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Is It Ethical to Use Genealogy Data to Solve Crimes?

Benjamin E. Berkman, JD, MPH, Wynter K. Miller, JD, and Christine Grady, RN, PhD

National Institutes of Health, Bethesda, Maryland (B.E.B., W.K.M.); National Institutes of Health, Bethesda Maryland (C.G.)

Authorities recently arrested the suspected Golden State Killer, a serial rapist and murderer who terrorized California decades ago. Armed with DNA from several crime scenes, the police cracked this cold case using a new resource: online genealogy data. Although criminal investigators have long used DNA analysis, this case is notable because the implicating genetic information was not obtained from a forensic resource created specifically for criminal justice purposes. Since the excitement of solving this infamous case subsided, public conversation increasingly has become focused on the ethics of using genealogy data for crime solving. Ethics discussions should include 3 interrelated topics: informed consent, privacy, and justice.

Despite the popularity of online genealogy services, it is unclear whether users of these sites understand that their genetic data are available to criminal investigators. Many companies do not inform users that their information may be subject to forensic analysis. Others mention it in their terms of service, but whether users internalize (or even read) these documents is in considerable doubt (1).

Although everyone should generally understand and agree to the potential uses of their personal data, how specific their consent should be remains unresolved. In biomedical research, substantial support exists for allowing broad consent (2); evidence suggests that people want researchers to ask permission to use their materials but are comfortable with wide-ranging use thereafter (3). A distinction exists, however, between biomedical research and forensics. A person giving broad consent to future biomedical research has a basic understanding that scientists will use his or her materials to produce generalizable medical knowledge, even if the exact details of that endeavor are unclear. In contrast, a person might

Corresponding Author: Benjamin E. Berkman, JD, MPH, Department of Bioethics, National Institutes of Health, 10 Center Drive, Suite 1C118, Bethesda, MD 20892; berkmanbe@mail.nih.gov.

Current Author Addresses: Mr. Berkman, Ms. Miller, and Dr. Grady: Department of Bioethics, National Institutes of Health, 10 Center Drive, Suite 1C118, Bethesda, MD 20892.

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reasonably be surprised if his or her genealogic data were used in a criminal investigation, because that use is far afield from the original purpose for which the information was given.

Likewise, commentators have concerns about whether genealogy service users understand that their uploaded data have implications for others. Not only can the data lead to the arrest of guilty relatives for crimes actually committed, but false-positives also may create burdens for innocent persons. Individuals hold different views on whether potential crime solving justifies the repurposing of genealogy data, indirectly implicating relatives, or inconveniencing innocent suspects. Given this diversity of opinion, it is important for users to be alerted to the possibility of their data being used in criminal investigations.

People clearly are worried about protecting their genetic data, but should they have an expectation of privacy? The legal questions raised by genealogy searches are measurably simpler than the ethical concerns. In terms of the U.S. Constitution, a genealogy search triggered by DNA collected from a crime scene probably would not count as a “search” under the Fourth Amendment (4). Even assuming it would, the applicable legal theory—the “abandonment doctrine”—holds that a person has no “reasonable expectation of privacy” in abandoned materials. Courts have allowed law enforcement to test DNA “abandoned” in a range of settings (such as hair clippings and discarded cigarette butts). At genealogy Web sites, users voluntarily upload (that is, abandon) familial data into commercial databases. Whether they are aware that their data are subject to police collection is, legally, irrelevant (5). Notwithstanding the clarity of the law, it is questionable whether it is good social policy to consider the uploading of genealogic data the same as abandoning DNA in a public space.

Even if the law does not protect privacy, should people legitimately worry about possible harms associated with criminal genealogy searches? Commentators suggest that a real risk exists for employment or insurance discrimination through reidentification of genomic data. We believe that this risk has been overstated; genome reidentification is a technically complicated process that requires access to identified reference data (6). Thus far, it has been used only to identify whether persons are included in a research data set (7). Very little evidence exists that genetic discrimination is a pervasive societal issue (8). Nevertheless, discriminatory use of genetic information might someday be a problem. Because the public remains concerned about the security of their genetic data, policymakers should implement appropriate safeguards and seek to assure people that their genomic data are safe.

Existing biases in the criminal justice system suggest that forensic databases disproportionately contain DNA from certain racial/ethnic and geographic groups; extensive use of biased databases might exacerbate extant inequalities (9). Although the concern regarding overrepresentation might be less founded in the genealogy context (because demographic characteristics in genealogy databases are different from those in forensic databases), worries remain that expansive use of forensic DNA analysis in any context may lead to discrimination, particularly if police departments aggressively target certain groups by using racial or ethnic markers when looking for individual suspects.

The reliability of DNA evidence also raises justice concerns. Prosecutors and courts might overinterpret or misuse genetic identification as a source of evidence. DNA evidence

demonstrates only that an individual's genetic material was found at a given location, not that the person was present during, or indeed guilty of, the crime. Further, evidence may be compromised if collected without extraordinary care. In a murder case in Germany, genetic analysis of evidence collected with a contaminated cotton swab led police to erroneously target Romani ("gypsy") communities for 2 years (10).

Criminal genealogy searching is a valuable tool but raises important ethical issues that should be examined before the practice is widely adopted. Better informed consent would alleviate some of these concerns, particularly if genealogy services actively highlight the possibility of data use for forensic purposes—and the implications for the individual and his or her relatives.

Further, a commitment to transparency is extremely important. Authorities apparently are reluctant to admit that they use forensic DNA searching, despite the fact that most states do so. If law enforcement is using this technology, the adoption of formalized standards and mechanisms of accountability is appropriate. The limits of DNA evidence also suggest that restrictions should be placed on its use. We recommend using forensic genealogy as an investigative tool rather than a primary source of evidence of criminal wrongdoing. Likewise, justice concerns might warrant limiting criminal genealogy searching to cold cases involving crimes in which other investigative methods have failed.

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