



Laboratory Services

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Frequently Asked Questions (FAQs) on the CODIS Program and the National DNA Index System

Please note that these questions and responses refer specifically to the National DNA Index System, state DNA databases operate in accordance with the applicable state law and questions concerning the operation of a particular state DNA database should be directed to that state.

CODIS

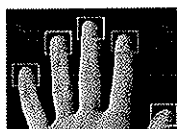
Q: What is CODIS?

A: CODIS is the acronym for the "Combined DNA Index System" and is the generic term used to describe the FBI's program of support for criminal justice DNA databases as well as the software used to run these databases. The National DNA Index System or NDIS is considered one part of CODIS, the national level, containing the DNA profiles contributed by federal, state, and local participating forensic laboratories.

CODIS DNA Databases

Q: How do these DNA databases using CODIS work?

A: For example, in the case of a sexual assault where an evidence kit is collected from the victim, a DNA profile of the suspected perpetrator is developed from the swabs in the kit. The forensic unknown profile attributed to the suspected perpetrator is searched against their state database of convicted



Biometric Analysis
- Combined DNA Index System (CODIS)
- Latent Print
- Mitochondrial DNA
- Nuclear DNA
Forensic Response



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personally identifiable information is removed, DNA profile information may be accessed by criminal justice agencies for a population statistics database, for identification research and protocol development purposes, or for quality control purposes. The unauthorized disclosure of DNA data in the National DNA database is subject to a criminal penalty not to exceed \$250,000.

The National DNA Index System

Q: What is the National DNA Index System or NDIS?

A: NDIS is the acronym for the "National DNA Index System" and is one part of CODIS—the national level—containing the DNA profiles contributed by federal, state, and local participating forensic laboratories. NDIS was implemented in October 1998. All 50 states, the District of Columbia, the federal government, the U.S. Army Criminal Investigation Laboratory, and Puerto Rico participate in NDIS.

The DNA Identification Act of 1994 (42 U.S.C. §14132) authorized the establishment of this National DNA Index. The DNA Act specifies the categories of data that may be maintained in NDIS (convicted offenders, arrestees, legal detainees, forensic casework), unidentified human remains, missing persons and relatives of missing persons) as well as requirements for participating laboratories relating to quality assurance, privacy and expungement.

Q: What are the specific requirements for a state's participation in the National DNA Index?

A: The DNA Identification Act (42 U.S.C. §14132(b)) specifies the requirements for participation in the National DNA Index System (NDIS) and the DNA data that may be maintained at NDIS (convicted offender, arrestees, legal detainees, forensic casework), unidentified human remains, missing persons and relatives of missing persons). The DNA Identification Act requires the following:

That the laboratories participating in the National DNA Index comply with the Quality Assurance Standards issued by the FBI Director;

That the laboratories submitting the DNA records are accredited by a nonprofit professional association of persons actively engaged in forensic science that is nationally recognized within the forensic science community;

That the laboratory submitting the DNA record undergoes an external audit every two years to demonstrate compliance with the FBI Director's Quality Assurance Standards;

That the laboratory is a federal, state, or local criminal justice agency ("or the Secretary of Defense in accordance with section 1565 of title 10, United States Code"); and

That access to the DNA samples and records is limited in accordance with federal law.

States seeking to participate in NDIS sign a Memorandum of Understanding with the FBI Laboratory documenting their agreement to abide by the DNA Identification Act requirements as well as record-keeping and other operational procedures governing the uploading of DNA data, expungements, CODIS users, audits, etc.

Q: Are there approved accrediting agencies?

A: Federal law requires that laboratories submitting DNA data to NDIS are accredited by a nonprofit professional association of persons actively engaged in forensic science that is nationally recognized within the forensic science community. The following entities have been determined to satisfy this definition: the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) and Forensic Quality Services (ANSI-ASQ National Accreditation Board FQS).

Q: What are the access requirements for the DNA samples and records?

A: The DNA Identification Act, §14132(b)(3), specifies the access requirements for the DNA samples and records "maintained by federal, state, and local criminal justice agencies (or the Secretary of Defense in accordance with section 1565 of title 10, United States Code)" and "allows disclosure of stored DNA samples and DNA analyses only—"

(A) to criminal justice agencies for law enforcement identification purposes;

(B) in judicial proceedings, if otherwise admissible pursuant to applicable statutes or rules;

(C) for criminal defense purposes, to a defendant, who shall have access to samples and analyses performed in connection with the case in which such defendant is charged; or

(D) if personally identifiable information is removed, for a population statistics database, for identification research and protocol development purposes, or for quality control purposes."

Q: What if a state's law on access to the DNA samples and profiles is different from the federal provisions?

A: If a state has signed the Memorandum of Understanding with the FBI to participate in NDIS, that state has agreed to comply with the Federal DNA Identification Act, including the limited access requirements. To the extent that these access and disclosure provisions of the Federal DNA Act conflict with a state's DNA database law, the state has agreed to the provisions of the Federal DNA Act superseding the state law for purposes of NDIS participation. That is, if a state DNA database law permits access to the DNA samples and analyses in the state DNA database for purposes not contained in the Federal DNA Act (i.e., humanitarian purposes), and that state is participating in NDIS, then the state has agreed to comply with the more restrictive federal access provisions.

Q: Is the defendant entitled to access the DNA samples and analyses of other individuals?

A: Under the DNA Identification Act, the defendant may have access to the samples and analyses performed in connection with his or her case for criminal defense purposes (42 U.S.C. §14132(b)(3) (C)). This provision permits access to the results of, any analyses of samples taken from the defendant and any analyses developed from the crime scene evidence, in the case for which the defendant is charged. This provision does not authorize access for the defendant to samples and analyses that were not developed in connection with his or her case (such as other offenders' DNA profiles). Nor does this provision in the Federal DNA Act authorize access for the defendant to all of the DNA records in the National DNA Index System.

Q: Are there any sanctions for states that participate in the National DNA Index System if the state does not comply with the Federal DNA Identification Act?

A: Under the Federal DNA Identification Act, access to the National DNA Index System (NDIS) "is subject to cancellation if the quality control and privacy requirements described in subsection (b) are not met" (42 U.S.C. §14132(c)). This means that if an NDIS participating laboratory or state does not comply with the FBI Director's Quality Assurance Standards for Forensic DNA Databasing and Testing Laboratories and/or the limited access provisions of the Federal DNA Act, that NDIS participating laboratory or state may lose its ability to search, store, and maintain its DNA records in NDIS.

DNA Data Requirements

Q: What DNA data is accepted at NDIS?

A: Currently, DNA data generated through PCR Short Tandem Repeat (STR) technology, Y chromosome STR (Y-STR) technology, and Mitochondrial DNA (mtDNA) technology are accepted at NDIS.

Y-STR and mtDNA data is only searched with the missing person related indexes.

The National DNA Index no longer searches DNA data developed using restriction fragment length polymorphism (RFLP) technology.

Q: Are there specific data requirements for the DNA records submitted to NDIS?

A: Yes. There are several requirements for the DNA data submitted to NDIS.

1. The DNA data must be generated in accordance with the FBI Director's Quality Assurance Standards;
2. The DNA data must be generated by a laboratory that is accredited by an approved accrediting agency;
3. The DNA data must be generated by a laboratory that undergoes an external audit every two years to demonstrate compliance with the FBI Director's Quality Assurance Standards;
4. The DNA data must be one of the categories of data acceptable at NDIS, such as convicted offender.

of missing person.
 5. The DNA data must meet minimum CODIS Core Loci requirements for the specimen category.
 6. The DNA PCR data must be generated using PCR accepted kits, and
 7. Participating laboratories must have and follow expungement procedures in accordance with federal law.

Q: What are the 13 core CODIS loci?

A: The 13 core CODIS loci are:

- CSF1PO
- FGA
- TH01
- TPOX
- VWA
- DSS1358
- DSS818
- D7S820
- D8S1179
- D13S317
- D16S539
- D18S51
- D21S11

Q: What are the minimum loci requirements for the STR DNA data submitted to NDIS?

A: The minimum CODIS Core Loci required for submission of DNA data to NDIS vary by specimen category. Generally, the 13 CODIS Core Loci are required for submission of convicted offender, arrestee, detainee, and legal profiles. The 13 CODIS Core Loci and Amelogenin are required for relatives of missing person profiles.

All 13 CODIS Core Loci must be attempted for other specimen categories with the following limited exceptions:

- For forensic DNA profiles, all 13 CODIS Core Loci must be attempted but at least 10 CODIS Core Loci must have generated results for submission to and searching at NDIS.
- For Missing Person and Unidentified Human Remains, all 13 CODIS Core Loci must be attempted.

Q: What are the requirements for submission of mtDNA data to NDIS?

A: Hypervariable region I ("HV1", positions 16024-16365) and hypervariable region II ("HV2", positions 73-340) are required for the submission of mtDNA data to NDIS.

Q: Are there additional requirements for forensic (casework) DNA records?

A: Forensic (casework) DNA samples are considered crime scene evidence. To be classified as a forensic unknown record, the DNA sample must be attributed to the putative perpetrator. Items taken directly from the suspect are considered deduced suspect samples, not forensic unknowns, and are not eligible for upload to NDIS.

Q: Are there any additional requirements for missing persons-related DNA records?

A: For missing person, relatives of missing person and unidentified human (remains) samples, additional DNA technologies (such as mtDNA, Y-STR) should always be considered, as appropriate. For purposes of this discussion, "as appropriate" means if relevant. For example, if the missing person is a female, then Y-STR technology would not be relevant. The lack of an additional technology will not render a sample ineligible for entry into CODIS but use of an additional appropriate technology will ensure the most robust search possible.

Additionally, creation of a Pedigree Tree for the missing persons-related DNA record is strongly encouraged. A Pedigree Tree is a graphical representation of the relationship of the missing person with two or more relatives. The more robust Pedigree Trees have at least one relative that is a biological mother, biological father, or biological child of the missing person.

Q: What are the expungement requirements?

A: Laboratories participating in the National DNA Index are required to expunge qualifying profiles from the National Index under the following circumstances:

1. For convicted offenders, if the participating laboratory receives a certified copy of a final court order documenting the conviction has been overturned; and
2. For arrestees, if the participating laboratory receives a certified copy of a final court order documenting the charge has been dismissed, resulted in an acquittal or no charges have been brought within the applicable time period.

Partial Matches and Familial Searches

Q: How is the National Database searched?

A: The Forensic Index is searched against the Convicted Offender Index at moderate stringency. Moderate stringency is defined as a search that requires all alleles to match, but the target and candidate profiles can contain a different number of alleles.

Q: Why is the National Database searched at moderate stringency?

A: DNA profiles obtained from crime scene evidence may be partially degraded and/or contain DNA from more than one individual. Additionally, different laboratories use different DNA typing kits in developing submitted evidence. The national database is searched at moderate stringency in order to address these potential scenarios and allow the ultimate detection of full, high stringency (exact) matches that might otherwise not have been identified.

Q: Is searching at moderate stringency a form of familial searching?

A: No. As stated above, conducting a moderate stringency search is an effective means of searching forensic profiles from crime scene evidence that contain DNA from more than one individual (a forensic mixture), forensic DNA that is partially degraded or to accommodate the use of different DNA typing kits by different laboratories. This should not be confused with attempting to search for similar but not matching profiles already stored within the National DNA Index System – a type of database searching the FBI does not conduct.

Q: What is a partial match at NDIS?

A: Occasionally a partial match between a forensic profile and an offender profile is observed during a routine NDIS database search. The FBI defines a partial match as a moderate stringency candidate match between two single source profiles having at each locus all of the alleles of one sample represented in the other sample. (See below illustration). A "partial match" is not an exact match of the two profiles. A forensic scientist, when evaluating whether a candidate match is a viable match and should be processed through to confirmation, discovers that the candidate offender profile is, in fact, excluded as the possible source of the profile obtained from crime scene evidence but that, because of a similarity in alleles between the forensic unknown and the candidate offender profile, believes that a close biological relative of the offender may be the source of the forensic unknown.

The following illustrates a hypothetical partial match as seen in the SWGDAM Recommendations to the FBI Director on the "Interim Plan for the Release of Information in the Event of a 'Partial Match' at NDIS" at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archives/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Locus	Forensic Unknown	Candidate Offender	Match Stringency
D8S1179	13	13, 14	Moderate

NCIC	20, 31, 42	20, 31, 42	High
DT8620	12	10, 12	Moderate
CSF1PO	10, 12	10	Moderate
D3S1358	15, 17	15, 17	High
TH01	8	7, 8	Moderate
D13S317	9, 12	9	Moderate
D16S539	11, 12	12	Moderate
VWA	17	15, 17	Moderate
TPCX	8, 11	8	Moderate
D18S51	24	16, 24	Moderate
D5S818	9, 12	12	Moderate
FGA	24, 25	24, 25	High

Q: Can partial match information at NDIS be disclosed?

A: Since a partial match is not an exact profile match to an offender profile and therefore cannot be subject to NDIS defined confirmation procedures, the FBI has authorized procedures for the release of partial match information. NDIS Laboratories that identify a partial match resulting from an NDIS search and wish to identify the offender profile should refer to Appendix G of the NDIS Operational Procedures Manual and contact the FBI's CODIS Unit for further information.

Q: Is there any guidance on how to address these partial matches?

A: At the FBI's request, the Scientific Working Group on DNA Analysis Methods (SWGDM) reviewed the scientific issues relating to partial matches and developed recommendations to assist in the evaluation of this information. Those recommendations are available in Forensic Science Communications at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archivofc2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Q: How successful are partial matches at locating potential suspects?

A: As explained in SWGDM's recommendations, moderate stringency CODIS matches, in general, have very low efficiency in locating true relatives in offender databases. There is little useful probative value in the majority of partial matches using the current CODIS searching rules and algorithms. There are two main reasons for this: (1) true siblings will very rarely share alleles at all 13 CODIS loci; (2) as offender DNA databases get large, the number of unrelated people that do share at least one allele at all loci increases very rapidly. The original intent for allowing moderate stringency CODIS searches was the realization and acknowledgment that crime scene profiles often may be partially degraded and/or contain DNA from more than one contributor. Additionally, different primer sets may have been used between profiles. Allowing the detection of partial matches can help accommodate these two scenarios and allow the ultimate detection of full, high-stringency matches that might otherwise not have been found. The Committee's complete list of recommendations is available at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archivofc2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Q: Are partial matches the same as familial searches?

A: No. A partial match, as indicated above, is the spontaneous product of a routine database search where a candidate offender profile is not identical to the forensic profile but because of a similarity in the number of alleles shared between the forensic profile and the candidate profile, the offender may be a close biological relative of the source of the forensic profile. Familial Searching is an intentional or deliberate search of the database conducted after a routine search for the purpose of potentially identifying close biological relatives of the unknown forensic sample associated with the crime scene profile.

Q: Are familial searches performed at NDIS?

A: No, familial searching is not currently performed at NDIS. See also Federal Register Vol. 73, No. 238 (December 10, 2008 at page 74937).

Q: Are familial searches performed at the state level?

A: Each jurisdiction must determine whether or not they are authorized to perform familial searching, and if so, the criteria and procedures governing their use of this searching process. The FBI does not regulate this type of search at the state level. California, Colorado, Texas, Virginia and Wyoming currently perform familial searching (see, for example, policies/procedures available at http://ag.ca.gov/cns_attachments/press/pdfs/1548_08-lis-01.pdf and Colorado Bureau of Investigation - DNA Familial Search Policy). Please note that these jurisdictions use specially designed software (not CODIS software) to perform familial searching of their databases. Two jurisdictions, Maryland (§ 2-506) and the District of Columbia (§ 22-4151), have passed laws specifically prohibiting familial searching. These laws are available at <http://law.justia.com/codes/maryland/2010/public-safety/title-2/subtitle-5/2-506/> and <http://government.weslaw.com/linkedlist/default.asp?rs=gv11.0&vr=2.0&sp=dc-1000>, respectively.

For additional information on familial searching, please see <http://www.fbi.gov/about-us/lab/codis/familial-searching>.

Expert Systems

Q: What are Expert Systems and are they approved for use in generating DNA data for NDIS?

A: An Expert System is a software program or set of software programs that interprets the data generated from a DNA analysis instrument (or platform) in accordance with laboratory defined quality assurance rules and accurately identifies the data that does and does not satisfy such rules. Portions of the technical review required by the FBI Director's Quality Assurance Standards may be accomplished by an NDIS approved and internally validated Expert System.

The following Expert Systems are approved for use on offender samples and known reference samples at NDIS. There are no Expert Systems approved for use on casework (forensic unknown) samples.

NDIS Approved Expert Systems
GeneMapper®iD
GeneMapper®iD-X
TrueCubed™
TrueAllele™

If you have a question concerning a specific Expert System, please contact the FBI's CODIS Unit.

PCR STR Kits

Q: What are the PCR kits accepted for use at NDIS?

A: Following are the most frequently used PCR kits accepted at NDIS (listed by manufacturer):

- Applied Biosystems (AB) AmpFISTR®Profiler Plus®
- AB AmpFISTR®Cofiler®
- AB AmpFISTR®Profiler Plus® and AmpFISTR®Cofiler®
- AB AmpFISTR®Profiler Plus®SD
- AB AmpFISTR®Profiler Plus®SD and AmpFISTR®Cofiler®
- AB AmpFISTR®Identifier®
- AB AmpFISTR®Identifier® Direct
- AB AmpFISTR®Identifier® Plus
- Promega PowerPlex®1
- Promega PowerPlex®1.2
- Promega PowerPlex®2.1
- Promega PowerPlex®16
- Promega PowerPlex®16 BIO
- Promega PowerPlex®16 HS
- Promega PowerPlex®16 D
- Promega PowerPlex® Fusion
- AB AmpFISTR®MiniFiler™
- AB AmpFISTR®Yfiler®
- Promega Powerplex® V
- Promega Powerplex® Y23

If you have a question concerning a specific PCR kit, please contact the FBI's CODIS Unit.

Q: What is the process for PCR kits, loci and Expert Systems to be approved for use at NDIS?

A: Laboratories that participate in the National DNA Index and who have validated the kits, loci, or Expert System in their laboratories may request that the FBI approve the kit, loci or Expert System. The validation data and other supporting documentation must accompany the request.

International Searches

Q: How are international DNA databases searched?

A: Requests for a search of an international DNA database should be directed to your state CODIS administrator. The state CODIS administrator will forward the request to their state liaison Interpol contact. Those requesting an international search must use the Interpol DNA Profile Search Request Form available at <http://www.interpol.int/INTERPOL-expertise/Forensics/DNA>

Q: Can the National DNA Index System be searched by international agencies?

A: An international law enforcement agency may submit a request for a search of the National DNA Index either through the FBI's legal attaché responsible for that jurisdiction or through Interpol. Requests for such a search will be reviewed by the NDIS Custodian to ensure compliance with the Federal DNA Identification Act (criminal justice agency status, authorized specimen category and participation in quality assurance program) as well as the inclusion of a sufficient number of CODIS Core Loci for effective searching.

Outsourcing Offender/Arrestee or Casework Samples

Q: Are there specific requirements for outsourcing offender/arrestee or casework samples?

A: Requirements for the outsourcing of DNA samples are contained in Standard 17 of the *Quality Assurance Standards for Forensic DNA Testing and Databasing Laboratories*. For law enforcement agencies seeking to outsource offender and/or casework samples, the technical specifications of the outsourcing agreement must have the prior approval of the technical leader of the NDIS participating laboratory that will be entering that DNA data into CODIS. At a minimum, the outsourced laboratory must follow the FBI's *Quality Assurance Standards* and be accredited. Standard 17 of the *Quality Assurance Standards* also requires the completion of an on-site visit of the vendor laboratory prior to the beginning of the outsourced analyses and a technical review of the outsourced DNA records by the NDIS participating laboratory. Please refer to the FBI's *Quality Assurance Standards for Forensic DNA Testing and Databasing Laboratories* for additional information concerning the use of contract employees to perform the technical review of DNA records.

Quality Assurance Standards

Q: What are the Quality Assurance Standards?

A: Compliance with the *Quality Assurance Standards* or QAS issued by the FBI Director is required by federal law in order for a laboratory to participate in and contribute DNA records to the National DNA Index System.

The QAS describe the minimum standards for a laboratory's quality program if performing forensic DNA analysis and/or databasing. The minimum standards cover the following areas: organization, personnel, facilities, evidence or sample control, validation, analytical procedures, equipment calibration and maintenance, reports, review, proficiency testing, corrective action, audits, safety, and outsourcing. For example, the Standards require that DNA examiners undergo external proficiency testing on a semiannual basis.

Q: Do the approved accrediting agencies use the Quality Assurance Standards?

A: The approved accrediting agencies use the FBI's *Quality Assurance Standards* when performing audits of forensic DNA and databasing laboratories.

Q: What is the most recent version of the Quality Assurance Standards?

A: The *Quality Assurance Standards* were revised in 2011 and the revisions were effective September 1, 2011, please see <http://www.fbi.gov/about-us/lab/codis/codis> for links to the *Quality Assurance Standards* and Audit Documents.

Rapid DNA or Rapid DNA Analysis

Q: What is Rapid DNA or Rapid DNA analysis?

A: Rapid DNA describes the fully automated (hands free) process of developing a CODIS Core STR profile from a reference sample buccal swab. The "swab in – profile out" process consists of automated extraction, amplification, separation, detection and allele calling without human intervention.

Q: What is the Rapid DNA Index System (RDIS)?

A: RDIS is the proposed fourth tier of NDIS, a fully integrated system capable of performing reference sample buccal swab STR analysis in 1-2 hours and initiating DNA searches from a police booking station.

Q: How is the FBI involved in the development of Rapid DNA technology?

A: The FBI established a Rapid DNA Program Office in 2010 to direct the development and integration of Rapid DNA technology for use by law enforcement. The Program Office works with the Department of Defense, the Department of Homeland Security, the National Institute of Standards and Technology, the National Institute of Justice, and other federal agencies to ensure the coordinated development of this new technology among federal agencies. The Program Office also works with state and local law enforcement agencies and state bureaus of identification through the FBI's Criminal Justice Information Services Division Advisory Policy Board to facilitate the effective and efficient integration of Rapid DNA in the police booking environment.

Q: What is the goal of the FBI's Initiative on Rapid DNA development?

A: The goal of the FBI's Rapid DNA initiative is to develop commercial instruments capable of producing a CODIS-compatible DNA profile within two hours and to integrate those instruments effectively within the existing CODIS structure to search unsolved crimes while an arrestee is in police custody during the booking process.

A. Several manufacturers have developed prototype instruments for Rapid DNA analysis. Following commercial availability, the FBI will work with federal, state, and local CODIS laboratories and the Scientific Working Group on DNA Analysis Methods to test, evaluate, and validate the hands-free instruments for law enforcement use.

No Rapid DNA instruments or kits have been approved by the FBI for submission of samples to NDIS/CODIS.

Q: When will law enforcement agencies be able to use Rapid DNA?

A. At this time, it is not known when law enforcement agencies will be able to search profiles developed by a Rapid DNA instrument in CODIS. There are a number of issues relating to the use of Rapid DNA analysis that will need to be addressed, such as the laboratory accreditation requirements of the DNA Identification Act of 1994 (42 U.S.C. §14132) as well as compliance with the FBI Director's Quality Assurance Standards. In addition, the FBI is working on how to integrate this technology first into CODIS laboratory operations and then into police booking locations. Important issues relating to the validation and certification of the Rapid DNA analysis instruments must be resolved before implementing this new technology as part of the booking process. Guidelines for the use of this technology are being developed and training will also be needed for law enforcement and laboratory personnel to use the new technology in a manner that maintains the quality and integrity of CODIS and the National DNA Index System.

Q: Is there an expected implementation date for the Rapid DNA technology?

A. There is no scheduled date for implementation of Rapid DNA by the FBI at this time. You may wish to check these FAQs periodically for progress updates on Rapid DNA as the FBI works to establish the proper foundation for its use of this technology through validation, guidelines, training, etc.

(1) Available metadata, such as the date of birth, may be included in missing person records stored at NDIS.

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CODIS and NDIS Fact Sheet

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CODIS

Q: What is CODIS?

A: CODIS is the acronym for the “Combined DNA Index System” and is the generic term used to describe the FBI’s program of support for criminal justice DNA databases as well as the software used to run these databases. The National DNA Index System or NDIS is considered one part of CODIS, the national level, containing the DNA profiles contributed by federal, state, and local participating forensic laboratories.

CODIS DNA Databases

Q: How do these DNA databases using CODIS work?

A: For example, in the case of a sexual assault where an evidence kit is collected from the victim, a DNA profile of the suspected perpetrator is developed from the swabs in the kit. The forensic unknown profile attributed to the suspected perpetrator is searched against their state database of convicted offender and arrestee profiles (contained within the Convicted Offender and Arrestee Indices, if that state is authorized to collect and database DNA samples from arrestees). If there is a candidate match in the Convicted Offender or Arrestee Index, the laboratory will go through procedures to confirm the match and, if confirmed, will obtain the identity of the suspected perpetrator. The DNA profile from the evidence is also searched against the state’s database of crime scene DNA profiles called the Forensic Index. If there is a candidate match in the Forensic Index, the laboratory goes through the confirmation procedures and, if confirmed, the match will have linked two or more crimes together. The law enforcement agencies involved in these cases are then able to share the information obtained on each of the cases and possibly develop additional leads.

Q: What happens after there is a hit in the DNA database?

A: CODIS was designed to compare a target DNA record against the DNA records contained in the database. Once a match is identified by the CODIS software, the laboratories involved in the match exchange information to verify the match and establish coordination between their two agencies. The match of the forensic DNA record against the DNA record in the database may be used to establish probable cause to obtain an evidentiary DNA sample from the suspect. The law enforcement agency can use this documentation to obtain a court order authorizing the collection of a known biological reference sample from the offender. The casework laboratory can then perform a DNA analysis on the known biological sample so that this analysis can be presented as evidence in court.

Q: How do laboratories count CODIS hits?

A: The procedure used for counting hits gives credit to those laboratories involved in analyzing and entering the relevant DNA records into CODIS. CODIS hits are tracked as either an offender hit (where the identity of a potential suspect is generated) or as a forensic hit (where the DNA profiles obtained from two or more crimes scenes are linked but the source of these profiles remains unknown). These hits are counted at the state and national levels. CODIS was established by Congress to assist in providing investigative leads for law enforcement in cases where no suspect has yet been identified, therefore a CODIS hit provides new investigative information on these cases. The hits are reported as “Investigations Aided” thus enabling the FBI to measure the effectiveness of both the CODIS software and National DNA Index System. See <http://www.fbi.gov/about-us/lab/codis/ndis-statistics> for NDIS Statistics by State.

Q: Do laboratories track conviction rates based on the CODIS hit?

A: Laboratories that participate in the National DNA Index System are not required to track local or state conviction rates based on CODIS hits. As discussed above, CODIS was designed to assist law enforcement by providing potential investigative information in those cases in which crime scene evidence has yielded a DNA profile but no suspect has been identified. Once the hit information is provided to law enforcement, neither the FBI nor the local laboratory is typically notified as to the resolution of the investigation aided case

Q: Why do laboratories only send out the hit notifications to the law enforcement contributor?

A: A law enforcement agency sends the crime scene evidence to the forensic DNA laboratory for analysis and production of a DNA record. At the time of the hit, there may not be an open or active investigation or other judicial proceeding and therefore, the submitting law enforcement agency becomes the laboratory’s point of contact for hit notification.

Q: What DNA information is stored in these databases?

A: The DNA profile also known as a DNA type is stored in the database. For Forensic STR DNA analysis, the DNA profile consists of one or two alleles at the 13 CODIS Core Loci.

Q: Is any personal information relating to the convicted offenders, arrestees or detainees stored in these DNA databases?

A: No names or other personal identifiers of the offenders, arrestees, or detainees are stored using the CODIS software[1]. Only the following information is stored and can be searched at the national level:

- (1) The DNA profile—the set of identification characteristics or numerical representation at each of the various loci analyzed;
- (2) The Agency Identifier of the agency submitting the DNA profile;
- (3) The Specimen Identification Number—generally a number assigned sequentially at the time of sample collection. This number does **not** correspond to the individual’s social security number, criminal history identifier, or correctional facility identifier; and
- (4) The DNA laboratory personnel associated with a DNA profile analysis.

Q: What precautions are taken for safeguarding the information in these DNA databases?

A: The computer terminals/servers containing the CODIS software are located in physically secure space at a criminal justice agency. Access to these computers is limited to only those individuals authorized to use CODIS and approved by the FBI. Communications between participating federal, state, and local laboratories occur over a wide area network accessible to only criminal justice agencies approved by the FBI.

Pursuant to federal law (the [DNA Identification Act of 1994](#)), DNA data is confidential. Access is restricted to criminal justice agencies for law enforcement identification purposes. Defendants are also permitted access to

the samples and analyses performed in connection with their cases. If all personally identifiable information is removed, DNA profile information may be accessed by criminal justice agencies for a population statistics database, for identification research and protocol development purposes, or for quality control purposes. The unauthorized disclosure of DNA data in the National DNA database is subject to a criminal penalty not to exceed \$250,000.

The National DNA Index System

Q: What is the National DNA Index System or NDIS?

A: NDIS is the acronym for the “National DNA Index System” and is one part of CODIS—the national level—containing the DNA profiles contributed by federal, state, and local participating forensic laboratories. NDIS was implemented in October 1998. All 50 states, the District of Columbia, the federal government, the U.S. Army Criminal Investigation Laboratory, and Puerto Rico participate in NDIS.

The DNA Identification Act of 1994 (42 U.S.C. §14132) authorized the establishment of this National DNA Index. The DNA Act specifies the categories of data that may be maintained in NDIS (convicted offenders, arrestees, legal, detainees, forensic (casework), unidentified human remains, missing persons and relatives of missing persons) as well as requirements for participating laboratories relating to quality assurance, privacy and expungement.

Q: What are the specific requirements for a state’s participation in the National DNA Index?

A: The DNA Identification Act (42 U.S.C. §14132(b)) specifies the requirements for participation in the National DNA Index System (NDIS) and the DNA data that may be maintained at NDIS (convicted offender, arrestees, legal, detainees, forensic (casework), unidentified human remains, missing persons and relatives of missing persons). The DNA Identification Act requires the following:

That the laboratories participating in the National DNA Index comply with the Quality Assurance Standards issued by the FBI Director;

That the laboratories submitting the DNA records are accredited by a nonprofit professional association of persons actively engaged in forensic science that is nationally recognized within the forensic science community;

That the laboratory submitting the DNA record undergoes an external audit every two years to demonstrate compliance with the FBI Director’s Quality Assurance Standards;

That the laboratory is a federal, state, or local criminal justice agency (“or the Secretary of Defense in accordance with section 1565 of title 10, United States Code”); and

That access to the DNA samples and records is limited in accordance with federal law.

States seeking to participate in NDIS sign a Memorandum of Understanding with the FBI Laboratory documenting their agreement to abide by the DNA Identification Act requirements as well as record-keeping and other operational procedures governing the uploading of DNA data, expungements, CODIS users, audits, etc.

Q: Are there approved accrediting agencies?

A: Federal law requires that laboratories submitting DNA data to NDIS are accredited by a nonprofit professional association of persons actively engaged in forensic science that is nationally recognized within the forensic science community. The following entities have been determined to satisfy this definition: the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) and Forensic

Quality Services (ANSI-ASQ National Accreditation Board FQS).

Q: What are the access requirements for the DNA samples and records?

A: The DNA Identification Act, §14132(b)(3), specifies the access requirements for the DNA samples and records “maintained by federal, state, and local criminal justice agencies (or the Secretary of Defense in accordance with section 1565 of title 10, United States Code)” ...and “allows disclosure of stored DNA samples and DNA analyses only—

(A) to criminal justice agencies for law enforcement identification purposes;

(B) in judicial proceedings, if otherwise admissible pursuant to applicable statutes or rules;

(C) for criminal defense purposes, to a defendant, who shall have access to samples and analyses performed in connection with the case in which such defendant is charged; or

(D) if personally identifiable information is removed, for a population statistics database, for identification research and protocol development purposes, or for quality control purposes.”

Q: What if a state’s law on access to the DNA samples and profiles is different from the federal provisions?

A: If a state has signed the Memorandum of Understanding with the FBI to participate in NDIS, that state has agreed to comply with the Federal DNA Identification Act, including the limited access requirements. To the extent that these access and disclosure provisions of the Federal DNA Act conflict with a state’s DNA database law, the state has agreed to the provisions of the Federal DNA Act superseding the state law for purposes of NDIS participation. That is, if a state DNA database law permits access to the DNA samples and analyses in the state DNA database for purposes not contained in the Federal DNA Act (i.e., humanitarian purposes), and that state is participating in NDIS, then the state has agreed to comply with the more restrictive federal access provisions.

Q: Is the defendant entitled to access the DNA samples and analyses of other individuals?

A. Under the DNA Identification Act, the defendant may have access to the samples and analyses performed in connection with his or her case for criminal defense purposes [42 U.S.C. §14132(b)(3)(C)]. This provision permits access to the results of, any analyses of samples taken from the defendant and any analyses developed from the crime scene evidence, in the case for which the defendant is charged. This provision does not authorize access for the defendant to samples and analyses that were not developed in connection with his or her case (such as other offenders’ DNA profiles). Nor does this provision in the Federal DNA Act authorize access for the defendant to all of the DNA records in the National DNA Index System.

Q: Are there any sanctions for states that participate in the National DNA Index System if the state does not comply with the Federal DNA Identification Act?

A: Under the Federal DNA Identification Act, access to the National DNA Index System (NDIS) “is subject to cancellation if the quality control and privacy requirements described in subsection (b) are not met” [42 U.S.C .§14132(c)]. This means that if an NDIS participating laboratory or state does not comply with the FBI Director’s Quality Assurance Standards for Forensic DNA Databasing and Testing Laboratories and/or the limited access provisions of the Federal DNA Act, that NDIS participating laboratory or state may lose its ability to search, store, and maintain its DNA records in NDIS.

DNA Data Requirements

Q: What DNA data is accepted at NDIS?

A: Currently, DNA data generated through PCR Short Tandem Repeat (STR) technology, Y chromosome STR (Y STR) technology, and Mitochondrial DNA (mtDNA) technology are accepted at NDIS.

Y STR and mtDNA data is only searched with the missing person related indexes.

The National DNA Index no longer searches DNA data developed using restriction fragment length polymorphism (RFLP) technology.

Q: Are there specific data requirements for the DNA records submitted to NDIS?

A: Yes. There are several requirements for the DNA data submitted to NDIS:

1. The DNA data must be generated in accordance with the FBI Director's Quality Assurance Standards;
2. The DNA data must be generated by a laboratory that is accredited by an approved accrediting agency;
3. The DNA data must be generated by a laboratory that undergoes an external audit every two years to demonstrate compliance with the FBI Director's Quality Assurance Standards;
4. The DNA data must be one of the categories of data acceptable at NDIS, such as convicted offender, arrestee, detainee, legal, forensic (casework), unidentified human remains, missing person or a relative of missing person;
5. The DNA data must meet minimum CODIS Core Loci requirements for the specimen category;
6. The DNA PCR data must be generated using PCR accepted kits; and
7. Participating laboratories must have and follow expungement procedures in accordance with federal law.

Q: What are the 13 core CODIS loci?

A: The 13 core CODIS loci are:

- CSF1PO
- FGA
- TH01
- TPOX
- VWA
- D3S1358
- D5S818
- D7S820
- D8S1179
- D13S317
- D16S539
- D18S51
- D21S11

Q: What are the minimum loci requirements for the STR DNA data submitted to NDIS?

A: The minimum CODIS Core Loci required for submission of DNA data to NDIS vary by specimen category. Generally, the 13 CODIS Core Loci are required for submission of convicted offender, arrestee, detainee, and legal profiles. The 13 CODIS Core Loci and Amelogenin are required for relatives of missing person profiles.

All 13 CODIS Core Loci must be attempted for other specimen categories with the following limited exceptions:

- For forensic DNA profiles, all 13 CODIS Core Loci must be attempted but at least 10 CODIS Core Loci must have generated results for submission to and searching at NDIS.
- For Missing Person and Unidentified Human Remains, all 13 CODIS Core Loci must be attempted.

Q: What are the requirements for submission of mtDNA data to NDIS?

A: Hypervariable region I ("HV1"; positions 16024-16365) and hypervariable region II ("HV2"; positions 73-340) are required for the submission of mtDNA data to NDIS.

Q: Are there additional requirements for forensic (casework) DNA records?

A: Forensic (casework) DNA samples are considered crime scene evidence. To be classified as a forensic unknown record, the DNA sample must be attributed to the putative perpetrator. Items taken directly from the suspect are considered deduced suspect samples, not forensic unknowns, and are not eligible for upload to NDIS.

Q: Are there any additional requirements for missing persons-related DNA records?

A: For missing person, relatives of missing person and unidentified human (remains) samples, additional DNA technologies (such as mtDNA, Y STR) should always be considered, as appropriate. For purposes of this discussion, “as appropriate” means if relevant. For example, if the missing person is a female, then Y STR technology would not be relevant. The lack of an additional technology will not render a sample ineligible for entry into CODIS but use of an additional appropriate technology will ensure the most robust search possible.

Additionally, creation of a Pedigree Tree for the missing persons-related DNA record is strongly encouraged. A Pedigree Tree is a graphical representation of the relationship of the missing person with two or more relatives. The more robust Pedigree Trees have at least one relative that is a biological mother, biological father, or biological child of the missing person.

Q: What are the expungement requirements?

A: Laboratories participating in the National DNA Index are required to expunge qualifying profiles from the National Index under the following circumstances:

1. For convicted offenders, if the participating laboratory receives a certified copy of a final court order documenting the conviction has been overturned; and
2. For arrestees, if the participating laboratory receives a certified copy of a final court order documenting the charge has been dismissed, resulted in an acquittal or no charges have been brought within the applicable time period.

Partial Matches and Familial Searches

Q: How is the National Database searched?

A: The Forensic Index is searched against the Convicted Offender Index at moderate stringency. Moderate stringency is defined as a search that requires all alleles to match, but the target and candidate profiles can contain a different number of alleles.

Q: Why is the National Database searched at moderate stringency?

A: DNA profiles obtained from crime scene evidence may be partially degraded and/or contain DNA from more than one individual. Additionally, different laboratories use different DNA typing kits in developing submitted evidence. The national database is searched at moderate stringency in order to address these potential scenarios and allow the ultimate detection of full, high stringency (exact) matches that might otherwise not have been identified.

Q: Is searching at moderate stringency a form of familial searching?

A: No. As stated above, conducting a moderate stringency search is an effective means of searching forensic profiles from crime scene evidence that contain DNA from more than one individual (a forensic mixture), forensic DNA that is partially degraded or to accommodate the use of different DNA typing kits by different laboratories. This should not be confused with attempting to search for similar but not matching profiles already stored within the National DNA Index System – a type of database searching the FBI does not conduct.

Q: What is a partial match at NDIS?

A: Occasionally a partial match between a forensic profile and an offender profile is observed during a routine

NDIS database search. The FBI defines a partial match as a moderate stringency candidate match between two single source profiles having at each locus all of the alleles of one sample represented in the other sample. (See below illustration). A “partial match” is not an exact match of the two profiles. A forensic scientist, when evaluating whether a candidate match is a viable match and should be processed through to confirmation, discovers that the candidate offender profile is, in fact, excluded as the possible source of the profile obtained from crime scene evidence but that, because of a similarity in alleles between the forensic unknown and the candidate offender profile, believes that a close biological relative of the offender may be the source of the forensic unknown.

The following illustrates a hypothetical partial match as seen in the SWGDAM Recommendations to the FBI Director on the “Interim Plan for the Release of Information in the Event of a ‘Partial Match’ at NDIS” at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archive/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Locus	Forensic Unknown	Candidate Offender	Match Stringency
D8S1179	13	13, 14	Moderate
D21S11	28, 31.2	28, 31.2	High
D7S820	12	10, 12	Moderate
CSF1PO	10, 12	10	Moderate
D3S1358	15, 17	15, 17	High
TH01	8	7, 8	Moderate
D13S317	9, 12	9	Moderate
D16S539	11, 12	12	Moderate
VWA	17	15, 17	Moderate
TPOX	8, 11	8	Moderate
D18S51	24	16, 24	Moderate
D5S818	9, 12	12	Moderate
FGA	24, 25	24, 25	High

Q: Can partial match information at NDIS be disclosed?

A: Since a partial match is not an exact profile match to an offender profile and therefore cannot be subject to NDIS defined confirmation procedures, the FBI has authorized procedures for the release of partial match information. NDIS Laboratories that identify a partial match resulting from an NDIS search and wish to identify the offender profile should refer to Appendix G of the NDIS Operational Procedures Manual and contact the FBI’s CODIS Unit for further information.

Q: Is there any guidance on how to address these partial matches?

A: At the FBI’s request, the Scientific Working Group on DNA Analysis Methods (SWGDAM) reviewed the scientific issues relating to partial matches and developed recommendations to assist in the evaluation of this information. Those recommendations are available in Forensic Science Communications at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archive/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Q: How successful are partial matches at locating potential suspects?

A: As explained in SWGDAM's recommendations "Moderate stringency CODIS matches, in general, have very low efficiency in locating true relatives in offender databases. There is little useful probative value in the majority of partial matches using the current CODIS searching rules and algorithms. There are two main reasons for this: (1) true siblings will very rarely share alleles at all 13 CODIS loci; (2) as offender DNA databases get large, the number of unrelated people that do share at least one allele at all loci increases very rapidly. The original intent for allowing moderate stringency CODIS searches was the realization and acknowledgment that crime scene profiles often may be partially degraded and/or contain DNA from more than one contributor. Additionally, different primer sets may have been used between profiles. Allowing the detection of partial matches can help accommodate these two scenarios and allow the ultimate detection of full, high-stringency matches that might otherwise not have been found." The Committee's complete list of recommendations is available at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archive/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Q: Are partial matches the same as familial searches?

A: No. A partial match, as indicated above, is the spontaneous product of a routine database search where a candidate offender profile is not identical to the forensic profile but because of a similarity in the number of alleles shared between the forensic profile and the candidate profile, the offender may be a close biological relative of the source of the forensic profile. Familial Searching is an intentional or deliberate search of the database conducted after a routine search for the purpose of potentially identifying close biological relatives of the unknown forensic sample associated with the crime scene profile.

Q: Are familial searches performed at NDIS?

A: No, familial searching is not currently performed at NDIS. See also Federal Register Vol. 73, No. 238 (December 10, 2008 at page 74937).

Q: Are familial searches performed at the state level?

A: Each jurisdiction must determine whether or not they are authorized to perform familial searching, and if so, the criteria and procedures governing their use of this searching process. The FBI does not regulate this type of search at the state level. California, Colorado, Texas, Virginia and Wyoming currently perform familial searching (see, for example, policies/procedures available at http://ag.ca.gov/cms_attachments/press/pdfs/n1548_08-bfs-01.pdf and [Colorado Bureau of Investigation - DNA Familial Search Policy](#)). Please note that these jurisdictions use specially designed software (not CODIS software) to perform familial searching of their databases. Two jurisdictions, Maryland (§ 2-506) and the District of Columbia (§ 22-4151), have passed laws specifically prohibiting familial searching. These laws are available at <http://law.justia.com/codes/maryland/2010/public-safety/title-2/subtitle-5/2-506/> and <http://government.westlaw.com/linkedslice/default.asp?rs=gvt1.0&vr=2.0&sp=dcc-1000>, respectively.

For additional information on familial searching, please see <http://www.fbi.gov/about-us/lab/codis/familial-searching>.

Expert Systems

Q: What are Expert Systems and are they approved for use in generating DNA data for NDIS?

A: An Expert System is a software program or set of software programs that interprets the data generated from a DNA analysis instrument (or platform) in accordance with laboratory defined quality assurance rules and accurately identifies the data that does and does not satisfy such rules. Portions of the technical review required by the FBI Director's Quality Assurance Standards may be accomplished by an NDIS approved and internally

validated Expert System.

The following Expert Systems are approved for use on offender samples and known reference samples at NDIS. There are no Expert Systems approved for use on casework (forensic unknown) samples.

NDIS Approved Expert Systems
GeneMapper®ID
GeneMapper®ID-X
i-Cubed™
TrueAllele™

If you have a question concerning a specific Expert System; please contact the FBI's CODIS Unit.

PCR STR Kits

Q: What are the PCR kits accepted for use at NDIS?

A: Following are the most frequently used PCR kits accepted at NDIS (listed by manufacturer):

- Applied Biosystems (AB) AmpFISTR®Profiler Plus®
- AB AmpFISTR®COfiler®
- AB AmpFISTR®Profiler Plus® and AmpFISTR®COfiler®
- AB AmpFISTR®Profiler Plus®ID
- AB AmpFISTR®Profiler Plus®ID and AmpFISTR®COfiler®
- AB AmpFISTR®Identifiler®
- AB AmpFISTR®Identifiler® Direct
- AB AmpFISTR®Identifiler® Plus
- Promega PowerPlex®1.1
- Promega PowerPlex®1.2
- Promega PowerPlex®2.1
- Promega PowerPlex®16
- Promega PowerPlex®16 BIO
- Promega PowerPlex®16 HS
- Promega PowerPlex®18 D
- Promega PowerPlex® Fusion
- AB AmpFISTR® MiniFiler™
- AB AmpFISTR® Yfiler®
- Promega Powerplex® Y
- Promega Powerplex® Y23

If you have a question concerning a specific PCR kit; please contact the FBI's CODIS Unit.

Q: What is the process for PCR kits, loci and Expert Systems to be approved for use at NDIS?

A: Laboratories that participate in the National DNA Index and who have validated the kits, loci, or Expert System in their laboratories may request that the FBI approve the kit, loci or Expert System. The validation data and other supporting documentation must accompany the request.

International Searches

Q: How are International DNA databases searched?

A: Requests for a search of an international DNA database should be directed to your state CODIS

administrator. The state CODIS administrator will forward the request to their state liaison Interpol contact. Those requesting an international search must use the Interpol DNA Profile Search Request Form available at <http://www.interpol.int/INTERPOL-expertise/Forensics/DNA>.

Q: Can the National DNA Index System be searched by international agencies?

A: An international law enforcement agency may submit a request for a search of the National DNA Index either through the FBI's legal attaché responsible for that jurisdiction or through Interpol. Requests for such a search will be reviewed by the NDIS Custodian to ensure compliance with the Federal DNA Identification Act (criminal justice agency status, authorized specimen category and participation in quality assurance program) as well as the inclusion of a sufficient number of CODIS Core Loci for effective searching.

Outsourcing Offender/Arrestee or Casework Samples

Q: Are there specific requirements for outsourcing offender/arrestee or casework samples?

A: Requirements for the outsourcing of DNA samples are contained in Standard 17 of the *Quality Assurance Standards for Forensic DNA Testing and Databasing Laboratories*. For law enforcement agencies seeking to outsource offender and/or casework samples, the technical specifications of the outsourcing agreement must have the prior approval of the technical leader of the NDIS participating laboratory that will be entering that DNA data into CODIS. At a minimum, the outsourced laboratory must follow the FBI's *Quality Assurance Standards* and be accredited. Standard 17 of the *Quality Assurance Standards* also requires the completion of an on-site visit of the vendor laboratory prior to the beginning of the outsourced analyses and a technical review of the outsourced DNA records by the NDIS participating laboratory. Please refer to the *FBI's Quality Assurance Standards for Forensic DNA Testing and Databasing Laboratories* for additional information concerning the use of contract employees to perform the technical review of DNA records.

Quality Assurance Standards

Q: What are the Quality Assurance Standards?

A: Compliance with the *Quality Assurance Standards* or QAS issued by the FBI Director is required by federal law in order for a laboratory to participate in and contribute DNA records to the National DNA Index System.

The QAS describe the minimum standards for a laboratory's quality program if performing forensic DNA analysis and/or databasing. The minimum standards cover the following areas: organization, personnel, facilities, evidence or sample control, validation, analytical procedures, equipment calibration and maintenance, reports, review, proficiency testing, corrective action, audits, safety, and outsourcing. For example, the Standards require that DNA examiners undergo external proficiency testing on a semiannual basis.

Q: Do the approved accrediting agencies use the Quality Assurance Standards?

A: The approved accrediting agencies use the FBI's Quality Assurance Standards when performing audits of forensic DNA and databasing laboratories.

Q: What is the most recent version of the Quality Assurance Standards?

A: The Quality Assurance Standards were revised in 2011 and the revisions were effective September 1, 2011; please see <http://www.fbi.gov/about-us/lab/codis/codis> for links to the Quality Assurance Standards and Audit Documents.

Rapid DNA or Rapid DNA Analysis

Q: What is Rapid DNA or Rapid DNA analysis?

A: Rapid DNA describes the fully automated (hands free) process of developing a CODIS Core STR profile from a reference sample buccal swab. The "swab in – profile out" process consists of automated extraction,

amplification, separation, detection and allele calling without human intervention.

Q: What is the Rapid DNA Index System (RDIS)?

A: RDIS is the proposed fourth tier of NDIS; a fully integrated system capable of performing reference sample buccal swab STR analysis in 1-2 hours and initiating DNA searches from a police booking station.

Q: How is the FBI involved in the development of Rapid DNA technology?

A: The FBI established a Rapid DNA Program Office in 2010 to direct the development and integration of Rapid DNA technology for use by law enforcement. The Program Office works with the Department of Defense, the Department of Homeland Security, the National Institute of Standards and Technology, the National Institute of Justice, and other federal agencies to ensure the coordinated development of this new technology among federal agencies. The Program Office also works with state and local law enforcement agencies and state bureaus of identification through the FBI's Criminal Justice Information Services Division Advisory Policy Board to facilitate the effective and efficient integration of Rapid DNA in the police booking environment.

Q: What is the goal of the FBI's initiative on Rapid DNA development?

A: The goal of the FBI's Rapid DNA initiative is to develop commercial instruments capable of producing a CODIS-compatible DNA profile within two hours and to integrate those instruments effectively within the existing CODIS structure to search unsolved crimes while an arrestee is in police custody during the booking process.

Q: Is the Rapid DNA technology currently operational?

A: Several manufacturers have developed prototype instruments for Rapid DNA analysis. Following commercial availability, the FBI will work with federal, state, and local CODIS laboratories and the Scientific Working Group on DNA Analysis Methods to test, evaluate, and validate the hands-free instruments for law enforcement use.

No Rapid DNA instruments or kits have been approved by the FBI for submission of samples to NDIS/CODIS.

Q: When will law enforcement agencies be able to use Rapid DNA?

A: At this time, it is not known when law enforcement agencies will be able to search profiles developed by a Rapid DNA instrument in CODIS. There are a number of issues relating to the use of Rapid DNA analysis that will need to be addressed, such as the laboratory accreditation requirements of the DNA Identification Act of 1994 (42 U.S.C. §14132) as well as compliance with the FBI Director's Quality Assurance Standards. In addition, the FBI is working on how to integrate this technology first into CODIS laboratory operations and then into police booking locations. Important issues relating to the validation and certification of the Rapid DNA analysis instruments must be resolved before implementing this new technology as part of the booking process. Guidelines for the use of this technology are being developed and training will also be needed for law enforcement and laboratory personnel to use the new technology in a manner that maintains the quality and integrity of CODIS and the National DNA Index System.

Q: Is there an expected implementation date for the Rapid DNA technology?

A: There is no scheduled date for implementation of Rapid DNA by the FBI at this time. You may wish to check these FAQs periodically for progress updates on Rapid DNA as the FBI works to establish the proper foundation for its use of this technology through validation, guidelines, training, etc.

[1] Available metadata, such as the date of birth, may be included in missing person records stored at NDIS.