a matter that state and federal courts have grappled with, particularly with regard to the collection and use of a person's DNA, and is an issue far from the worldview of the framers of the Constitution. The Fourth Amendment to the U.S. Constitution guarantees citizens and legal residents of the United States protection against "unreasonable search and seizure." What constitutes "unreasonable search and seizure" in the case of the introduction and availability of DNA technology is a challenge for state and federal courts, as well as federal and state legislatures.

Some other aspects of the U.S. Constitution may influence the judiciary regarding "privacy." In the 1965 case of *Griswold v. Connecticut* that struck down a Connecticut law banning the use of contraceptives by married couples, Justice William O. Douglas opined that the right to privacy, never explicitly stated in the Bill of Rights, was located in the "penumbras and emanations" of various provisions, such as the Fifth Amendment's guarantee against self incrimination. Also, one might note the Ninth Amendment's statement that other rights of the individual exist that are unstated in the Bill of Rights, as well as Justice Louis Brandeis's coauthored statement in a famous 1890 Harvard Law Review article that Americans have "the right to be left alone" and that rights to privacy arise "not...from contract or a specific trust, but are rights as against the world" (Warren & Brandeis, 1890, p. 213).

Brandeis elaborated on the importance of privacy in the 1928 Supreme Court case of *Olmstead v. United States*. In his dissent in this case, which involved the use of a governmental wire-tap as evidence, Brandeis noted: “[The defendants]...objected to the admission of evidence obtained by wiretapping, on the grounds that government wire-tapping constituted an unreasonable search and seizure in violation of the Fourth Amendment, and that the use as evidence of the conversations overheard compelled the defendants to be witnesses against themselves, in violation of the Fifth Amendment.”

He supported this contention in a statement noting that: “The makers of our Constitution undertook to secure conditions favorable to the pursuit of happiness. They recognized the significance of man’s spiritual nature, of his feelings, and of his intellect ... They conferred, as against the Government, the right to be let alone --- the most comprehensive of rights and the right most valued by civilized men. To protect that right, every unjustifiable intrusion by Government upon the privacy of the individual, whatever the means employed, must be deemed a violation of the Fourth Amendment. And the use, as evidence in a criminal proceeding, of facts ascertained by such intrusion must be deemed a violation of the Fifth.”

Thus, Brandeis combined a value-based commitment to the importance of a privacy right against government intrusion with a defense of that right based on the U.S. Constitution’s Fourth and Fifth Amendments.

3. Maryland and DNA Data

3.1 The Use of DNA in Criminal Justice Proceedings

A key case involving U.S. federalism and the use of DNA evidence is the U.S. Supreme Court’s decision in *Maryland v. King*, decided on June 3rd, 2013. In this case, a number of variables affecting criminal justice policy and privacy are intermingled. An important variable is individual rights as discussed earlier and articulated in the fourth, fifth, and ninth amendments to the U.S. Constitution. Another is the role of the Supreme Court in the U.S. federal system to “clarify” the prerogatives of states regarding privacy under the Supreme Court’s tradition of judicial review, initially assumed in the 1803 case of *Marbury v. Madison*. Furthermore, the Supreme Court’s opinion in this case displays the conflicting ideologies of its majority and minority concerning the issue of privacy and the needs of the criminal justice system regarding the collection and utilization of DNA data. This case involved the question of what constituted “unreasonable search and seizure” with regard to DNA evidence acquired under Maryland’s 2009 DNA Collection Act. This matter had been brought before Maryland’s Court of Appeals in *King v. Maryland* in February, 2013.

The case centered upon Alonzo Jay King, Jr. In 2009, King was arrested for first- and second-degree assault. The collection of his DNA data by police upon his arrest, and determination before a judge of probable cause for the arrest, was authorized by the Maryland DNA Collection Act. When King's DNA data was added to the state's DNA database, it matched DNA data collected previously in an unsolved 2003 rape case. Using this data as evidence, a Maryland trial court convicted King of rape.

The Court of Appeals, the state's highest court, reversed King's conviction, holding that the DNA evidence was improperly obtained during an "unreasonable search" and was therefore unconstitutional (*King v. Maryland*, 2013). The decision was appealed to the U.S. Supreme Court with the view of that court considering the balance between Maryland's state government's interest in the solving of violent crimes utilizing DNA data and the Fourth Amendment right against warrantless and nonspecific searches.

The U.S. Supreme Court, in a narrow 5 to 4 decision, reversed Maryland's judicial decision. The Supreme Court's five-member majority held that the conviction of King for rape based on the utilization of DNA data collected under Maryland's DNA Collection Act was constitutional. The majority opinion was written by Justice Anthony Kennedy, joined by Chief Justice John Roberts and Justices Clarence Thomas, Stephen Breyer and Samuel Alito. Although significant in its impact on public policy in this matter, the 5 to 4 vote indicated a high level of disagreement within the court. A dissenting opinion by Justice Antonin Scalia was joined by Justices Ruth Bader Ginsberg, Sonia Sotomayor and Elena Kagan.

The Supreme Court's majority opinion is very significant in our reflecting on the judicial role in the relationship between the state and federal levels of government, as well as the institutional arrangement for separation of powers. It also, as demonstrated in the majority and minority opinions in this case, indicates different perspectives and ideologies among the members of this body concerning "privacy" and the "reasonableness" of searches.

The five-member majority held that Maryland's DNA Act served a legitimate governmental interest that outweighed the Fourth Amendment proscription of "unreasonable search and seizure." Kennedy, in his opinion, noted: "Courts have confirmed that the Fourth Amendment allows police to take certain routine administrative steps incident to arrest---i.e....[to] book, photograph and fingerprint... DNA identification of arrestees, of the type approved by the Maryland statute here at issue, is no more than the extension of methods of identification long used in dealing with persons under arrest."

Kennedy's opinion emphasized the national relevance of collection of DNA data. His opinion noted that Maryland's law was a significant contributor to a national project to standardize the collection and storage of data nationally that was "authorized by Congress and supervised by the Federal Bureau of Investigation, the Combined DNA Index System (CODIS) that connects DNA laboratories at the local, state and national levels."

Kennedy went on to further note that many states expressly permit gathering DNA data from "arrestees," in addition to those convicted of a crime. He observed: "Twenty-eight states and the federal government have adopted laws similar to the Maryland Act authorizing the collection of DNA data from some or all arrestees. Although these statutes vary in their particulars, such as what charges require a DNA sample, their similarity means that this case implicates more than the specific Maryland law. At issue is a standard, expanding technology already in widespread use throughout the nation."

In further support of his majority decision, Kennedy cited his earlier opinion in the case of *Florence v. Board of Chosen Freeholders of the County of Burlington* in which he noted the salience of searching DNA databases for locating individuals who had committed serious crimes. In this earlier decision, Kennedy had argued that access to criminal history, even for minor offenders, was a critical tool for law enforcement and that identification procedures (including DNA evidence) were relevant to promoting public safety.

Nevertheless, the minority opinion delivered by Justice Scalia provided a sharp rebuttal. This dissent warned against "dragnet" based upon use of an arrestee's DNA. Scalia argued that the collection of such data was unfair to those later acquitted of the crime for which they were arrested. Maryland's DNA Act provides that in such cases the DNA data should be deleted and destroyed, although no report has been issued regarding how well that statutory requirement has been achieved. The widespread lack of implementation of such requirements at state and local levels is discussed in Mercer and Gabel (2014). Scalia warned about the danger of creating a vast invasive precedent in the majority decision.

He stated: "The court [in this case] disguises the vast (and scary) scope of its holding by promising a limitation it cannot deliver. The court repeatedly says that DNA testing, and entry into a national DNA registry will not befall thee and me... but only those arrested for 'serious offense(s)'....Make no mistake about it. As an entirely predictable consequence of today's decision, your DNA can be taken and entered into a national DNA data base if you are ever arrested, rightly or wrongly, and for whatever reason."

Scalia further argued that it could lead to the dragnetting of such information by the Federal Transportation Security Administration “of all those who fly an airplane liner, as well as those who seek a driver’s license or attendees of a public school.” The dissent argued that “suspicionless searches” could only be Constitutionally justified if law enforcement had a prior justifying motive apart from the investigation of the crime the arrestee faced. Otherwise the dissent took the position that “...the Fourth Amendment must prevail” in its proscription of “unreasonable” search and seizure.

Mercer and Gabel (2014) identify additional concerns regarding arrestee and other DNA data. Specifically, they suggest tighter and clearer regulation of DNA data banks at multiple levels of government. They note that the public supports DNA collection from serious offenders but that this support should erode as DNA collection efforts expand beyond this group. The authors provide examples of DNA collection from crime victims, from those who provide samples for exclusion purposes, and from those who discard items that may contain traces of DNA, which could then be collected by law enforcement.

However, as noted by Mercer and Gabel, intermingled with good intentions, the expansion of unregulated local and state DNA databases represents: “[An] alarming trend whereby the privacy and dignity of our citizens [are] being whittled away by...imperceptible steps...[W]hen viewed as a whole, there begins to emerge...a society in which government may intrude into the secret regions of man’s life at will” (2014, pp. 96-97).

3.2.National DNA Data Collection in the U.S.

The system for national DNA data collection in the U.S. is termed the Combined DNA Index System and known by its acronym CODIS (FBI, 2016a). The FBI maintains two DNA indices, the Convicted Offender Index and the Arrestee Index. The FBI notes that when there is an inquiry by law enforcement by a recognized criminal justice organization regarding this database, the CODIS laboratory “...will go through procedures to confirm this match and, if confirmed, will obtain [and share] the identity of the suspected perpetrator” (FBI, 2016a). It might be noted that there are criminal penalties for unauthorized disclosure of DNA data in the National DNA database but that these penalties are quite limited. CODIS DNA data is collected in the National DNA Index System (NDIS). It contains DNA profiles contributed by federal, state and local participating forensic laboratories. It was initially implemented in October, 1998. One criticism of the national system is the uncertainty around requirements for expungement. Expunging DNA data from CODIS requires the submission of valid court orders indicating that an arrest has not resulted in a conviction, or that or a conviction has been overturned.

However, the procedure by which this process is to be implemented has not been clearly identified. One particular issue of concern related to the banking of DNA data is familial, or mitochondrial, DNA. Familial DNA searches utilize the partial DNA match of a father, sister, brother or other close biological relative of the suspected criminal. An argument in favor of such bans is that the Constitutional right to privacy with regard to genetic surveillance should not be surrendered because a relative has lost that right by committing a crime. Also salient is that offender databases nationally and in specific states (as discussed below with regard to Maryland) contain a disproportionate number of Black and Hispanic samples and thus such family searching amounts to a form of racial profiling.

The FBI itself does not recommend searching for familial matches (i.e., developing or identifying a suspect based on shared genetic family traits as observable through DNA). The Scientific Working Group on DNA Analysis Methods (SWGDM) provided the FBI's CODIS Unit with the rationale for their recommendation based on questionable accuracy and efficiency of familial DNA searches (FBI, 2016b). Nevertheless, the FBI notes that Arkansas, California, Colorado, Florida, Michigan, Texas, Utah, Virginia, Wisconsin and Wyoming do conduct family searching at the state level (FBI, 2016b).

3.3. Maryland and the Use of DNA Data in the Criminal Justice System

As in many states throughout the nation, DNA data collection has expanded over time in the state of Maryland. Beginning in 1994, the Maryland legislature established a statewide DNA database requiring all convicted sex offenders to supply a DNA sample. However, this practice quickly came to include additional individuals, expanding to those convicted of serious crimes in 1999, and to those with certain misdemeanors and all felony convictions in 2002. In 2008, the DNA Collection Act was amended to permit Maryland to collect DNA from persons arrested and charged for burglary or violent crimes (Electronic Privacy Information Center, 2008).

This shift from convicted offenders to arrestees resulted in criticism from some quarters, despite the DNA Act having the support of the governor's office. Governor O'Malley's director of the Office of Crime Control and Prevention, Kristen Mahoney, responded to criticisms by maintaining that, if charges were dropped or the suspect cleared, expungement was automatic (Rein, 2008). What remained unclear to critics was, in part, how (or whether) this data was to be removed from federal data banks.

The American Civil Liberties Union (ACLU) of Maryland, the Maryland chapter of the National Organization of Women (NOW), Maryland NAACP, and the State Public Defender's Office all criticized the weakness of the 2008 law providing for the expungement of DNA samples for those found innocent of a crime with which they had been charged, on the basis that the procedures for expunging the DNA samples from the records of such individuals were unclear in the statute and subsequent regulations (Rein, 2008). In addition to Cindy Boersma of the ACLU, the actors who were ultimately influential in limiting the scope of the DNA Collection Act by influencing legislators included Patrick Kennedy of the Maryland Public Defenders' Office, Professor Will McClain of the University of the District of Columbia's Law School, Professor David Lazar of the University of Maryland, and Stephen Mercer, then in private law practice (Mercer, personal communication, December 2, 2015). Mercer later served as Chief of the Forensic Division of the Maryland Office of Public Defender (Polisano, 2011). On the state legislative side, the Legislative Black Caucus and particularly Prince George's County and Baltimore City delegates were also involved in securing limitations on the scope of DNA collection (Jordan, 2008; Mercer, personal communication, December 2, 2015).

Concerns were expressed in a joint letter from the Maryland chapters of the NAACP and the American Civil Liberties Union (Stansbury, Dillard, & Boersma 2008). Boersma, in presenting the ACLU of Maryland's opposition to the collection and permanent retention of DNA samples for innocent persons, noted: "[Such a system] could increase racial profiling and have a disproportionate effect on minorities...[and additionally create] an unmanageable and costly burden on law enforcement in need of additional forensic resources. [Furthermore] errors in DNA analysis due in part to overburdened and under-resourced crime labs have been widely documented nationwide and in Maryland."

Regarding the related issue of the collection of Family DNA and "targeting", the joint letter noted: "The DNA dragnet [could result in data collection from] many African Americans who have never been arrested or suspected of any crime. Known DNA profiles are used to identify parents, children, siblings and relatives whose profiles are not in ...[any] database" (Stansbury, Dillard, & Boersma, 2008). In a statement before a Maryland Senate Committee, the Maryland's National Organization of Women Chapter noted: "[While] it is important for women to be protected before an assault or rape, the proposed [family] expansion of DNA data collection would violate the U.S. Constitution's Fourth Amendment and the state's resources would be better devoted to crime prevention in this area" (Maryland NOW, 2008).

3.4. Maryland and the Proscription of the Use of Family DNA Data Collection

Since 2008, Maryland (and the District of Columbia) are the only state or regional jurisdictions in the United States to ban familial DNA searches. Maryland's proscription of DNA family searching by an act of its legislature has been influenced by a number of variables. One key factor is the ideological salience of the right to privacy concerning DNA data. Another is the institutionalization of that right in the Fourth Amendment to the Constitution and the development of judicial decisions regarding a "right to privacy" regarding the use of contraceptives between married couples in the case of *Griswold v. Connecticut* (1965), as well as regard to other issues such as interracial marriage (*Loving v. Virginia* [1967]) and the privacy of consenting sexual relationships between gay couples (*Lawrence v. Texas* [2003]). Despite the federal nature of these rights and cases, however, no other state has proscribed that means of utilizing familial DNA by a legislative act. Looking further at this uniqueness, we must note the importance of the actions by the state and local actors described in the prior section but also the racial makeup of both the state and the criminal justice system as a whole.

The U.S., with less than 5% of the world's population, accounts for 25% of the world's prison population. Furthermore, Black Americans are imprisoned at six times the rate of non-Hispanic whites, and Hispanics are imprisoned at twice the rate of non-Hispanic whites ("The Right Choices", 2015). In examining decision-making regarding DNA and criminal justice issues in Maryland, demographic factors are significant. Maryland has a significant Black population and a disproportionate Black prison population. According to the U.S. Bureau of the Census in 2015, the non-Hispanic white population constituted 52% of Maryland's population, and the Black population was 30.5%. In Maryland's largest city, Baltimore, recent demographic data from the Baltimore Neighborhood Indicators Alliance (2014) indicated that the non-Hispanic white population was 28.3% of the total, while a Black majority constituted 63.8% of the population. The prison population in Maryland during the same period was disproportionately Black, with Black inmates constituting 70.9% of prisoners in the state (Maryland Department of Public Safety and Correctional Services, 2014; also see "Shifting Prison Populations", 2013). The combination of a significant Black citizen population and a disproportionately Black prison population may have served as a meaningful backdrop for the legislative actions banning the use of familial DNA searches in Maryland.

Conclusions

From the perspective of human rights, the collection, storage, and use of DNA evidence has critical implications. As described above, beyond the constitutional considerations relating to privacy, protection from unreasonable search and seizure, and additional individual liberties (such as that against self-incrimination), DNA policy may disproportionately affect African American populations. As we have shown, judicial review by the U. S. Supreme Court and its role in the U. S. federal system, ideological perspectives of justices, lower court judges, and other individuals (such as lawyers, state lawmakers, and advocates) come into consideration. In this case, stakeholders such as the Maryland ACLU, NAACP, and NOW have influenced public policymaking.

The shaping of Maryland public policies regarding DNA searches, as well as the “expungement” of DNA data from records where no criminal conviction has occurred, plus the prohibition against family DNA searches is the result of both “top down” processes at the national level and “bottom up” processes at the state level (Mätzke & Stöger, 2015; Queen’s School of Business, 2015). The top down process incorporates the U.S. Supreme Court’s 5 to 4 majority decision in *Maryland v. King*, which allowed the use of DNA searches to determine prior unlawful action not currently under investigation. It also engendered a perspective that public safety concerns in the criminal justice system trumped privacy rights as expressed in Justice Kennedy’s opinion. This opinion was challenged in Justice Scalia’s minority opinion.

The final limitations on the collection of DNA information in Maryland’s criminal justice system, the procedures for expungement where no criminal conviction has occurred and the prohibition against family DNA searches, were due to the interaction of a number of individual and group actors, who were key in shaping reasonable restraints on the collection and maintenance of DNA data in the criminal justice system, as well as the political saliency of the Maryland legislature’s Legislative Black Caucus.

Many of the arguments for constraints in the use of DNA collection, appropriate situations for expungement, and the prohibition of family DNA searches are based on institutional and ideological traditions in the United States engendered in the American Constitution’s Bill of Rights and elsewhere regarding protection from governmental intrusion and the right to privacy. Additionally, in a state with a significant and concentrated Black population, the concern with civil rights and the prevention of targeting of this demographic cohort played a significant role in the development of DNA policies in Maryland’s criminal justice system.

A policy agenda focused on promoting human rights should consider the appropriate use and limitations related to DNA evidence in securing both public safety and the protection of vulnerable groups. This study also indicates how DNA policy with respect to the criminal justice system is shaped in part by the constraints of the Supreme Court at the national level dictating the legitimacy of DNA searches in criminal justice areas and the flexibility of the states, in this particular case the state of Maryland, to provide some limitations on the use of such information in the U.S. federal system.

References

- Baltimore Neighborhood Indicators Alliance, Jacob France Institute. (2014). Baltimore City vital signs, 2014. Retrieved from <http://bniajfi.org/community/BaltimoreCity/>
- Boersma, C. R. (February 13, 2008). ACLU testimony before the Senate Judicial Proceedings Committee on S.B211. Maryland Leg. 425 Sess.
- Brown, G. D. (1982). New federalism, old federalism and the fiscal Constitution. *American Bar Association Journal*, 68, 946-1031.
- Campbell, L. (2011). "Non-conviction" DNA databases and criminal justice: A comparative analysis. *Journal of Commonwealth Criminal Law*, 1, 55-77.
- Choper, J. H. (1993) Federalism and judicial review: An update. *Hastings Constitutional Law Quarterly*, 21, 577-591.
- Electronic Privacy Information Center. (2008). Maryland v. King: Concerning the constitutionality of mandatory DNA collection pre-conviction. Retrieved from <http://www.epic.org/amicus/dna-act/Maryland/>
- Federal Bureau of Investigation (FBI). (2016a). CODIS and NDIS Fact Sheet: Frequently asked questions (FAQs) on the CODIS Program and the National DNA Index System. Retrieved from <https://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis-and-ndis-fact-sheet>
- Federal Bureau of Investigation (FBI). (2016b). Family Searching. Retrieved from <https://www.fbi.gov/about-us/lab/biometric-analysis/codis/familial-searching>
- Filippov, M., Ordeshook, P. C., & Shvetsova, O. (2004). Designing federalism: A theory of self-sustained federal institutions. New York: Cambridge University Press.
- Findley, K. A. (2014). Innocence found: The new revolution in American criminal justice. In S. L. Cooper (Ed.), *Controversies in innocence cases in America*. University of Wisconsin Legal Studies Research Paper No. 1263. Retrieved from <https://ssrn.com/abstract=2443124>
- Griswold v. Connecticut, 381 U.S. 479 (1965).
- Jordan, V. (February 22, 2008). Letter on behalf of the Legislative Black Caucus of Maryland, Inc. to Chairman, Senate Judicial Proceedings Committee. Maryland Leg. 425 Sess.
- King v. Maryland, 0152 Special Appeals Court of Maryland. (2013). Retrieved from <http://www.courts.state.md.us/>
- Krane, D. (2007). The middle tier in American federalism: State government policy activism during the Bush presidency. *Publius*, 37(3), 453-477.
- Krimsky, S., & Simoncelli, T. (2012). Genetic justice: DNA data banks, criminal investigations, and civil liberties. New York: Columbia University Press.

- Lawrence v. Texas, 539 U.S. 558 (2003).
- Loving v. Virginia, 388 U.S. 1 (1967).
- Lowi, T. J. & Nicholson, N. N. (2016). *Arenas of power: Reflections on politics and policy*. New York: Routledge.
- Mapes, A. A., Kloosterman, A. D., & Poot, C. J. (2015). DNA in the criminal justice system: The DNA success story in perspective. *Journal of Forensic Sciences*, 60(4), 851-856.
- Marbury v. Madison, 5 U.S. 137 (1803).
- March, J. C., & Olsen, J. P. (1984). The new institutionalism: Organizational factors in political life. *American Political Science Review*, 78(3), 734-749.
- Maryland NOW. Hearings on S.B. 211. Maryland Leg. 425 Sess. (2008).
- Maryland State Department of Public Safety and Correctional Services. (2014, April). Quarterly DPSCS inmate characteristics reports. Retrieved from <http://www.dpscs.state.md.us/publicinfo/>
- Maryland v. King, 569 U.S. 12-207 (2013).
- Mätzke, M., & Stöger, H. (2015). Austria. In K. J. Strom & M. J. Hickman (Eds.), *Forensic science and the administration of justice: Critical issues and directions* (pp. 29-46). Thousand Oaks, CA: Sage.
- McGrath, M., & Turvey, B. E. (2014). Eyewitness identification: Uncertainty, error, and miscarriages of justice. In B. E. Turvey & C. M. Cooley (Eds.), *Miscarriages of justice: Actual innocence, forensic evidence, and the law* (pp. 91-114). San Diego, CA: Academic Press.
- Mercer, S. (February 15, 2008). Letter to Chairman, Maryland Senate Judiciary Proceedings Committee on S.B. 211. Maryland Leg. 425 Sess.
- Mercer, S., & Gabel, J. D. (2014). Shadow dwellers: The unregulated world of state and local databases. *NYU Annual Survey of American Law*, 69, 639-698.
- Okma, K. G. H., & Marmor, T. R. (2015). The United States. In K. Fierlbeck & H. A. Palley (Eds.), *Comparative health care federalism*. Farnham, UK and Burlington, VT: Ashgate.
- Olmstead v. United States, 277 U.S. 438 (1928).
- Polisano, M. J. (2011, Fall). The use of familial evidence in criminal prosecutions in Maryland. *The Advocate*. Retrieved from <http://www.msba.org/sections/younglawyers/advocate/fall2011/dna.aspx>
- Queen's School of Business, The Monieson Centre for Business Research in Healthcare. (2015). *Creating Strategic Change in Canadian Healthcare: Conference Summary 2014*. [PDF] Retrieved from https://smith.queensu.ca/centres/monieson/knowledge_articles/files/2014-QHPCC%20Conference%20Summary.pdf
- Rein, L. (2008, September 4). O'Malley administration DNA collection rules criticized. *The Washington Post*. Retrieved from <http://www.washingtonpost.com>
- Shifting prison populations. (2013, March 4). *Baltimore Sun*. Retrieved from <http://www.baltimoresun.com>
- Spithoven, A. (2011). It's the institutions, stupid! Why U.S. health expenditure is so different from Canada's. *Journal of Economic Issues*, 45(1) 75-96.
- Stansbury, G., Dillard, J. W. and Boersma, C.. (2008, March 6). DNA Database Creates Genetic Surveillance. *The Gazette*. Retrieved from <http://www.gazette.net>

- Steinmo, S., & Watts, J. (1995). It's the institutions, stupid! Why comprehensive national health insurance always fails in America. *Journal of Health Politics, Policy and Law*, 20(2), 329-372.
- Strom, K. J., & Hickman, M. J. (2010). Unanalyzed evidence in law-enforcement agencies. *Criminology & Public Policy*, 9, 381-404.
- The right choices. (2015, June 20). *The Economist*, pp. 23-24.
- U. S. Bureau of the Census. (2015). Quick facts United States. Retrieved from www.census.gov/quickfacts/
- Warren, S. D., & Brandeis, L. D. (1890). The right to privacy. *Harvard Law Review*, 4(5) 193-220.
- White, M. D., Borrego, A. R., & Schroeder, D. A. (2014). Assessing the utility of DNA evidence in criminal investigations. In K. J. Strom & M. J. Hickman (Eds.), *Forensic science and the administration of justice: Critical issues and directions* (pp. 121-136). Thousand Oaks, CA: Sage.
- Wright, D. S. (1993). Models of national, state and local relationships. In L. J. O'Toole, Jr. (Ed.), *American intergovernmental relations* (pp.75-88). Washington, DC: CQ Press.