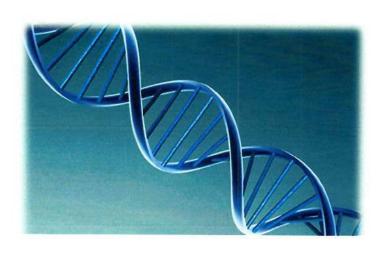
2022



# Ministry of National Security National Forensic DNA Databank Custodian Unit

# Annual Report

Of the Custodian on the operations of the DNA Databank of Trinidad and Tobago



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### Message from the Deputy Custodian Manager

Forensic DNA databases have proven to be an invaluable crime-fighting resource in countries all over the world and will no doubt assist Trinidad and Tobago in its war on crime. However, for databases to be effective, it must be populated with a large quantity of high quality DNA profiles. The availability of such profiles for upload onto the databank continues to be the primary challenge faced by the National Forensic DNA Databank (NFDD). Nevertheless, the Custodian Unit has made significant strides over its last six (6) years of operation with the establishment of a secure electronic databank, development of a Quality Management System, publishing of its minimum standards in 2020 in accordance with Regulation 4 of the Administration of Justice (Deoxyribonucleic Acid) Regulations 2018, and the reporting of its first databank match in 2021 to the Trinidad and Tobago Police Service.

2022 was a pivotal year for the NFDD Custodian Unit, with the culmination of the Non-Intimate Reference Sample Collection (train-the-trainer) Program being one of the key highlights. This initiative, which was spearheaded by the Custodian Manager in 2018, employed a two pronged approach aimed at sensitizing persons required to provide a non-intimate reference sample, as well as training Qualified Persons in the collection, storage and transportation of non-intimate reference samples. The trainees included members of the protective services, employees at the Trinidad and Tobago Forensic Science Centre (TTFSC) and medical practitioners. A total six hundred and fifty (650) persons (two hundred and fifty seven (257) non-collectors, and three hundred and ninety three (393) collectors) were certified over this four (4) year period.

Another milestone of the NFDD Custodian Unit was the commencement of the Buccal Swab Sample Collection Exercise which, as indicated in the Custodian's 2021 report, was one of the Unit's top priorities for 2022. This undertaking resulted in a multi-agency collaboration involving the NFDD Custodian Unit, the Trinidad and Tobago Prison Service, the Trinidad and Tobago Defence Force, the Trinidad and Tobago Police Service, the Trinidad and Tobago Fire Service, the Immigration Division, the Customs and Excise Division and the Trinidad and Tobago Forensic Science Centre. Approximately nine thousand (9 000) non-intimate reference samples were collected at the end of Phase I of the exercise and it is envisioned that the DNA profiles generated from these samples will be uploaded to the databank by the third quarter of 2023. Phase II of sample collection is set to begin in

the first quarter of 2023 with the sample population comprising of incarcerated persons, juvenile offenders, deported citizens and detained non-nationals.

The NFDD Custodian Unit was also featured at the Ministry of National Security's first Forensic DNA Analysis Symposium and represented the Ministry at the 6<sup>th</sup> Caribbean Medicolegal and Forensic Symposium, as well the Caribbean Crime Symposium facilitated by the Caribbean Association of Forensic Sciences (CAFS). These forums created opportunities for the development of local and regional partnerships which have already taken root and are projected to bear fruit in 2023.

As I reflect on the past twelve (12) months, I wish to thank our local and regional stakeholders for their unwavering support, and I also extend my sincere gratitude to the Custodian Unit staff who continue to demonstrate the highest levels of integrity and aptitude in the execution of their duties.

Producing high quality databank matches that are able to withstand the scrutiny of the Courts remain the chief objective of this Unit, and as such, we remain committed to acquiring and maintaining ISO 9001 (Quality Management Systems) and ISO/IEC 27001 (Information Security Systems) certification in the near future.

Shames Mahager
Deputy Custodian Manager

# 1. Glossary of Terms

Term	Definition
Approved Laboratory	A laboratory accredited by accrediting bodies listed in the First Schedule of the <i>DNA Act</i> which is accountable to the Government of Trinidad and Tobago by entering into an agreement with the Government of Trinidad and Tobago and is approved by the Minister by Notification.
Association	A search result that matches autosomal DNA profiles based on shared alleles and kinship algorithms; it does not reflect a direct identity match between profiles but shows a possible familial relation.
Buccal swab	An oral or mouth swab. Buccal cells are found inside the mouth/lining the cheeks.
Candidate Match Report	A report generated and distributed to laboratories responsible for the matching profiles after database software determines that two or more DNA profiles match or are associated.
Databasing (For the purpose of the NFDD)	The uploading, storing, searching and cross referencing of eligible, accurate (presumed) and complete DNA profiles obtained from DNA analysis of samples (database, case work, reference samples) by a DNA testing laboratory following FBI QAS into CODIS or another database software.
Disclosure Request	An application made by a police officer, a person from whom a sample was taken or his representative, a government agency, an educational institution, the Central Authority (Attorney General) or the Courts of Trinidad & Tobago to have a DNA profile checked against the profiles stored on the NFDD.
DNA Act	The legislation for the National Forensic DNA Databank System that authorizes the establishment of a national DNA identification index for enumerated categories of records subject to privacy and quality control requirements.
DNA Profile	The genetic constitution of an individual at defined locations (also known as loci) in the DNA. A DNA Profile derived from nuclear DNA typically consists of one or two alleles at several loci (e.g., short tandem repeat loci).
Elimination Index/Database	A separate database index containing autosomal DNA profiles of persons who could inadvertently introduce their own DNA Profile as cross-contamination to investigated evidence. These

Term	Definition
	persons are listed in the Third Schedule of the <i>DNA Act</i> as well as District Medical Officers (DMOs), Undertakers etc. Elimination Index profiles are automatically searched against other database indices and any resulting match shall be investigated by the Trinidad and Tobago Police Service or the Trinidad and Tobago Forensic Science Centre in order to determine if source of match was due to contamination or otherwise. Evidentiary DNA Profiles may be deleted from the NFDD if investigations conclude that the DNA profile in question was obtained due to inadvertent contamination from an individual included in the Elimination Index.
Expungement	The deletion of an uploaded DNA profile obtained from a reference sample pursuant to Section 26 of the <i>DNA Act</i> or a court order.
Final Match Report	A report generated by the NFDD Custodian Unit detailing all relevant information regarding matching or associating DNA profiles. A Final Match Report is submitted to relevant law enforcement agencies; and individuals or agencies requesting a search of, or disclosure of information from the NFDD.
Forensic Unknown	A biological sample originating from a crime scene or stain and whose source is attributable to a presently unknown individual. These are not reference samples from known individuals such as volunteers, suspects, offenders, etc.
File Transfer Protocol (FTP)	A standard network protocol used for the transfer of computer files between a client and server on a computer network.
Investigation Aided	A metric that tracks the number of criminal investigations where NFDD has added value to the investigative process.
Law Enforcement Agency	An agency or institution of the government which performs as part of its principal function, activities relating to the apprehension, investigation, incarceration of criminal offenders.
Match	A match occurs when database software links two or more DNA profiles and a confirmation process is started by laboratory personnel.
NFDD Participating Laboratory	A Forensic DNA Laboratory contracted by the Government of Trinidad and Tobago and approved by the Minister of National Security by Notification to submit DNA profiles for NFDD inclusion.

Term	Definition
Offender	This term is intended to include persons under suspicion such as accused, suspects, convicted offenders, detainees; as well as deportees, prisoners, juveniles and foreign nationals who breach <i>Immigration Act</i> .
Reference Sample	Biological material (e.g. buccal swab or sample of intravenous blood) taken from a verified individual.
Search Request	An application made by the Commissioner of Police, an investigating officer or the Central Authority (Attorney General) to have a DNA profile checked against the profiles stored on the NFDD.

#### 2. Introduction

The DNA Custodian Unit was officially established in January 2017 pursuant to **Cabinet Minute No.** 1752-2014/06/18. This Unit, currently under the supervision of the Deputy Custodian, manages and operates the National Forensic DNA Databank (NFDD) of Trinidad and Tobago.

The NFDD is a repository of electronic DNA profiles obtained from crime scenes and individuals mentioned in the *Administration of Justice Deoxyribonucleic Acid (DNA) Act*, *Chapter 5:34* hereinafter referred to as the *DNA Act*. These profiles are searched and compared to obtain matches and familial associations. The Custodian Unit aims to provide an uncompromised, secured and confidential DNA databank operating at international standards in order to increase the crime detection rate, decrease wrongful convictions, solve cold cases, identify missing or unidentified persons (providing family members with closure) and deter criminal activity.

The NFDD Custodian Unit operates according to the DNA legislation of Trinidad and Tobago and a Quality Management System enabling the NFDD to become a critical investigative resource for law enforcement. The use of DNA by the judicial system has become increasingly important in solving crimes and continues to be one of the most relied upon forms of evidence used by the court of justice to support their decisions.

The NFDD is an investigation tool for law enforcement, utilized to:

- i. determine potential perpetrators and suspects of unsolved crimes;
- ii. ascertain the source of crime related biological stains/materials; and
- iii. link crime scenes to other crime scenes

As illustrated in Diagram 1 below, these functions are effected once DNA profiles generated from collected crime scene evidence and specific individuals are entered onto the NFDD and cross-referenced amongst each other in order to find matches, familial associations and contamination.

The NFDD of Trinidad and Tobago uses the DNA Profile Matching System database software known as **SmallPond™**.

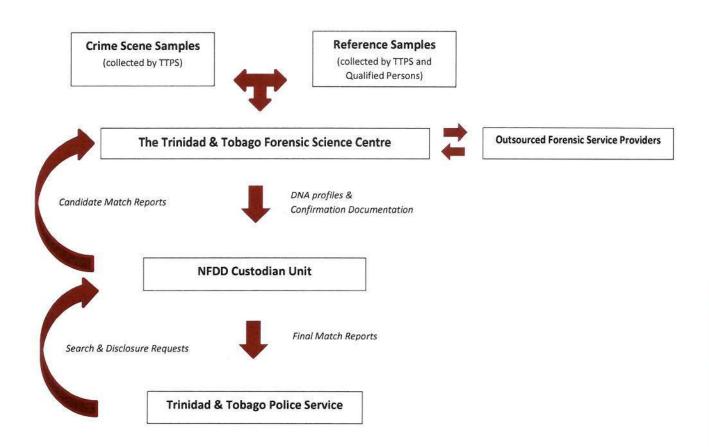


Diagram 1: Flow Chart Illustrating How Trinidad and Tobago's National Forensic DNA Databank Works

#### 3. Organisational Structure of Custodian Unit

By Minute No. 1752 dated June 18, 2014 a Custodian Unit was established to oversee, manage and maintain the NFDD.

The organisational structure of the Unit comprises one (1) Custodian Manager, one (1) Deputy Custodian Manager, one (1) Database Specialist, one (1) Databank Analyst, one (1) Information and Communication Technology (ICT) Support Officer, four (4) Business Operations Assistants (BOAs), one (1) driver and one (1) hospitality attendant.

At present, the Deputy Custodian Manager performs the duties of the Custodian Manager as prescribed in Section 8 (2) of the *DNA Act* and Information and Communication Technology (ICT) Support is provided on an as-needed basis by the Cyber Security and Incident Response Team and the ICT Unit of the Ministry of National Security. Courier services and hospitality support are provided by the General Administration of the Ministry of National Security on an as-needed basis. Efforts continue to be made to fill all vacant posts.

The NFDD Custodian Unit is located at:

Level 4 - ABMA Investments
55-57 St. Vincent Street
Port of Spain, Trinidad and Tobago

#### 4. Legislative Parameters

Sections 7 and 8 of the *DNA Act* provides for the establishment of a DNA databank and the appointment of a Custodian. Section 34 (1) of the *DNA Act*, provides that **DNA Regulations** must be created by the Minister in order to give effect to this Act.

All standards and procedures of the Custodian Unit are therefore in compliance with the Administration of Justice (Deoxyribonucleic Acid) Regulations, 2018 (DNA Regulations) and the *DNA* Act.

The current DNA Regulations authorized under Legal Notice No. 81 detailed in Legal Supplement Part B - Vol. 57, No. 74, 7th June, 2018 allow for:

commencement of Custodian Unit operations;
commencement of buccal swab sampling of specific persons mentioned in the DNA Act by
Police Officers and Medical Practitioners;
adherence to internationally accepted Storage and Transportation Guidelines for physical
evidence collection by authorised persons; and
development and adherence to minimum standards for entry onto and removal of DNA data
from the NFDD

#### 5. Functions of the Custodian Unit

The Custodian Unit is a stand-alone facility and is required to act **independently**. The Custodian Unit performs the following comparisons to assist the Trinidad and Tobago Police Service (TTPS) with their investigations:

Ц	DNA profiles developed from crime scene material (forensic unknowns or stains) are compared
	against DNA profiles from other crime scenes to identify potential links between different
	investigations. "Forensic-to-Forensic Match (or stain-to-stain)" is the term used to indicate a
	DNA match between these profiles.

- DNA profiles developed from crime scene material (forensic unknowns or stains) are compared against DNA profiles from accused, suspects, arrestees, detainees, convicted offenders, identified deceased victims, suspected missing persons, unidentified human remains and individuals mentioned in the Third (3<sup>rd</sup>) Schedule (of the *DNA Act*) to link a subject with a particular crime. "Forensic-to-Person Match (or stain-to-person)" is the term used to indicate a DNA match between these profiles.
- DNA profiles developed from unidentified human remains are compared against DNA profiles from family members of suspected missing persons to determine whether there is a **familial association** between these DNA profiles.

In accordance with Section 8 of the *DNA Act*, the DNA profiles uploaded and stored on the NFDD are provided by the Trinidad and Tobago Forensic Science Centre (TTFSC) and laboratories that have been approved by the Minister by Notification. Both the TTFSC and all approved laboratories must agree to the Custodian Unit's Technical Requirements before becoming an "NFDD Participating Laboratory".

DNA profiles contain sensitive, confidential information and must be retained indefinitely on the NFDD except when profiles qualify for: (i) expunction in accordance with Section 26 of **DNA Act** and (ii) data deletion as stipulated by Section 9.2 of the **NFDD Minimum Standards of Operations**. Each DNA profile entered into the NFDD includes a unique identifier (i.e. Specimen ID#) and is securely submitted to the Custodian Unit by or on behalf of NFDD Participating Laboratories using data transfer methods such as, but not limited to, a secured **File Transfer Protocol (FTP)** on an ICT network.

#### DNA Profiles:

- in relation to the investigation or prosecution of offenses committed before, on or after the coming into operation of the DNA Act;
- ii. generated from NFDD Participating Laboratories; and
- iii. obtained from the individuals (itemised under separate database indices) and sources outlined in Table 1;

are eligible for NFDD inclusion.

NFDD Database Index	Autosomal DNA Profiles	Y-STR DNA Profiles
Crime Scene Material – Forensic Unknown/ Stain	Scene of Crime Evidence (i.e. blood, semen, etc.)	Scene of Crime Evidence (i.e. blood, semen, etc.)
Offender – Person Under Suspicion	- Accused/Defendant - Suspects - Detainees/ Arrestees - Convicted Offenders - Prisoners - Deportees - Juveniles - Foreign Nationals who breach Immigration Act	

NFDD Database Index	Autosomal DNA Profiles	Y-STR DNA Profiles
Victims	Identified deceased     Direct Comparative Evidence     allegedly taken from missing persons     (e.g. toothbrush etc.)	- Identified deceased - Direct Comparative Evidence allegedly taken from missing persons (e.g. toothbrush etc.)
Family Members	<ul> <li>Biological Mother/Father</li> <li>Biological Offspring</li> <li>Sibling/ Half-Sibling</li> <li>Maternal and Paternal Relative</li> </ul>	<ul><li>Biological Father</li><li>Biological Offspring</li><li>Sibling/ Half-Sibling</li><li>Paternal Relative</li></ul>
Unidentified Human Remains	- Unidentified Deceased	- Unidentified Deceased
Elimination	<ul> <li>Officers of the Protective Services         (DNA Act Third Schedule)</li> <li>Members of the Municipal Police         Service</li> <li>Members of the Special Reserve         Police</li> <li>Members of the Defence Force</li> <li>Customs Officers</li> <li>Immigration Officers</li> <li>TTFSC DNA and Serology         Laboratory Staff</li> <li>Supporting Agency Members (i.e.         person who attend crime scenes         such as District Medical Officers,         Undertakers)</li> </ul>	

Table 1: Sources and individuals whose DNA profiles are eligible for NFDD inclusion

The NFDD can only be used for law enforcement purposes and profiles must be used for the purpose for which they were collected. The NFDD does not prove guilt or innocence and all DNA profile matches and associations must be confirmed by NFDD Participating Laboratories before a final match report is engendered and submitted to authorised personnel.

#### 6. Privacy of Information

The NFDD does not store personal identifiable information on individuals such as name, age, address or date of birth and all uploaded DNA profiles are anonymous. This anonymity protects the privacy of individuals allowing for the impartial analysis of matches and associations. Additionally, a balance between privacy rights (i.e. enforcement of the *Data Protection Act, 2011*) and the need for law enforcement (i.e. enforcement of the *DNA Act*) must be made. This balance speaks to the state's ability to identify suspects and retain 'personal information' on individuals for a specific length of time. According to Section 2 of the *Data Protection Act, 2011*, "personal information" means information about an identifiable individual that is recorded in any form including DNA. Therefore this balance, among other things, will allow:

- individuals, whose data is stored on the NFDD, access to their information via an official disclosure request;
- ii. the expunction of DNA data after a given period of time or under specific circumstances;
- iii. DNA profiles to be used strictly for the purpose they were generated.

Stringent operational procedures governing the submission, storage, access, security and use of DNA profiles will ensure that the privacy rights of individuals are protected. The NFDD can only be used for law enforcement purposes and the Custodian Unit does not share the NFDD data with anyone other than authorised agencies and persons listed in Section 29 (1) of the *DNA Act*; and Regulations 15(2) and 28 of the **DNA Regulations**.

#### 7. Data Security and Quality Management System

The Custodian Unit is responsible for data security, availability and integrity. Data security is enabled through the implementation and maintenance of a framework that includes 24-hr armed security, Biometric Door Access Control, data servers, firewalls, encrypted storage devices and the SmallPond™ DNA Profile Matching System. Additional security and preventive measures such as Data Centers with Netbotz monitoring, CCTV monitoring shall be implemented in 2023. Data Security is also enabled due to the isolated nature of the Custodian Unit. The NFDD operates on its own ICT network and incoming electronic data is transferred using an encrypted process. Continuous operability

of the Information Systems (IS) is monitored by the Database Specialist and compiled in quarterly and annual IS reports.

Additionally, data security, availability and integrity is regulated by the **NFDD Quality Management System** (QMS) which includes but not limited to the Quality Assurance Manual, the Health and Safety Manual, Standard Operating Procedures, the Risk Management program, Information Systems (IS) Control Policy and the NFDD Custodian Unit Minimum Standards of Operations.

According to **DNA Regulation 4(1)**, the Custodian shall, from time to time, set the Minimum Standards, in accordance with international best practices, for entry onto and removal of data from the Databank, which shall be published in the Gazette. These Minimum Standards of NFDD Operations were approved by the **Trinidad and Tobago Bureau of Standards (TTBS)** in **September 2019** and published in **Gazette No. 93 of 2020 (June)**.

Strict adherence to the QMS ensures compliance with DNA Legislation and international best practice resulting in secured, confidential and accurately loaded data. Data integrity is also maintained as NFDD Participating Laboratories that submit DNA profiles for databank loading are subject to quality assurance assessments.

Direct access to DNA profiles stored on the NFDD is limited to Custodian Management and authorised members of staff. The TTPS, the Commissioner of Police, personnel from the Ministry of Attorney General and Legal Affairs (AGLA) and the Judiciary may submit to Custodian Management, a request for an official Search or Disclosure of NFDD information. Correspondence detailing instructions on how these agencies may make an official request was submitted to the Commissioner of Police, the Permanent Secretary of the Ministry of the AGLA and the Administrative Secretary to the Chief Justice.

## 8. Populating the Databank

The efficiency of a forensic DNA databank is highly dependent on its size: as the database grows, its effectiveness increases. As of **December 2022**, the NFDD has six hundred and seven (607) profiles stored.

The TTFSC has not submitted any DNA profiles to the Custodian Unit for upload onto the NFDD during the period January 2022 to December 2022.

It should be noted that in accordance with Regulation 3, 4 and 5 of the Administration of Justice (Deoxyribonucleic Acid) Regulations, 2018, in order for the NFDD Custodian Unit to accept and upload DNA profiles onto the NFDD, the TTFSC must satisfy the following requirements:

- i. Have protocols and procedures which are specific to DNA analysis which demonstrate that the TTFSC is competent and able to produce DNA profiles that are compatible with those on the NFDD, has adopted internal handling processes and procedures that conform to the rules of continuity and preservation of evidence, and is carrying out an internal quality assurance program in accordance with identified specifications;
- ii. Meet minimum FBI Quality Assurance Standards (QAS) for DNA testing and databasing laboratories or similar internationally accepted quality assurance standards, and provide a statement of compliance to the NFDD Custodian Unit upon request. Request shall be made once every two (2) years for Approved Laboratories;
- iii. Provide a copy of the External Quality Assurance Standard (QAS) Audit documentation for review including the audit report, clarifications, responses and corrective action plans to NFDD Custodian Unit within twenty (20) to thirty (30) working days of a request from the NFDD Custodian Unit. This request will be made once every two (2) years and the NFDD Custodian Unit shall document review using NFDD External Quality Assurance Standard (QAS) Audit Document Review Record;

- iv. Adhere to the Scientific Working Group on DNA Analysis Methods (SWGDAM)
  Recommendations and Interpretation Guidelines; or similar internationally accepted recommendations and guidelines, and provide a statement of compliance to the NFDD Custodian Unit upon request. Request shall be made once every two (2) years for Approved Laboratories;
- v. Accept annual on-site visits by NFDD Custodian Unit management for inspection of DNA analysis facilities to verify facilities have ability to perform the requisite services; and
- vi. Enable a secured communication channel with the NFDD Custodian Unit to exchange documentation, alert Custodian Unit when DNA profiles have been submitted for upload, provide notifications and any other information pertaining to the DNA analysis of the samples.

For the reporting period, the TTFSC did not meet all the requirements above.

Efforts are being made to obtain DNA profiles generated by laboratories that have provided forensic DNA services in the past to the Government of the Republic of Trinidad and Tobago (GoRTT).

In order to operationalize the *DNA Act*, the NFDD Custodian Unit acquired fifteen thousand (15000) buccal swab kits for the collection of DNA samples from the prison population and persons specified in the Third Schedule of the *DNA Act*.

The Buccal Swab Sample Collection exercise commenced in May 2022 and is ongoing. As of December 2022, a total of eight thousand nine hundred and seventy six (8 976) reference samples were collected from officers of the Protective Services, Immigration Officers, members of the Defence force, employees at the TTFSC and Customs Officers.

The following table details the number of persons sampled from each agency:

Agency		Population (Estimate)	No. Persons Sampled (Estimate)	Remaining No. Persons to be Sampled
Trinidad and Tobago Police S	Service	7 000	1 679	5 321
Special Reserved Police		3 124	747	2 377
Municipal Police		727	279	448
Transit Police		60	17	43
Trinidad and Tobago Fire Ser	rvice	2 300	820	1 480
Trinidad and Tobago Prison	prison officers	3 269	3045	224
Service	inmates	3 500	0	3 500
Immigration Division		375	243	132
Trinidad and Tobago Defenc	e Force	5 227	1994	3 233
Trinidad and Tobago Forens	c Science Centre	41	39	2
Customs & Excise Division		276	113	163
TOTAL	sansatah Marie	25 899	8 976	16 923

Table 2: Sampling Population of each Agency.

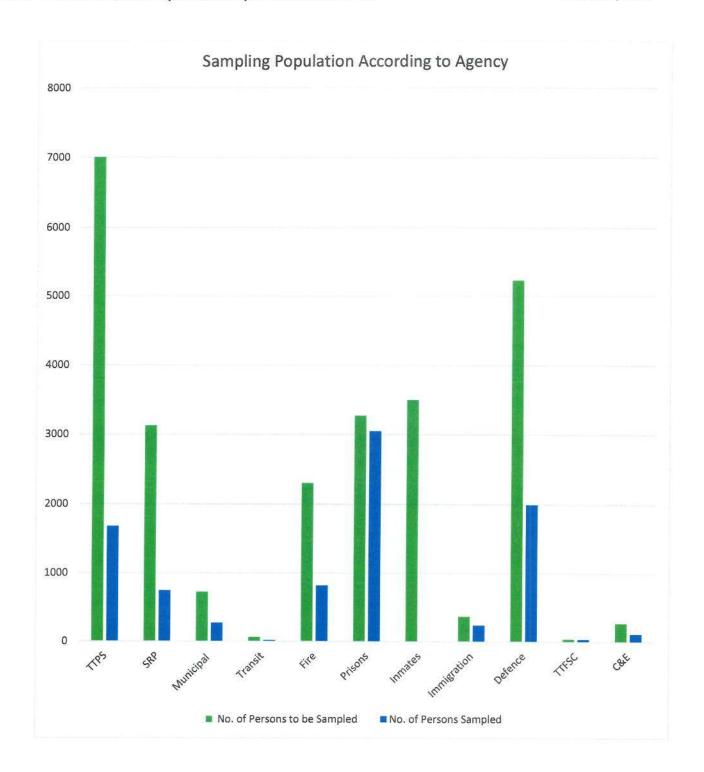


Diagram 2: Number of persons sampled compared to the total number of person to be sampled per agency.

As demonstrated in Diagram 3 below, approximately 35% of the sampling population provided a buccal swab for databank entry in 2022. Collected samples will be analyzed by an approved laboratory and the DNA profiles submitted to the NFDD Custodian Unit pursuant to Section 8 (1) of the **DNA Act**. Suitable profiles will be uploaded to the Elimination Index of the NFDD.

The collection of buccal swabs from the prison population (inmates) will be prioritized in 2023 as these DNA profiles will increase the probability of obtaining probative matches.

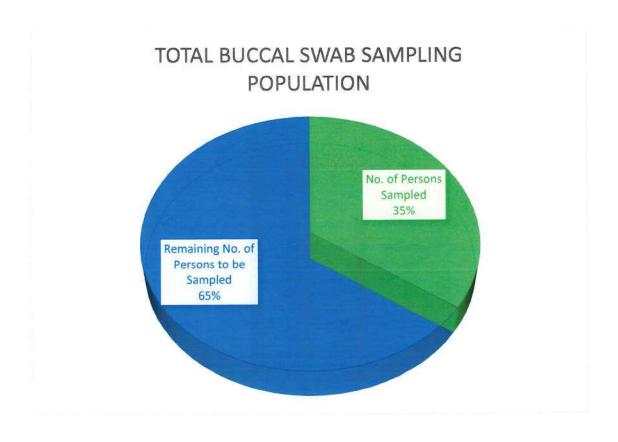


Diagram 3: Percentage of persons sampled compared to the percentage of persons to be sampled.

## 9. NFDD Performance and Statistics

Performance of the NFDD is measured in terms of **matches**, **associations** and **investigations aided**. The definition of these terms are as follows:

Match	A match occurs when database software links two or more DNA profiles and a confirmation process is started by laboratory personnel.
Association	A search result that matches DNA profiles based on shared alleles and kinship algorithms; it does not reflect a direct identity match between profiles but shows possible <b>familial</b> relation.

The following table details the current size of each database index:

NFDD Database Index	Autosomal size	Y-STR size
Crime Scene Material – Forensic Unknown/ Stain	107	0
Offender – Person Under Suspicion	185	
Victims	283	0
Family Members (including Volunteers)	18	0
Unidentified Human Remains	14	0
Elimination	0	
TOTAL	607	0

Table 3: Number of database entries per database index

The following table details the number of 'modifications' made to NFDD entries in 2022:

Type of Modification	Count
Suspended	0
Amended	0
Deleted	0
Reinstated	0
Transferred	0
Expunged	0

Table 4: Number of profile modifications

#### Annual Match Data (2022)

For 2022 there were zero (0) matches and therefore zero investigations were aided.

# Cumulative Match Data (2019-2022)

Of the 607 DNA profiles uploaded onto the National Forensic DNA Databank, there has been:

thirteen (13) forensic-to-forensic matches (i.e. scene of crime to scene of crime)
seven (7) forensic-to-victim matches (i.e. scene of crime to identified deceased victims)
ten (10) forensic-to-offender matches (i.e. scene of crime to suspects or accused offenders)
one (1) investigation aided resulting from one (1) final match
Based on the number of observed matches, the efficiency of the NFDD can be calculated. It must be
noted that matches are based on many factors not constrained to the NFDD and its capabilities. These
factors include investigation techniques of law enforcement, quality of evidence submitted to testing
laboratories, analytical methods of testing laboratories and quality of data originating from testing
laboratories. Notwithstanding these factors, NFDD Efficiency is assessed on the following
parameters:
☐ Number of 'stain-to-person' matches relative to number of persons in a database index
☐ Number of 'stain-to-stain' matches relative to number of forensic unknowns (stains)
☐ Number of 'stain-to-person' matches relative to number of forensic unknowns (stains)

Therefore for the seven (7) **forensic-to-victim matches**, NFDD efficiency relative to the number of **victims** is calculated as:

$$7/283 \times 100 = 2.47\%$$

For the ten (10) forensic-to-offender matches, NFDD efficiency relative to the number of offenders is calculated as:

$$10/185 \times 100 = 5.41\%$$

For the thirteen (13) forensic-to-forensic matches, NFDD efficiency relative to the number of forensic unknown samples or scene of crime samples is calculated as:

$$13/107 \times 100 = 12.15\%$$

For the seven (7) **forensic-to-victim matches**, NFDD efficiency relative to the number of **forensic unknown** samples or scene of crime samples is calculated as:

$$7/107 \times 100 = 6.54\%$$

For the ten (10) forensic-to-offender matches, NFDD efficiency relative to the number of forensic unknown samples or scene of crime samples is calculated as:

$$10/107 \times 100 = 9.35\%$$

To date, no familial associations have been detected; and no search or disclosure requests have been made by the TTPS/authorized agencies. Therefore **no statistics are available** to indicate the number of:

- search and disclosure requests
- ☐ familial associations
- familial searches
- elimination database matches
- 'forensic-human remains' matches (i.e. scene of crime to unidentified deceased victims)

# 10. Accomplishments and Challenges

Below are activities, achievements, outcomes, challenges and remarks related to NFDD operations:

# Training and Development of NFDD Custodian Unit Staff

Task/ Activity	Achievements and Outcomes	Risks or Comments
Ministry of National Security – Forensic DNA Analysis Symposium	Held on <b>February 23, 2022</b> at the Hyatt Regency Trinidad, Port of Spain. Attended by the Deputy Custodian Manager who presented on the activities and achievements of the NFDD.	<ul> <li>Symposium targeted persons in the fields of Forensic Science, Forensic Pathology and Law Enforcement.</li> </ul>
Federal Bureau of Investigations (FBI) 2020 Quality Assurance Standards Module 1 and Module 2	<ul> <li>Completed online by the Databank Analyst on April 22, 2022 and May 25, 2022 respectively.</li> </ul>	Training programme is based on the FBI's Quality Assurance Standards for Forensic DNA Testing Laboratories that took effect July 01, 2020.
The 6th Caribbean Medicolegal and Forensic Symposium – "Courtroom Examination Of Bodies Of Evidence: Trials And Errors" facilitated by the Department of Pathology and Laboratory Medicine, Faculty of Medicine, University of Ottawa and the Eastern Ontario Regional Laboratory Association (EORLA) in collaboration with the Caribbean Medicolegal Society	Held on November 18 and 19, 2022 at the Hilton Hotel and Conference Centre, Port of Spain. Attended by the Deputy Custodian Manager and Databank Analyst	Symposium targeted persons in the fields of Forensic Science, Law, Criminology, Law Enforcement, Medicine/ Forensic Pathology and Psychology. Topics addressed included "Expert Witness Expectations: The Prosecutor's Perspective", "Quality Assurance in the DNA Laboratory" and "Laboratory Management Considerations".
Caribbean Crime Symposium: "The Importance of Forensic Science in Crime Fighting" facilitated by the Caribbean Association of Forensic Sciences (CAFS)	Held (virtually) on November 30, 2022 and attended by the Deputy Custodian Manager and Databank Analyst.	Symposium targeted persons in the field of Forensic Science, Law Enforcement and Forensic Medicine. Topics addressed included: "Forensic Science Awareness: Its importance to Effective Public Safety", "DNA, the

Task/ Activity	Achievements and Outcomes	Risks or Comments
		Lead Investigator: A cautionary
		Tale" and "The Need for Accredited
		Competency – Based Training and
		Development".

# NFDD Budget and Finance Management

Task/ Activity	Ach	ievements and Outc	omes	Risks or Comments
	Fiscal Year	Allocation (TTD)	Expenditure (TTD)	Completed purchases for 2022 included:
Budget and	2018/2019	\$366 350.00	\$ 325 650.65	■ ICT equipment
Expenditure	2019/2020	\$420 000.00	\$400 534.74	■ SmallPond™ annual license fee
	2020/2021	\$280 000.00	\$259 771.83	Renewal of warranty for the primary DNA server (Nutanix)
	2021/2022	\$528 000.00	\$484 814.00	

# NFDD Custodian Unit Establishment

Task/ Activity	Achievements and Outcomes	Risks or Comments
Establishment of NFDDCU at ABMA building	• Five (5) servers were purchased. Suppliers for the provision of the CCTV Monitoring System, two (2) Secure Server Racks and the SFTP Server License were selected and the down payment issued.	■ The fire suppression system is the only item outstanding and will be procured when ABMA building becomes fire certified.
	■ The warranty for the three (3) FortiGuard Unified Threat Protection Bundle (UTM) Services Subscription (FortiGate 81E) was renewed for three (3) years.	

Task/ Activity	Achievements and Outcomes	Risks or Comments
	<ul> <li>The warranty for the primary DNA server (Nutanix) was renewed for two (2) years.</li> </ul>	
	<ul> <li>High security access control system serviced.</li> </ul>	

# ■ NFDD Quality Management System

Task/ Activity	Achievements and Outcomes	Risks or Comments
NFDD Quality Management System	<ul> <li>NFDD Risk Assessment Report (ICT) - In January 2022 a risk assessment of the NFDD CU operations was conducted where security risks were identified, the impact of the risk materialising was measured and an action plan for the mitigation of these risks outlined. The assessment revealed that majority of the potential threats at the Unit are low.</li> <li>NFDD Internal Audit- In September 2022 the annual NFDD Internal Audit was performed and completed satisfactorily. This audit showed that the NFDD Custodian operations are in alignment with international best practices.</li> <li>HSE Audit and Risk Assessment-Health &amp; Safety Manual and Risk Assessment document was reviewed and revised. Additionally, the annual Health &amp; Safety audit was satisfactorily completed in October 2022. For the period under review, there were no reported accidents or incidents.</li> </ul>	NFDD Quality Management System is dynamic and revised annually therefore amendments are expected as new equipment and software are acquired.

# ■ DNA Databank Software – SmallPond<sup>TM</sup>

Task/ Activity	Achievements and Outcomes	Risks or Comments
Annual renewal of SmallPond™ Software License	<ul> <li>The license was renewed on January 11, 2022.</li> </ul>	

# Databank Population and Forensic Service Providers participation in the DNA Databank

Task/ Activity	Achievements and Outcomes	Risks or Comments
Population of the NFDD	As of December 2022 the NFDD is populated with six-hundred and seven (607) DNA profiles and has had one (1) reported hit/final match. Therefore one TTPS investigation was aided.	
Receipt of DNA profiles from the Trinidad and Tobago Forensic Science Centre (TTFSC)	No profiles received/uploaded during the period January 2023 to December 2023.	<ul> <li>International best practice stipulates that DNA data uploaded to a Forensic DNA Database must originate from ISO 17025 accredited agencies.</li> <li>TTFSC is not yet ISO 17025 accredited. However, as a quality assurance measure, Technical Requirements for the Participation in the NFDD were drafted and agreed upon by both parties in April 2019. These requirements were issued in accordance with Regulation 4 (1) of the Administration of Justice (Deoxyribonucleic Acid) Regulations, 2018 and approved by the Trinidad and Tobago Bureau of Standards.</li> <li>The NFDD CU has requested quality assurance documentation and the authorisation to conduct an on-site visit in accordance with Regulation 3 (2) of the Administration of Justice</li> </ul>

Task/ Activity	Achievements and Outcomes	Risks or Comments
		(Deoxyribonucleic Acid) Regulations, 2018. The NFDD CU is awaiting a response from the TTFSC.
Receipt of DNA profiles from external Forensic Service Providers (FSPs)	<ul> <li>Ministerial approval of Caribbean         Forensic Services Limited (CFSL) for         the provision of forensic DNA         services to the state.     </li> </ul>	- A final determination on the procurement of forensic DNA services from local and external providers have not been made.
Preparation of Note for Cabinet, No. NS(22)80 – Proposed Strategies for Populating the National Forensic DNA Databank	<ul> <li>Cabinet by Minute No. 959- 2022/06/02 agreed to the "Proposed Strategies for Populating the NFDD"</li> </ul>	- Some strategies including sensitization and buccal swab sampling of specified individuals have commenced. The next steps include the sampling of prisoners, juvenile offenders, deported citizens and detained nonnationals.

# Buccal Swab Sample Collection Training for DNA Act Stakeholders

Task/ Activity	Achievements and Outcomes	Risks or Comments
<b>Buccal Swab Sample</b>	Training of stakeholders was	- Training for new volunteer
Collection "train-the-	completed in August 2022. See	collectors will be ongoing.
trainer" training sessions for Stakeholders/	breakdown of completed training program below.	
agencies mentioned in the <i>DNA Act</i>	■ In 2022, a total of thirty five (35) persons comprising of members of the TTDF, TTPS and the Trinidad and Tobago Medical Association (TTMA) were trained and certified.	
	As of <b>December 2022</b> , the following agencies have <u>completed</u> <b>Buccal</b>	
	Swab Sample Collection "train-the-	
	trainer" training and a total of six hundred and fifty (650) persons	
	have been trained and certified:	
	TTPS	
	• TTFS	
	<ul> <li>TTPrS</li> </ul>	
	■ TTDF	
	■ TTFSC	
	<ul> <li>Municipal Police</li> </ul>	

Task/ Activity	Achievements and Outcomes	Risks or Comments
	<ul> <li>Customs and Excise Division</li> </ul>	
	<ul> <li>Immigration Division</li> </ul>	
	<ul> <li>Ministry of Health (MOH)</li> </ul>	
	<ul> <li>Tobago Regional Health</li> </ul>	
	Authority (TRHA)	
	<ul> <li>South-West Health Authority</li> </ul>	
	(SWRHA)	
	North-Central Regional Health	
	Authority (NCRHA)	
	■ In March 2022, the Chief of Defence	
	Staff received an Outcome and	
	Expectation Report detailing the	
	training assessment and steps to be	
	taken to operationalize the <b>DNA</b> Act.	

 DNA Reference Sample Collection from Protective Service Agency Members listed in Third Schedule of DNA Act, and Persons detained in institutions to which the Prison Act applies

Task/ Activity	Achievements and Outcomes	Risks or Comments
DNA Sample Collection from persons listed in the Third Schedule of the DNA Act	■ The Buccal Swab Sample Collection Exercise commenced on May 23, 2022 and is ongoing.	<ul> <li>Expired swabs in the unutilized kits will be replaced with valid swabs and used to sample the remaining persons listed in the Third Schedule of the <i>DNA Act</i>.</li> <li>There is need for continued collaboration between the Ministry of Health and the Ministry of National Security to secure collectors (doctors and nurses) for the buccal sample collection exercise.</li> <li>Procurement process was initiated in November 2022 to purchase an additional fifteen thousand (15 000) kits.</li> </ul>

#### 11. NFDD Custodian Unit - Buccal Swab 'train-the-trainer' Training

Completed Training: Trinidad and Tobago Defence Force (TTDF), Trinidad and Tobago Police Services (TTPS), Municipal Police, Trinidad and Tobago Prison Service (TPrS), Immigration Division, Customs and Excise Division, Trinidad and Tobago Fire Service (TTFS), Trinidad and Tobago Forensic Science Centre (TTFSC), Ministry of Health (MOH), Tobago Regional Health Authority (TRHA), North-Central Regional Health Authority (NCRHA) and the South-West Regional Health Authority (SWRHA)

Persons who completed training are now Buccal Swab Sample Collection 'Trainers' familiar with DNA Legislation, and are certified as:

- 1. Collectors i.e. persons authorized to perform collection procedure and certify other persons in sample collection policies so that these persons may become 'trainers', 'collectors' or both; or
- 2. Non-Collectors i.e. persons who are not authorized to perform collection procedure but may certify other persons in sample collection policies so that these persons may become 'trainers'.

Stakeholder	Training Dates	Training Location	No. persons completed
TTPS	June 25th, July 25th, 2018	Police Academy	20
TTPS	July 26 <sup>th</sup> , August 7 <sup>th</sup> , 2018	Police Academy	22
TTPS	August 9th and 10th, 2018	Police Academy	31
TTPS	August 22 <sup>nd</sup> , 2018	Police Academy	3
TTPS	August 27 <sup>th</sup> and 30 <sup>th</sup> 2018	Police Academy	20
TTPS - Tobago	October 25 <sup>th</sup> and December 6 <sup>th</sup> , 2018	Tobago – Scarborough Police Station	9
TTPS - SERU	November 16 <sup>th</sup> , 2018	SERU	18
TTPS - SERU	November 23 <sup>rd</sup> , 2018	Tower C, level 19	24
TTPS + Doctor	August 11th, 2022	Police Academy	6
TOTAL			153

Stakeholder	Training Dates	Training Location	No. persons completed
Prison Service	July 30 <sup>th</sup> and August 15 <sup>th</sup> , 2018	Tower C, level 20	15
Prison Service + <b>Doctors</b>	September 17 <sup>th</sup> and 18 <sup>th</sup> , 2018	Tower C, level 20	13
Prison Service	October 29th and 30th, 2018	Tower C, level 20	29
TOTAL			57

Stakeholder	Training Date	Training Location	No. persons completed
Ministry of	November 14th, 2018	Insect Vector Control	29
Health	November 30th, 2018	Tower C, level 19	5
TOTAL			34

Stakeholder	Training Date	Training Location	No. persons completed
TTFSC	August 17th and 24th, 2018	Forensic Science Centre	10
	October 23 <sup>rd</sup> , 2018	Tower C, level 19	1
TOTAL			11

Stakeholder	Training Dates	Training Location	No. persons completed
	July 23 <sup>rd</sup> and August 13 <sup>th</sup> , 2018	Tower C, level 20	14
Municipal	March 13 <sup>th</sup> , 2019	Ministry of Rural Development, Kent House	20
Police	March 15 <sup>th</sup> , 2019	Ministry of Rural Development, Kent House	24
	June 6 <sup>th</sup> , 2019	Ministry of Rural Development, Kent House	8
TOTAL	737444		66

Stakeholder	Training Dates	Training Location	No. persons completed
Tobago RHA	July 29th, 2019	Scarborough General Hospital	22
TOTAL			22

Stakeholder	Training Dates	Training Location	No. persons completed
North-	September 5 <sup>th</sup> , 2019	Mount Hope Women's Hospital	19
Central RHA	September 6 <sup>th</sup> , 2019	Mount Hope Women's Hospital	19
TOTAL			38

Stakeholder	Training Dates	Training Location	No. persons completed
	September 27 <sup>th</sup> , 2019	San Fernando General Hospital	18
South-West RHA	October 9th, 2019	San Fernando General Hospital	14
	October 22 <sup>nd</sup> , 2019	San Fernando General Hospital	8
TOTAL			40

Stakeholder	Training Dates	Training Location	No. persons completed
TTMA Volunteer Doctors	August 11 <sup>th</sup> 2022	Police Academy	5
TOTAL			5

Stakeholder	Training Dates	Training Location	No. persons completed
	September 11th, 2018	Tower C, level 20	3
	September 26 <sup>th</sup> , 2018	Customs House Training Room	5
	August 19th, 2019	Customs House Training Room	7
Customs &	August 26 <sup>th</sup> , 2019	Customs House Training Room	5
Excise Division	September 2 <sup>nd</sup> , 2019	Customs House Training Room	9
	September 9 <sup>th</sup> , 2019	Customs House Training Room	5
	October 17 <sup>th</sup> , 2019	Customs House Training Room	2
	November 25 <sup>th</sup> , 2019	Customs House Training Room	8
	February 12 <sup>th</sup> , 2020	Customs House Training Room	8
TOTAL			52

Stakeholder	Training Dates	Training Location	No. persons completed
	September 14 <sup>th</sup> and 21 <sup>st</sup> , 2018	Tower C, level 20	14
	November 27th, 2018	Tower C, level 20	14
	November 29th , 2018	Tower C, level 20	10
Immigration Division	July 15th, 2020	Immigration Division, Level 7 Government Campus Plaza	9
	July 22 <sup>nd</sup> , 2020	Immigration Division, Level 7 Government Campus Plaza	9
TOTAL			56

Stakeholder	Training Dates	Training Location	No. persons completed
TTFS	July 19 <sup>th</sup> and September 19th, 2018	Fire Services Headquarters	7
	November 30th, 2020	Virtual	9
	December 01st, 2020	Virtual	9
	April 14th, 2021	Virtual	14
	April 21st, 2021	Virtual	10
	May 11th, 2021	Virtual	7
TOTAL			56

Stakeholder	Training Dates	Training Location	No. persons completed
TTDF	September 10 <sup>th</sup> and 13 <sup>th</sup> , 2018	Defence Force Headquarters	11
TTDF + Medics	October 1st and 2nd, 2018	Defence Force Headquarters	10
TTDF + Medic	February 21st 2022	Defence Force Headquarters	4
TTDF + Medic	February 22 <sup>nd</sup> 2022	Defence Force Headquarters	7
TTDF	February 24 <sup>th</sup> 2022	Defence Force Headquarters	6
TTDF+ Medic	March 10 <sup>th</sup> 2022	Defence Force Headquarters	7
TOTAL			45

Stakeholder	Training Dates	Training Location	No. persons completed
ERHA	March 9 <sup>th</sup> , 2020	Sangre Grande Enhanced Health Centre, Ojoe Rd.	15
TOTAL			15

# Number of Persons Trained According to Rank of Agency

TTPS		
Rank	Number	
WPC	66	
PC	61	
AG/CPL	5	
CPL	11	
AG/SGT	3	
SGT	5	
AG INSP	1	
TTPS Medic	1	
Total	153	

Immigration		
Rank	Number	
Immigration Officer II	35	
Immigration Officer III	7	
Woman Detention Officer 1	8	
Detention Officer 1	2	
ЕМТ	3	
Senior EMT	1	
Total	56	

TTPrS		
Rank	Number	
Prison Officer I	44	
Prison Officer II	13	
Total	57	

TTFSC	
Rank	Number
BOA	2
Associate Professional	1
Scientific Officer I	3
Scientific Officer II	1
Forensic Exhibit Clerk	2
Forensic Biologist	2
Total	11

Customs & Excise Division		
Rank	Number	
AG/C&EO 1	23	
C&EO 2	8	
AG/C&EO 3	7	
Supervisor C&EO	1	
C&E Guard 1	6	
C&E Guard 2	6	
C&E Guard 3	1	
Total	52	

TIDE	
Rank	Number
L/CPL	2 5
SGT	5
CPL	2
Writer	1
Petty Officer	4
Chief Petty Officer	2
Private (PTE)	6
Warrant Officer II	1
Warrant Officer	1
Senior Aircraftman	3
Sub Lieutenant	1
EMT Private (PTE)	6
Leading Seaman	3
Commander	1
Able Seaman	4
Able Rate	3
Total	45

TTFS	
Rank	Number
Fire Fighter	48
AG/Fire Sub Officer	₫
Fire Sub Station Officer	4
Auxiliary Fire Fighter	2
Fire Station Officer	1
Total	56

Municipal Police		
Rank	Number	
PC	19	
WPC	27	
AG/CPL	3	
CPL	4	
AG/SGT	4	
SGT	2	
Inspector/ Ag	3	
Inspector iii	3	
Senior Supt.	1	
Total	66	

Ministry of Health and Region	nal Health Authorities
Rank	Number
Primary Care Physician II Admin (Ag)	2
District Medical Officer	6
County Medical Officer of Health / (Ag)	5
Primary Care Physician II / (Ag)	38
Medical Officer I	8
Senior Medical Officer	5
Registrar / (Ag)	22
Primary Care Physician I	6
Prison Medical Officer	3
Police Medical Officer	1
Medical Chief of Staff (MCO)	1
Clinical Facilitator	1
House Officer	14
Consultant	4
Nurse Manager	2
Nurse/RN	23
Nursing Supervisor	3
Head Nurse	2
Nursing Instructor	2
Medical Officer II	1
Head, A&E	1
District Health Visitor	4
Total	154

#### 12. Conclusion

After six (6) years of operation, the NFDD of Trinidad and Tobago is not as well utilized as it should be. Efforts are being made to reduce the siloed approach and to gain buy in from supporting agencies.

Our major accomplishment for the year 2022 includes the commencement of the Buccal Swab Sample Collection Exercise which resulted in a collection of approximately nine thousand (9 000) non-intimate reference samples from persons listed in the Third Schedule of the *DNA Act*. Additionally, thirty five (35) persons ranging from the Trinidad and Tobago Defence Force (TTDF), the Trinidad and Tobago Police Service (TTPS) and the Trinidad and Tobago Medical Association (TTMA) were certified in buccal swab sample collection, bringing an end to the four (4) year training program.

The Unit's goals for 2023 include ISO 9001 (Quality Management System) certification, the continuation of buccal swab sample collection from persons listed in the Third Schedule of the *DNA Act*, the commencement of buccal swab sampling of the prison population and the outsourcing of forensic DNA services to aid in the population of the NFDD.

#### End of Report