



# Forensic Investigative Genetic Genealogy: An Analysis of Current Usage and Regulations

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## Introduction

Forensic Investigative Genetic Genealogy (FIGG), also referred to as Forensic Genetic Genealogy (FGG) and Investigative Genetic Genealogy (IGG), is an investigative technique that has rapidly gained popularity over the past six years (Glynn, 2022). The practice aims to identify perpetrators through their family tree by combining DNA testing and investigative skills (Glynn, 2022; Katsanis, 2020). Perhaps the most infamous case cleared by FIGG is the Golden State Killer in California. In 2018, after over 40 years of investigations, police investigators identified the perpetrator through a DNA match to his family tree (Glynn, 2022). Since then, the practice is estimated to have been used in over a thousand cases (Guerrini et al., 2024). Currently, it is estimated that there are about 242,000 unsolved homicides and 40,000 cases of unidentified human remains (UHR) in the U.S., making FIGG a needed investigative tool (Stein et al., 2017).

Although FIGG has become instrumental in solving cold cases, the practice remains largely unregulated (Glynn, 2022; Granja, 2023; Gurney et al., 2022; Kling et al., 2021). Only three states have statutes governing its use. In all other states, individuals who conduct FIGG are not required to undergo formal training and are not held accountable by rules or best practices (Gurney et al., 2022). The lack of rules and best practices has created privacy and ethical concerns, raising questions about the future of FIGG (Granja, 2023; Gurney et al., 2022)

As FIGG's use grows, its role in the court process must be defined. The practice has been cemented as a valuable technique for policing agencies. However, its usefulness in court proceedings may be limited (Gurney et al., 2022; Katsanis, 2020). This paper explains how FIGG is used in criminal investigations, its lack of regulation, and its role in the court process. Information was gathered by searching for FIGG-related articles on Google Scholar, reviewing statutes related to the practice, and searching Google for relevant events and organizations.

*Table 1. Terms and Definitions*

Forensic Investigative Genetic Genealogy/Investigative Genetic Genealogy: FIGG/IGG	The process of submitting unknown DNA samples from unsolved violent crimes to direct-to-consumer (DTC) DNA platforms and using the results to build family trees to generate investigative leads.
Direct-to-Consumer DNA platforms: DTC DNA platforms	Companies which test DNA samples submitted by the public and provide results related to health and ancestry. These sites may also be used to build family trees and connect with relatives. Examples: GEDmatch Pro, 23andMe <sup>1</sup> , Ancestry.com <sup>2</sup> , and FamilyTreeDNA
Crime labs	“A forensic laboratory overseen by a law enforcement agency, a department or division of forensic science, a government attorney’s general office, or public health agency” (Bureau of Justice Statistics, 2020, p. 2)

<sup>1</sup> This DTC DNA platform is not available for police use under DOJ guidelines.

<sup>2</sup> This DTC DNA platform is not available for police use under DOJ guidelines.

## FIGG in Practice

FIGG is an investigative technique most often used in violent cold cases and cases of UHR (Glynn, 2022). The process involves using direct-to-consumer (DTC) DNA platforms which allow individuals to send in a DNA sample to receive results about their health and research their ancestry. Common DTC DNA platforms include FamilyTreeDNA, 23andMe, GEDmatch Pro, and Ancestry.com. Some of these sites can detect relationships as distant as fifth cousins. If a relationship is detected, users may assemble a family tree to identify biological relatives. Perhaps the most popular DTC DNA platform for identifying potential relatives is GEDmatch Pro. This site does not test DNA samples, but allows individuals to upload their results from other DTC DNA companies to identify and connect with relatives (Glynn, 2022; Katsanis, 2020).

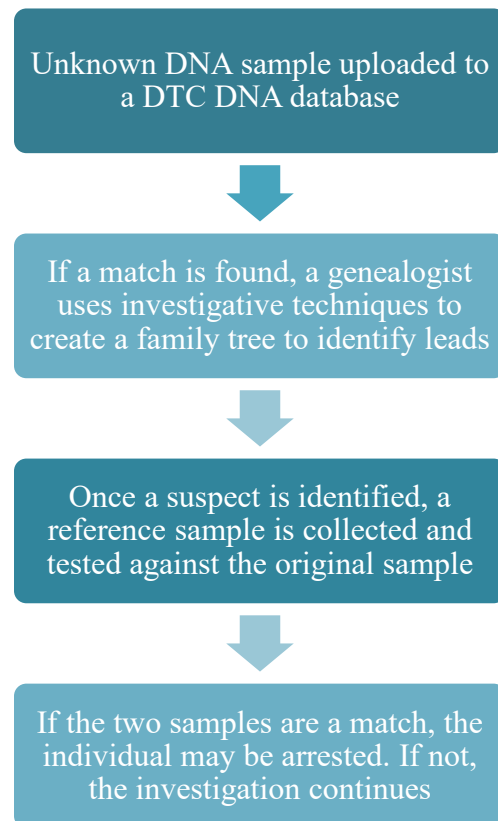
Policing agencies have recently used DTC DNA websites to solve violent cold cases and identify UHR (Glynn, 2022; Katsanis, 2020; Kling et al., 2021). However, GEDmatch Pro and FamilyTreeDNA are the only DTC DNA platforms which allow police agencies to use them for FIGG (Fixler, 2025). The process starts when the unknown DNA sample from a case is uploaded by police to a DTC DNA database in the hope of finding a relationship. If one is found, investigative techniques are used by genealogists to create a family tree and narrow down a suspect. This process involves reviewing birth certificates, marriage certificates, adoption papers, newspaper articles, census data, and other information pointing to familial ties (Glynn, 2022; Katsanis, 2020; Kling et al., 2021).

Once a suspect is narrowed down, the policing agency collects a reference sample from the suspect (Glynn, 2022). The two samples are then tested against one another by the police agency's crime lab or contracted third party to confirm whether the DNA from the crime scene is a direct match to the suspect's DNA. This step is crucial for pursuing arrests and convictions (Glynn, 2022). FIGG only provides investigative leads, meaning the information gathered through the process is insufficient for conviction (Guerrini et al., 2024; Katsanis, 2020). Additional evidence, such as a direct DNA match, must be obtained before an arrest can be made and to help prove guilt at trial (Guerrini et al., 2024; Katsanis, 2020).

## FIGG Rules and Regulations

FIGG remains a largely unregulated field in criminal justice (Glynn, 2022; Granja, 2023; Gurney et al., 2022; Kling et al., 2021). Most states have no accreditation process or required education level to become a FIGG practitioner. Individuals learn to build family trees and identify leads through practice and

*Figure 1. Steps of Conducting FIGG*



mentorship from other genetic genealogists (Gurney et al., 2022). Agencies often contract with genetic genealogy companies if they do not have the resources to conduct their own FIGG investigations (Glynn, 2022). Some also contract with individuals who see cases online and offer their services (Granja, 2023). Recently, agencies have started hiring their own full-time FIGG specialists. Florida, Oklahoma, Idaho, and Wisconsin have hired state-level genetic genealogists, while jurisdictions in other states have brought in local practitioners (Guerrini et al., 2024).

Kling et al. (2021) argue that a lack of accreditation makes it difficult for agencies to assess whether FIGG practitioners are qualified to work on cases. Recent efforts have been made to create standards and accreditation processes for FIGG practitioners. In 2019, the United States Department of Justice (DOJ) published the “Forensic Genetic Genealogical DNA Analysis and Searching” interim policy. This policy narrowed the types of cases FIGG can be used for, the conditions that must be met before it is utilized, and the rules for how it is carried out (Glynn, 2022).

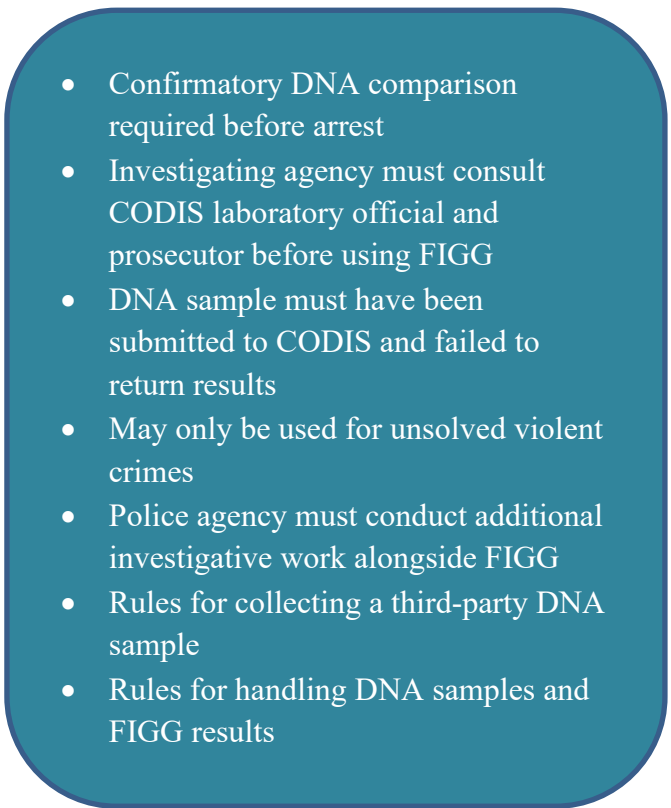
Granja (2023) points out various limitations regarding the DOJ’s interim policy. First, it only applies to federal police agencies and agencies using federal funding. In addition, the policy does not outline any qualifications genealogists must have to work on FIGG cases (Granja, 2023). As of the completion of this report, the DOJ has yet to publish a permanent policy on the use of FIGG.

In addition to the DOJ, some states have implemented FIGG regulations into their statutes. In 2021, Maryland was the first state to do so, laying out conditions for when FIGG can be used (MD, 2021). The statutes also require genetic genealogists to be licensed by the Office of Healthcare Quality if they work with law enforcement. The statute states that the Office of Health Care Quality must establish the licensing program by October 1, 2024 (MD, 2021) but, thus far, no licensing requirements have been published.

Montana’s FIGG statute is much more limited (MT, 2023). It requires that policing agencies acquire a warrant before using DTC databases to search for individuals. It does not lay out conditions under which FIGG may be used or any practitioner licensing requirements (MT, 2023).

Utah is the latest state to implement FIGG regulations into its state statutes (UT, 2023). Similar to Maryland, Utah’s laws define the conditions under which FIGG may be used and the steps that must be taken during the process (UT, 2023). All three states’ statutes aim to ensure

*Figure 2. 2019 DOJ Interim Policy Regulations*

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- Confirmatory DNA comparison required before arrest
  - Investigating agency must consult CODIS laboratory official and prosecutor before using FIGG
  - DNA sample must have been submitted to CODIS and failed to return results
  - May only be used for unsolved violent crimes
  - Police agency must conduct additional investigative work alongside FIGG
  - Rules for collecting a third-party DNA sample
  - Rules for handling DNA samples and FIGG results

the protection of citizen privacy and due process as the use of this technique grows. Table 1 in Appendix A shows the contents of existing FIGG statutes and guidelines in the US.

There is much disagreement among researchers and stakeholders regarding the types and extent of regulations for FIGG. Guerrini et al. (2024) interviewed FIGG stakeholders who all expressed support for implementing standards and regulations, regardless of their opinion of FIGG. Variation came in the types of regulations and standards stakeholders saw as appropriate. Specifically, there was mixed support for mandatory licensing of FIGG practitioners (Guerrini et al., 2024).

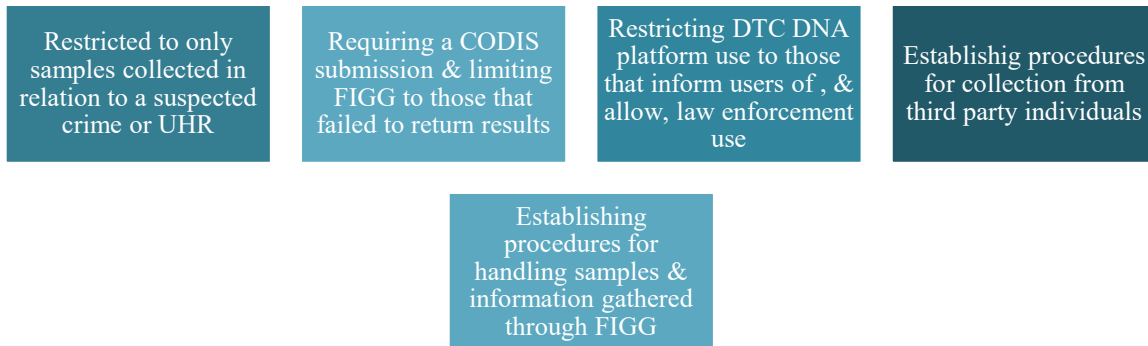
Some colleges, such as the University of New Haven and Ramapo College of New Jersey, have implemented FIGG certificate programs (IGG Certificate Program, n.d.; Online Graduate Certificate, n.d.). University of New Haven's program is fully online and requires participants to complete four courses: Fundamentals of Forensic Biological Evidence, Genetic Genealogy Principles and Methods, Genealogical Principles and Methods, and FIGG Practicum. Ramapo College of New Jersey's program is also online but does not have required courses. Instead, students are required to attend scheduled virtual classes and complete assignments (IGG Certificate Program, n.d.; Online Graduate Certificate, n.d.).

Gurney et al. (2022) argue that a college degree should not be required for FIGG practitioners since FIGG skills are cultivated through hands-on experience and working with other practitioners. Instead, those wishing to conduct FIGG should be required to undergo an examination process overseen by an accrediting board (Gurney et al., 2022).

In response to the calls for increased regulations on FIGG and those who practice it, Gurney et al. (2022) announced the creation of the Investigative Genetic Genealogy Accreditation Board (IGGAB). The board was founded in 2022 and comprises some of the leading experts in the field. The IGGAB published a set of professional standards and a code of ethics in December 2023 (Standards, n.d.). They have also created a testing process to become an accredited investigative genetic genealogist (Exam, n.d.). The accreditation exam assesses practical skills and understanding of ethical considerations (Exam, n.d.). The board hopes that, if states adopt licensing requirements, the IGGAB's accreditation process will be used (IGGAB, n.d.).

Also established in 2022, the National Technology Validation and Implementation Collaborative (NTVIC) is an independent group focused on research and the implementation of new technology into public forensic science laboratories (Gamette & Wickenheiser, 2023). The first working group established within the NTVIC was the Forensic Investigative Genetic Genealogy Technical Validation Working Group (FIGG-TVWG). The FIGG-TVWG was created by 12 forensic laboratory directors and is comprised of four subcommittees which focus on training, policy, terminology, and technical issues. The overarching goal of FIGG-TVWG is to implement FIGG technology in public forensic science laboratories (Gamette & Wickenheiser, 2023). In November 2023, the group published an article containing updated policy and procedure recommendations for jurisdictions to use when creating their own FIGG program (Wickenheiser et al., 2023). The guidelines are thorough and address terminology, roles, oversight, lab and genealogist qualifications, training, data management, criteria for use, and more (Wickenheiser et al., 2023). The FIGG-TVWG also published a model FIGG legislation which they recommend each state adopt. This can be found on the NTVIC website.

Figure 3. Common Requirements Across MT, UT, and DOJ FIGG Statutes



### FIGG in the Courts

As the use of FIGG increases, questions have been raised about how courts view the practice. Katsanis (2020) and Gurney et al. (2022) point out that FIGG is an investigative technique for identifying leads, hopefully ending in a direct DNA match. They argue genetic genealogists and their techniques should not be brought into court since the practice produces investigative leads, not evidence of guilt (Gurney et al., 2022; Katsanis, 2020). If detectives investigate a lead and believe the individual committed the crime, they must obtain a DNA sample from the suspect to test for a direct match. This direct match, the authors suggest, rather than the FIGG techniques used to narrow down the suspect, should be presented as evidence of guilt (Guerrini et al., 2024; Katsanis, 2020). However, the processes surrounding other police investigative practices, such as photo lineups or evidentiary chain of custody, are often required as an aspect of court testimony.

*People v. Waller* (2019) provided some insight into FIGG's place in court. The defense argued that they should have access to the DTC DNA database searches, the genetic genealogy company used, and all communication between the police and genetic genealogy company. They claimed this information could lead to exculpatory evidence, be used to find 4<sup>th</sup> Amendment violations, and be used to assess the reliability of how FIGG was conducted. However, the prosecution held that the information the defense requested was not evidence of guilt and would not be presented during trial. The court sided with the prosecution, ruling that FIGG information did not have to be turned over during discovery. The court stated that FIGG is akin to an informer, providing an investigative lead but no evidence of guilt. Thus, it could not be, or lead to, exculpatory evidence. Relatedly, the court stated that the reliability of the FIGG process was irrelevant, since it would not affect the evidence that was collected as a result. The discovery ruling in *People v. Waller* (2019) indicates that the courts view FIGG as an investigative strategy with little relevance to evidence.

In *State v. Bortree* (2021), Amanda Reno became the first FIGG practitioner to testify as an expert witness. Reno is the Director of Genetic and Forensic Case Management for AdvanceDNA, the company used to identify Bortree as a potential suspect. In part of his appeal, Bortree argued Reno should not have been permitted to testify, claiming she had incomplete records of her research and relied on unverified information. Ultimately, the Court of Appeals of Ohio rejected the claim that Reno should not have testified, siding with the trial court. They stated there was no evidence to support Bortree's claims. Additionally, Reno and AdvanceDNA made it clear during the trial that their research was only used to provide an investigative lead

and is not evidence of guilt. The Court of Appeals of Ohio emphasized this, determining the trial court was correct in allowing the testimony since it only provided details on how Bortree was identified as a suspect (*State v. Bortree*, 2021)<sup>3</sup>.

Currently, cases that used FIGG are moving through the trial process. Perhaps the most publicized recent case is that of Bryan Kohberger, who pled guilty to killing four University of Idaho students in 2022 (Fixler, 2025). The case touched on a variety of current concerns about FIGG and its role in the court. Issues include whether the defense has the right to information about how FIGG was conducted, whether FIGG procedures should be presented at trial, and whether federal investigator use of an unauthorized DTC DNA website is considered unconstitutional (Fixler, 2025). Because the case never went to trial, these questions were never answered.

### **Concerns about FIGG**

Because FIGG is still a fairly new practice, there have been concerns regarding its impact on individual privacy and due process (Guerrini et al., 2024; Gurney, 2022; Samuel & Kennet, 2020; Sherkow et al., 2023). One major concern is whether individuals fully understand the terms and conditions they agree to when signing up for a DTC DNA website. DTC DNA databases that allow police agencies to use their sites include a clause in their terms of service which mentions law enforcement's use of the database. There are concerns, however, around whether consumers are aware of this clause or fully understand what it means. If users are unaware that their DNA could be used to investigate themselves or others in police investigations, this may constitute a violation of privacy (Guerrini et al., 2024). Additionally, a lack of informed consent from users and a failure to acquire search warrants by agencies raises concerns about potential Fourth Amendment violations (Sherkow et al., 2023).

However, cases such as *State v. Hartman* (2023) and *State v. Carbo* (2021) have ruled that there is no reasonable expectation of privacy for DNA voluntarily uploaded to a DTC DNA database or DNA left at a crime scene. Therefore, warrantless familial DNA searches do not violate the 4<sup>th</sup> Amendment.

Another privacy concern has to do with family heritage (Samuel & Kennet, 2020). Through the process of FIGG, family secrets and non-biological relationships may be revealed. Some stakeholders have argued that FIGG's ability to reveal highly personal stories such as these is an overreach and potentially damaging (Samuel & Kennet, 2020). To strengthen trust in FIGG, emerging statutes and guidelines have aimed to address these privacy and due process concerns (Gurney et al., 2022).

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<sup>3</sup> This is the only identified case in a Google search conducted on January 16, 2024.

## **Conclusion**

Forensic Investigative Genetic Genealogy (FIGG) has grown rapidly in the past six years (Glynn, 2022). In 2019, it was estimated 78 cases had been solved using FIGG (Katsanis, 2020). By 2024, it is estimated over 1,000 cases have been solved using this technology (Guerrini et al., 2024). The practice is unique in that, in most areas, it is not regulated by licensing requirements or accreditation standards (Glynn, 2022; Granja, 2023; Gurney et al., 2022; Kling et al., 2021). This is changing slowly, though, as the DOJ and a few states have adopted legislation regulating the practice (Glynn, 2022; MD, 2021; MT, 2023; UT, 2023). Additionally, the implementation of FIGG degree programs in colleges and the formation of the IGGAB signal potential change in education standards for FIGG practitioners. This shift towards increased regulation is an attempt to address privacy and due process concerns and ensure the technique continues to be allowed (Gurney et al., 2022). With statutes and standards of best practice starting to emerge, FIGG's use as an investigative technique is likely only beginning.

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## Appendix A

*Table 1. Elements of FIGG Statutes and Guidelines in the U.S., as of 2025*

<p><b><u>Montana 44-6-104</u></b></p>	<p>-May not gather results from DNA identification index or a DTC DNA platform without a search warrant or the individual having waived their right to privacy.</p>
<p><b><u>Utah 53-10-403.7</u></b></p>	<p>-Police agency must believe the DNA sample comes from a perpetrator, UHR, or missing/unknown person;          -Sample must have been submitted to CODIS and did not return any results;          -Police agency, Bureau of Forensic Sciences, and prosecuting agency all agree FIGG is necessary for the case;          -If used postconviction, must be ordered by a court;          -Rules for collection of DNA from third party individuals to aid in FIGG;          -Must use DTC DNA database that meets statutory criteria;          -Confirmatory DNA comparison must be conducted before the suspect may be arrested, unless there is sufficient evidence aside from FIGG to support arrest;          -Procedures for handling samples and information after the suspect is charged; Penalties for violation of rules.</p>
<p><b>Maryland <u>102</u>; <u>17-103</u>; <u>17-104</u>; <u>17-105</u></b></p>	<p>-Judicial authorization required;          -Sworn affidavit submitted by law enforcement and signed by prosecutor required;          -May only be used for crimes involving commission of or attempt to commit murder, rape, a felony sexual offense, or a crime that poses a substantial or ongoing threat to public safety/national security;          -Sample must have been collected from a crime scene, person/place/thing connected to a crime, or UHR of suspected homicide victim;          -Sample must have been submitted to CODIS and did not return any results;          -All reasonable investigative leads must have been pursued and exhausted;          -Must use DTC DNA database that meets statutory criteria;          -Lab and genetic genealogists must be licensed by the Office of Health Care Quality; The Maryland Forensic Laboratory Advisory Committee must create best practices for labs performing DNA testing and create minimum qualifications for genetic genealogists;          -Rules for collection of DNA from third party individuals to aid in FIGG;</p>

	<ul style="list-style-type: none"> <li>-Rules for handling of records and materials used for FIGG;</li> <li>-Penalties for violation of rules;</li> <li>-Procedures for initiating postconviction FIGG;</li> <li>-the Governor’s Office of Crime Prevention, Youth, and Victim Services must submit to the Governor an annual report detailing various details about FIGG requests and use in the previous year;</li> <li>-A panel of stakeholders will review the report each year and create policy recommendations.</li> </ul>
<p style="text-align: center;"><b><u>DOJ “Forensic Genetic Genealogical DNA Analysis and Searching” Interim Policy</u></b></p>	<ul style="list-style-type: none"> <li>-Confirmatory DNA comparison must be conducted before the suspect may be arrested;</li> <li>-FIGG may only be used for an unsolved violent crime and when there is reasonable suspicion the sample came from the perpetrator, or when it is believed the sample came from the UHR of a suspected homicide victim;</li> <li>-FIGG may be authorized by a prosecutor for violent crimes/attempts at violent crimes other than homicide/sexual assault if the crime/attempt threatens public safety or national security;</li> <li>-Sample must have been submitted to CODIS and failed to return results;</li> <li>-All reasonable investigative leads must have been pursued and exhausted;</li> <li>-Relevant information must be entered into the National Missing and Unidentified Persons System and the Violent Criminal Apprehension Program national database;</li> <li>-Investigating agency must consult an official at the CODIS laboratory about the quality of the sample, feasibility of FIGG, and alternative DNA techniques;</li> <li>-Investigating agency must contact prosecutor and inform them of the lab official’s report and possible alternatives to FIGG;</li> <li>-The prosecutor and investigating agency must both agree FIGG is necessary before it may be conducted;</li> <li>-Agencies must identify themselves as law enforcement to DTC DNA companies;</li> <li>-Rules for collection of DNA from third party individuals to aid in FIGG;</li> <li>-Police agency must conduct additional investigative work alongside FIGG results;</li> <li>-Rules for handling of records and materials used for FIGG.</li> </ul>
<p style="text-align: center;"><b><u>Investigative Genetic Genealogy Accreditation Board (Guidelines)</u></b></p>	<ul style="list-style-type: none"> <li>-Potential suspects should be identified using analytical tools, statistics, reasoning, DTC database information, data provided by the investigating agency;</li> </ul>

-Detailed records of the genealogist's investigatory process should be kept;

-Genealogists should be knowledgeable in fundamental FIGG processes, evidence collection, CODIS, DNA testing, genetics and ancestry, building family trees from DTC DNA results, proper handling of DNA, ethical standards, privacy and confidentiality, and communicating hypotheses and results;

-Genealogists must follow all laws related to FIGG (Investigative Genetic Genealogy, 2024).