

National DNA Data Bank ADVISORY COMMITTEE



ANNUAL REPORT 2023-2025



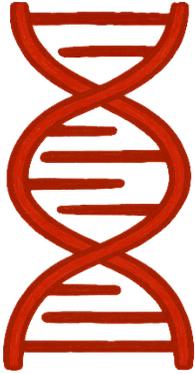
Royal Canadian Mounted Police
Gendarmerie royale du Canada

Canada 

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INTRODUCTION



In 2025, the National DNA Data Bank (NDDDB) and the NDDDB Advisory Committee (NDDDB AC) celebrated an important milestone, their 25th anniversaries. Established pursuant to the *DNA Identification Act* and the *DNA Identification Regulations*, the Advisory Committee's mission is - to provide sound advice and recommendations on all matters related to the effective and efficient operation of the NDDDB. Although membership has changed over the years, the Advisory Committee remains committed to ensuring that the NDDDB continues to be an essential tool for police investigations that help protect Canadians from violent crimes and exonerate innocent individuals while contributing to the effective administration of justice and the safety of Canadians.

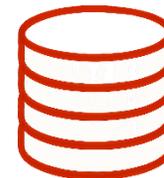
This report contains updates and topics of interest that have been reviewed and discussed by members of the NDDDB Advisory Committee over the past two years. The Committee was provided updates on the operations and performance of the NDDDB, including statistical data, ongoing activities, initiatives, and challenges.

The Advisory Committee received updates on the National Missing Persons DNA program, which became operational in March 2018 following the passage of legislation, regulations, and the development of operational policy related to missing persons and unidentified human remains investigations. The exploration of evolving technology related to DNA (e.g., Rapid DNA, Next Generation Sequencing) provided the Committee with insight into current applications and future use of science as it relates to public safety.

Another continuous key focus of the Advisory Committee relates to familial searching in Canada within the context of the NDDDB. This issue has been a matter of interest to the committee for several years and is one that they will continue to actively profile and support. Advisory Committee members are also applying their expertise on the topic of forensic genetic genealogy in Canada (not to be confused with familial searching). Committee members recognize its potential use and major advantage for case investigations but also understand associated issues regarding privacy and personal information. The Advisory Committee provided formal feedback to the RCMP with respect to the development of the Investigative Genetic Genealogy Technique (IGGT) policy following a presentation to the committee by the RCMP's Contract and Indigenous Policing (C&IP).

In addition, considerable discussion took place regarding the introduction of Bill S-231 (Formerly S-236), *An Act to amend the Criminal Code, the Criminal Records Act, the National*

Defence Act and the DNA Identification Act. This matter is addressed further in this report along with key issues and highlights stemming from different presentations and their potential impact on the NDDB.



ABOUT

THE NATIONAL DNA DATA BANK

The NDDB was established pursuant to the *DNA Identification Act* and commenced operations in June 2000, under the stewardship of the RCMP, on behalf of the Government of Canada.

The NDDB has historically been comprised of two indices (databases):

- The Convicted Offenders Index (COI) is an electronic index of DNA profiles collected from offenders convicted of designated primary and secondary offences identified in Section 487.04 of the *Criminal Code*, which includes certain offences in the *Controlled Drugs and Substances Act*.
- The Crime Scene Index (CSI) is a separate electronic index composed of DNA profiles from crime scene investigations of the same designated offences addressed in the *Criminal Code* and submitted to the NDDB by Canada's public forensic laboratories.

The NDDB also maintains the following indices (databases):

- Victims Index (VI): DNA profiles from victims of designated offences.
- Voluntary Donors Index (VDI): DNA profiles from voluntary donors associated with a humanitarian investigation or the investigation of a designated criminal offence.
- Missing Persons Index (MPI): DNA profiles from personal items belonging to the missing persons.
- Relatives of Missing Persons Index (RMI): DNA profiles from relatives of missing persons provided voluntarily.
- Human Remains Index (HRI): DNA profiles from unidentified human remains.

The NDDB supports the law enforcement and criminal justice communities by:

- Linking crimes together where there are no suspects (CSI to CSI match).
- Helping to identify suspects (CSI to COI match and/or CSI to CSI match).
- Eliminating/exonerating suspects (no match between crime scene DNA (CSI) and COI profile in the NDDB).
- Determining whether a serial offender is involved.
- Identifying the victim of a crime.

- Identifying human remains and assisting investigators, coroners and medical examiners to find missing persons.

NATIONAL MISSING PERSONS DNA PROGRAM

The amended legislation in 2018 supports investigations of missing persons and unidentified human remains through the National Missing Persons DNA Program (NMPDP). This program represents a collaboration of the RCMP National Centre for Missing Persons and Unidentified Remains (NCMPUR) with the scientific, technical and forensic expertise of the NDDB for DNA analysis and reporting. Legislation and regulations governing the NMPDP protect Canadians' privacy interests and ensure that DNA profiles in the NDDB are used for their intended purpose.

Prior to the introduction of the new indices and creation of the NMPDP, the Advisory Committee examined the potential humanitarian, scientific, privacy and law enforcement principles (including legal, ethical, governance and policy issues). The Advisory Committee continues to follow the development and performance of the program with regular updates provided at their meetings.

25TH ANNIVERSARY

On June 30, 2025, the NDDB celebrated its 25th anniversary. From the first forensic and offender hits in late 2000 to surpassing 100,000 hits in early 2025, the NDDB continues to be a centerpiece of collaboration and forensic science excellence.

At the beginning, it took more than three years to get 1,000 DNA matches. Today, 1,000 DNA matches are made on average every month. To this day, DNA technology and innovation remain influential, shaping and evolving the way many investigations are conducted and used as a trusted form of identification in criminal proceedings. The NDDB Advisory Committee would like to congratulate the National DNA Data Bank on its successful track record and contribution to humanitarian efforts and to the criminal justice system which inevitably keeps Canadians and our communities safe.

NDDB BY THE NUMBERS

As of March 31, 2025, the NDDB contained 720,315 DNA profiles in the Criminal Indices, and 2,805 DNA profiles in the Humanitarian Indices.

2023/2024

In the 2023/24 fiscal year, the offender hits (convicted offender to crime scene) reached 81,668 hits and 9,106 forensic hits (crime scene to crime scene) for a total of 90,774 hit associations made by the NDDB to police investigations. This data does not reflect or capture the number of eliminated suspects or police investigations refocused when no match took place. In addition, in the fiscal year 2023/2024, the NDDB reached 15 hits to the Victims Index and 110 hits or associations to the humanitarian indices. *



2024/2025

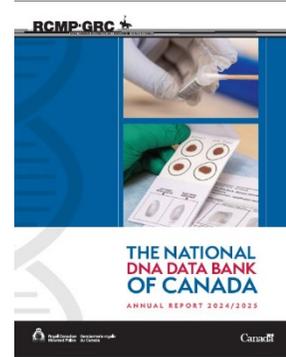
In the 2024/25 fiscal year, the offender hits (convicted offender to crime scene) reached 88,629 hits and 10,329 forensic hits (crime scene to crime scene) for a total of 98,956 hit associations made by the NDDB to police investigations. This data does not reflect or capture the number of eliminated suspects or police investigations refocused when no match took place. In addition, in the fiscal year 2024/2025, the NDDB reached 155 hits or association to the humanitarian indices. *



* DNA profiles are removed from humanitarian indices when the missing person is located or their remains are identified, consent is withdrawn, or it is believed that the DNA profile will no longer assist in the investigation for which the DNA profile was first obtained.

NDDB ANNUAL REPORT

Each year, the NDDB prepares an annual report to Parliament. It provides a snapshot of the year's operations and activities, which is fundamental to understanding the pace and growth of the database. The report is also an important resource that describes real examples of how samples processed from crime scenes can either link or rule out a suspect and how profiles submitted through the National Missing Persons DNA Program can assist with the identification of human remains and finding missing people. Several true stories are shared each year which highlights cases where DNA has been instrumental in shaping the course of an investigation.



NDDB ADVISORY COMMITTEE

The National DNA Data Bank Advisory Committee was created pursuant to the *DNA Data Bank Advisory Committee Regulations* on May 4, 2000. Established at the request of Parliament, the committee members are appointed by the Minister of Public Safety and the Committee functions as an independent body to assist the Commissioner of the RCMP in ensuring the NDDB operates in compliance with legislation and regulations. The Advisory Committee's role is also to provide the NDDB with strategic guidance and direction concerning scientific advancements, matters of law, legislative changes, privacy issues, and ethical practices.

MEMBERS OF THE NDDB ADVISORY COMMITTEE 2023-2025

The members of the NDDB Advisory Committee are listed below:

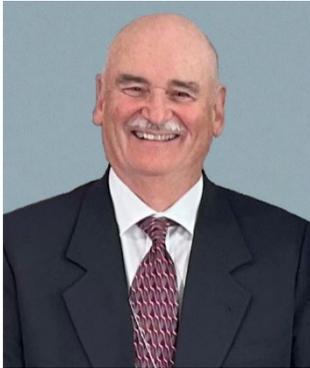


BRENDAN HEFFERNAN

Chairperson

Retired Chief Superintendent, RCMP Police Community Representative

As a former senior executive of the RCMP's Forensic Science and Identification Services, Brendan Heffernan devoted over 33 years of service to Canadians. Starting as a general duty uniformed officer, he went on to become a major crime investigator and police executive. He has maintained a growing number of partnerships in the private and public sector, including professional stakeholder relations with municipal police, the Canadian Forces Military Police and the RCMP. Mr. Heffernan provides both valuable "front line" police experience and an understanding of forensic evidence practises.



DERRILL PREVETT, K.C.

Vice-Chairperson

Legal Expert

Mr. Prevett has 37 years of legal experience and has prosecuted complex homicide cases where DNA was used as the sole evidence identifying the perpetrators. He was a senior prosecutor for R. v. Pickton, one of Canada's largest, most complex, serial murder, legal cases involving forensic DNA evidence. He has also served on national committees where he was responsible for ensuring consistent implementation of DNA legislation and making recommendations to Parliament regarding the NDDB.



MICHAEL SZEGO, PH. D., M.H.Sc.

Director, Centre for Clinical Ethics, Unity Health Toronto

As an expert in the field of clinical ethics, Dr. Szego has led a number of research studies and published several peer-reviewed journal articles. He is the ethics lead for the Committee and participant in the Personal Genome Project Canada. He has experience in clinical ethics consultations, policy development, research ethics review, research, and teaching. Dr. Szego is an assistant professor and a member of the Joint Centre for Bioethics at the University of Toronto.



SUE O'SULLIVAN, B.A., O.O.M.

Human Rights Specialist

Ms. O'Sullivan retired from over 30 years in policing as the Deputy Chief of Ottawa Police Service. During that time, she was an advocate for victims of crime and promoted the need for safe and healthy communities. Ms. O'Sullivan comes to the Advisory Committee following two terms as Canada's Federal Ombudsman for Victims of Crime. In 2006, her Excellency the Governor General of Canada appointed her an Officer of the Order of Merit of the Police Forces.



FREDERICK R. BIEBER, PH. D.

Associate Professor of Pathology, Harvard University, Boston

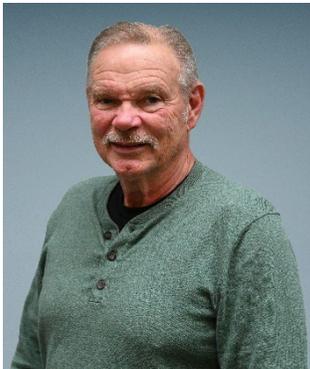
Dr. Bieber is a medical geneticist and specialist in biomedical ethics. His extensive background in genetics research has led to him serving numerous DNA forensic committees setting the standard for DNA analysis. In June 2018, Dr. Bieber was honoured by an appointment by HRH Queen Elizabeth II to the Venerable Order of St. John for his humanitarian forensic work.



RON FOURNEY, PH. D., O.O.M.

Forensic DNA Specialist

Dr. Fourney is a research scientist and a founding member of Canada's forensic DNA program. As a civilian member of the RCMP starting in 1988, retiring in 2022, he was instrumental in the development of forensic DNA typing for Canada including the implementation of the National DNA Data Bank and the National Missing Persons DNA Program.



BEN KOOP, PH. D., FRSC, CRC

Professor of Biology, University of Victoria

Molecular Genetics Expert

Dr. Koop is a distinguished academic holding a Masters in Science from Texas Tech University as well as a postgraduate doctoral degree in Molecular Biology and Genetics from the Wayne State University Medical School. He has enjoyed considerable success as a geneticist, with a history of leadership roles in several multidisciplinary, large-scale research projects, including the Human Genome Project.



LACEY BATALOV, M.A.

Director, Government Advisory Directorate, Office of the Privacy Commissioner

Ms. Batalov has extensive experience in providing policy advice with a specialty in Privacy Impact Assessments. She joined the Office of the Privacy Commissioner in 2012 coming from Health Canada’s Strategic Policy Branch. Prior to her engagement in the federal public service, Ms. Batalov was a political assistant with the City of Ottawa.



NANCY LAURIN, PH. D.

Director General, Science and Strategic Partnerships, Forensic Science and Identification Services, RCMP

As a civilian member of the RCMP, Dr. Laurin provides technical and strategic advice on forensic science, as well as being responsible for developing a legislative/science framework for Forensic Science & Identification Services (FS&IS). She is also responsible for the operations of the National DNA Data Bank of Canada, which includes the DNA assistance provided to the National Missing Persons DNA Program.

2023 – 2024 YEAR IN REVIEW



ADVISORY COMMITTEE MEETINGS

The total expense for the meetings held in fiscal year 2023-2024 was \$17,769.

JUNE 12-13, 2023, RCMP FORENSIC LABORATORY, SURREY, BRITISH COLUMBIA

CONTRIBUTORS AND INVITED GUESTS

Royal Canadian Mounted Police

- Cynthia Taylor, Director General of Strategic Policy and Integration, SPS
- Christine Crossman, Biology Team Leader and primary CODIS Administrator for NFLS-Surrey
- Chris Askew, Program Technical Lead, National DNA Data Bank, Science and Strategic Policy

	<ul style="list-style-type: none"> • Mike Rosland, General Manager of the NFLS-Surrey Laboratory
British Columbia Institute of Technology (BCIT)	<ul style="list-style-type: none"> • Jason Moore, BCIT Forensic DNA Laboratory
British Columbia Coroner's Office	<ul style="list-style-type: none"> • Laura Yazedjian, BC Coroner's Service Missing Person's Program

PRESENTATIONS

BY COMMITTEE MEMBERS

Chairperson Brendan Heffernan advised the Committee of the appointment of the RCMP's new Commissioner, Mike Duheme, and of the new Deputy Commissioner, Specialized Policing Services (SPS), Bryan Larkin.

Discussion ensued regarding the inaccuracies of an external academic report that was published, the potential misconceptions or consequences that may arise as a result, and the way forward for the NDDB AC. The report inaccurately quoted Dr. Szego and included inaccuracies regarding Bill S-231. The committee agreed not to respond to journalists but will prepare speaking notes on this issue should the committee be called before the Senate or requested to brief the Commissioner.

During the meeting, Derrill Prevett presented on the Pickton Pig Farm investigation and criminal trial, highlighting his contributions on the case.

ROYAL CANADIAN MOUNTED POLICE

National DNA Data Bank

Dr. Nancy Laurin, Director General, Science and Strategic Policy (S&SP), and Chris Askew, Program Technical Lead, provided statistics on the National DNA Data Bank.

As of March 31, 2023, the NDDB had a total of 440,139 profiles in the Convicted Offenders Index; 210,001 profiles in the Crime Scene Index; 1,602 profiles in the Relatives of Missing Persons Index; 343 in the Human Remains Index; and there were 210 profiles in the Missing Persons Index.

The NDDB's Hit Inventory Report for fiscal year 2022/2023 included 5,236 Offender Hits (crime scene to convicted offender); 736 Forensic Hits (crime scene to crime scene); 1 Victim Profile Hit; 27 Human Remains Hits; and 8 Humanitarian Indices Hits.

The implementation of mitochondrial DNA (mtDNA) analysis was launched in March 2023. This new technology allows for the missing persons unit to offer a full complement of technologies (autosomal STRs, Y-STRs and mtDNA) typically used in missing persons and unidentified remains investigations.

Starting in June 2023, S&SP will be implementing Y-STR CODIS searching on a weekly basis for humanitarian indices to allow for associations that might not be made through autosomal STRs.

The NDDB presented the following initiatives being undertaken:

- Validation of the Maxwell RSC 48 instrument for DNA extractions for the Missing Persons Unit. S&SP also started a collaboration with the National Forensic Laboratory Services on a bone extraction procedure that is compatible with this instrument.
- Work on building a business continuity plan as well as a mass disaster policy.
- Continue to consider the use of Rapid DNA instruments within the NDDB. NDDB participates in the Canadian SWGDAM meetings, which provide technical guidance on Rapid DNA instruments for law enforcement agencies.
- Considering updating the personal effect submission policy to provide clear guidance with respect to missing person samples.
- Development of a paperless 3801 project to capture fingerprints electronically. Canadian Criminal Real Time Identification Services is evaluating different electronic platforms and working with IM/IT to have this project prioritized.
- Recommendation to the RCMP Commissioner to support the use of the Interpol (i-familia) program that allows for international kinship searching. Although current legislation prevents submitting family reference DNA samples, the NDDB is proposing submitting DNA profiles from human remains that did not produce a hit in the NDDB.
- Work on multiple court case requests; as well as the monitoring of Bills S-231, S-4 and S-212.

Specialized Policing Services

Cynthia Taylor, Director General of Strategic Policy and Integration, SPS, provided an update on the organizational reporting lines within the RCMP. The three business lines remain: Contract Policing; Federal Policing; and SPS. In addition, two pillars now support SPS:

- The first pillar is led by Kathy Thompson, Associate Deputy Minister, Chief Administrative Officer, and focuses on corporate responsibilities supported by the:
 - Chief Financial Officer
 - Chief Human Resources Officer

- Chief Audit and Evaluation
- Independent Centre for Harassment Resolution
- Strategic Policy and External Relations
- The second pillar is led by Alison Whelan, which focuses on reform and accountability, including:
 - The mass casualty commission report
 - Public reports
 - Management advisory board secretariat (that advises the Commissioner)
 - Action, innovation and modernization (strategic planning for the organization)

Surrey Laboratory Tour

NDDB AC members participated in a tour of the new Surrey Laboratory site. Mike Rosland, General Manager of the Surrey Laboratory, guided the tour and provided background information and insight into the modern technology and intricacies of the design of the new facility.

BRITISH COLUMBIA CORONER'S OFFICE

Missing Person's Program

Laura Yazedjian with the BC Coroner's Office (BC CO) provided an overview of their mandate as a fact-finding service, Special Investigations Unit, SmallPond DNA Profile matching system as well as their process of submission to the National Missing Persons DNA Program for upload to the humanitarian indices.

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

Forensic DNA Laboratory

Jason Moore presented on his work as a forensic DNA analyst, lab quality assurance manager, teacher, and program coordinator at the British Columbia Institute of Technology (BCIT).

Regarding Next Generation Sequencing, BCIT recently completed the validation of the ForenSeq DNA Signature Prep Kit technology on the Verogen MiSeq FGx instrument and is adding this to their accredited methods following a scope extension with the Standards Council of Canada. Using this sequencing machine allows for more data to be extracted, with lower forensic DNA inputs, although the processing and run times are much longer compared to standard DNA PCR amplification.

Jason provided examples of ancestry and phenotypic results, and how the ability to predict these results could assist British Columbia Coroner’s Office when they have unidentified human remains that are not matching in any profiles in their databases.

BCIT is using the Familias software, which has a simulation tool, to assist with calculation for random match probabilities and kinship analysis by providing likelihood ratios.

BCIT’s lab has provided valuable contributions to both the coroner’s service and law enforcement using their genetic genealogy work and their experience using external companies to run their sequences.

Discussion ensued regarding the privacy of DNA and how the BCIT laboratory issues reports to agencies without the actual results by simply providing included or excluded results, which prevents unauthorized use of the data.

2024 - 2025 YEAR IN REVIEW



ADVISORY COMMITTEE MEETINGS

The total expense for the meetings held in fiscal year 2024-2025 was \$11,656.40.

OCTOBER 8-9, 2024, RCMP NHQ, OTTAWA, ONTARIO CONTRIBUTORS AND INVITED GUESTS

Royal Canadian Mounted Police	<ul style="list-style-type: none">• Commissioner Mike Duheme• Bertrand Cressier, Operations Manager of the National DNA Data Bank• Insp. Adam Gander• Insp. Matthew Turner
Long-Standing Advisor	<ul style="list-style-type: none">• Greg Yost

PRESENTATIONS BY COMMITTEE MEMBERS

Chairperson Brendan Heffernan underlined the considerable contributions of AC members regarding the Honourable Claude Carignan’s bill S-231, *An Act to amend the Criminal Code, the Criminal Records Act, the National Defence Act and the DNA Identification Act*, for which both Derrill Prevett and Dr. Frederick Bieber appeared as witnesses before the Senate Committee and provided testimony on behalf of the Advisory Committee. The parallel efforts

of Greg Yost and David Bird were also highlighted in the creation of the bill itself. Dr. Frederick Bieber discussed the enthusiasm for Investigative Genetic Genealogy (IGG) in Canada and the ethical questions surrounding its use. He highlighted the need to educate the public and policymakers about the benefits and concerns of IGG, especially in relation to privacy and the Indigenous community. Dr. Bieber also addressed concerns about familial searching and its impact on the Indigenous community. He emphasized that familial searching could help bring perpetrators of crimes against Indigenous individuals to justice. Dr. Bieber also discussed the relationship between victimology and biogeographic ancestry.

The following points were raised as opportunities for the future:

- The Advisory Committee's intention of conducting an outreach independent of the RCMP, a proactive awareness campaign.
- The Advisory Committee's intention to prepare a ministerial briefing note which would include background, humanitarian aspect of the National DNA Data Bank, gaps in current legislation, issues, recommendations and supporting research.
- Things to consider moving forward:
 - Public Trust.
 - Privacy Concerns.
 - Indigenous Voices.
- Diversifying the committee and its guests, including the following voices: Indigenous, French Canadian, defence counsel, community experts, etc.
- Exploring evolving technologies.
- Developing a new communication strategy and determining who the key audience would be.
- Outreach to international colleagues.

The Advisory Committee provided recommendations to amend and update the National DNA Data Bank Advisory Committee webpage.

ROYAL CANADIAN MOUNTED POLICE

RCMP Commissioner Mike Duheme

Commissioner Duheme began by congratulating the Advisory Committee on the 25-year milestone that awaits them next year. The Commissioner then outlined his vision for the committee to share their best practices and knowledge with partners in Canada and abroad.

A long-standing advisor to the committee, Greg Yost, was presented with a certificate of appreciation and gift from the Commissioner as a token of the RCMP's recognition and acknowledgment of his contribution to the Advisory Committee over the last 22 years.

Finally, the committee outlined areas of recent concern, related: to CODIS software update (encryption issues); challenges regarding Bill S-231; and the intention to begin an awareness campaign about the Committees work and mandate.



Greg Yost & RCMP Commissioner Mike Duheme



Dr. Michael Szego, Dr. Nancy Laurin, Brendan Heffernan, Derrill Prevett, RCMP Commissioner Mike Duheme, Sue O'Sullivan, Lacey Batalov, Dr. Ron Fourney

National DNA Data Bank

Dr. Nancy Laurin, Director General, Science & Strategic Policy, and Bertrand Cressier, Operations Manager of the NDDB, provided statistics with respect to the amount of DNA Profiles in the NDDB indices.

The following NDDB highlights were also provided:

- As of September 15, 2024, the NDDB’s Hit Inventory Report for fiscal year 2024–2025 indicated an overall increase in Offender Hits (crime scene to convicted offender) and Forensic Hits (crime scene to crime scene). However, the number of reported offender hits appeared lower than expected given the growth in profiles within the Convicted Offender Index (COI) and Crime Scene Index (CSI). The NDDB is monitoring this trend closely and believes it may be linked to the increased use of the “no response” match type for hit confirmations by partner laboratories. This option, introduced in 2015 to reduce the administrative burden of repeatedly contacting investigators for confirmation, appears to have been used more frequently following process streamlining by some partners after the pandemic.
- As of September 15, 2024, there have been a total of 95 Human Remains Hits and 31 Humanitarian Indices Hits cumulatively since March 6, 2018.
- The National DNA Data Bank shares DNA information with international investigating authorities through an agreement with INTERPOL. As of September 2024, the International Hit Inventory, has received a total of 2,087 incoming requests from other countries, leading to 26 hits, and 463 outgoing requests, leading to 16 hits.

In the NDDB Annual Report 2023-2024, the program had made note that an additional 2,500 endorsements had been received during that fiscal year and had not been processed. As of September 24, 2024, the backlog of endorsements has been eliminated.

The following ongoing notable affidavit/court requests were presented:

- Constitutional Challenge – R. v Tchouanguap (Québec)
 - An affidavit was submitted to Crown Counsel as this is a charter challenge of the constitutionality of mandatory DNA orders for primary designated offences. The next court proceedings are scheduled for November 2024.
- Criminal Case – R. v Courtemanche (Québec)
 - An affidavit was submitted to Crown Counsel with emphasis on a 2012 keyboard search performed by the NDDB in relation to evidence collected from a 1994 murder file. A keyboard search refers to a DNA profile from a crime scene that is submitted to the NDDB but doesn’t meet the technical criteria to be added to the Crime Scene Index, it is searched separately one time only and is not kept in the NDDB. The proceedings are ongoing.

The committee was updated on the procurement and implementation of new instrumentation and technologies, as well as on future initiatives being discussed within the program.

Technology and instrument update include:

- The implementation of the Maxwell 48 instrument for the DNA extraction protocols used by the Missing Persons Unit (MPU).
- Future initiatives which are pending procurement approval:
 - Upgrading the DNA analysis software to the GeneMapper *ID-X* version 1.7, which is also Windows 11 compatible.
 - Evergreening the puncher instruments.
 - Replacing the thermocyclers as the current units are being discontinued.
 - Rapid Intel cartridges for “crime scene” samples run on RapidHIT ID instruments are being replaced by the Rapid Intel Plus as the old ones are being discontinued. The new cartridges include internal quality control and quantitation markers.

An overview of NDDB pressures, including:

- Lengthy procurement processes for contracts set up at times leading to critically low levels of reagents that jeopardize laboratory operations. Lengthy staffing, security, and medical clearance processes and low resources in some areas due to leave, etc.
- Accreditation scope extension for mitochondrial DNA analysis and Standards Council of Canada audit.
- 5-year review of DNA profiles in the humanitarian indices mandated by *DNA Identification Regulations*.

The NDDB faced challenges upgrading its CODIS software due to incompatibilities between the RCMP security policies and the mandatory encryption required for CODIS communication.

Partial profile initiative:

- Audit of local CODIS databases by NDDB CODIS Manager. Several hundred partial crime scene DNA profiles not uploaded to the NDDB despite being eligible.
- Communication with the RCMP’s forensic labs in Surrey, Edmonton, and Ottawa.
- Opportunity to share best practices about behaviour of partial profiles in CODIS.
- Workshop exercise in February 2025 at the National CODIS Administrator meeting hosted by the NDDB.

Other initiatives include:

- The [Interpol DNA Database](#) contains 280,000 DNA profiles from 87 member countries. Of those, only 51 DNA profiles originated from Canadian law enforcement agencies. Following a review, 9 out of 51 DNA profiles from Canada have been

removed due to the investigation being concluded or due to the profile no longer being relevant for an investigation.

- Pilot project with the Canadian Armed Forces Casualty Identification Program. The Program aims to identify newly found skeletal remains and pre-existing unknown graves of Canadian service members. Three bones from the First World War were processed by the MPU and generated Y-STR and mitochondrial DNA profile.

The Advisory Committee provided the NDDDB with the following recommendations:

- Addressing the issue of compliance with reporting the offender hits in the next annual report. Failure to report this data could impact funding.
- Removing the option of “no response” and have those cases remain “pending”. This would then highlight trends in lack of compliance, allowing for solutions to be brought forward.

To avoid further delays and take advantage of the enhancements offered by the latest version, CODIS 11, the NDDDB increased engagement with various RCMP IT teams and consulted with the FBI CODIS Helpdesk. This collaborative effort led to the identification of appropriate solutions, and implementation of CODIS 11 is now planned.

Over the last year, the NDDDB engaged partner laboratories through DNA working groups and Laboratory Directors meetings to emphasize the importance of reporting hit types. By March 2025, offender hits had been restored to levels consistent with the amount of DNA profiles added to the criminal indices.

National Missing Persons DNA Program (NMPDP)

The Director General of Science & Strategic Policy, Dr. Nancy Laurin, provided a brief overview of the National Centre for Missing Persons and Unidentified Remains (NCMPUR). Highlights included:

- Based on the past three years, the NDDDB estimates that they receive approximately 280-450 Missing Persons and Unidentified Remains (MPUR) annual submissions.
- As of October 4, 2024, the program has made 100 association reports, 334 forensic hits, and four Interpol hits.
- An update was provided on the technologies and workflow advances for mitochondrial DNA (mtDNA) analysis.
- In January 2024 the program revised its Personal Effects Policy.
- In October 2024 the program revised its Identified Partial Cases workflow.
- The NMPDP is looking into submitting its human remains profiles to iFamilia for identification.

- Highlights from the NMPDP Participation Across Canada:
 - In British Columbia, only 7% of their open files in CPIC/MPUR are submitted to the program. Participation in the Atlantic provinces remains low, likely because many missing persons cases involve individuals lost at sea. In such circumstances, families often consider their loved ones permanently lost and may not perceive a strong need to provide a DNA sample.
 - Most provinces and territories submit directly to the National Missing Persons DNA Program (NMPDP) because they do not have their own program. Regions with a provincial program first process submissions through their own system before forwarding them to the NMPDP.
 - An overview was provided regarding challenges with participation across Canada in relation to DNA profile submissions, exhibit submissions, and local databases.
- The program is considering a simplified version of their NMPDP Consent form and Privacy Notice.
- The program is also considering simplifying its Understanding to Provide a Biological Sample form.

The Advisory Committee recommended that once the program had amended their consent form that it be submitted to the Privacy Commissioner's Office and the AC for review and input.

Forensic Genetics Frequency databases

Dr. Nancy Laurin, Director General, Science and Strategic Policy, provided an overview of international Forensic Genetics Frequency databases. Three international databases were discussed: Y-chromosome Haplotype Reference Database (YHRD), EDNAP Mitochondrial DNA Population Database (EMPOP), and STRs for Identity ENFSI Reference Database (STRidER). Two of these databases are currently being utilized by the National DNA Data Bank, National Forensic Laboratory Services, Centre of Forensic Sciences-Toronto (CFS), and the Laboratoire de sciences judiciaires et de médecine légale (LSJML). The following highlights were provided:

- Increase scrutiny of scientific research, including population genetic studies, that use material from vulnerable populations, particularly minority ethnic groups.
- Increase scrutiny of universally used genetic data repositories, due to concerns about unclear, inappropriate or inexistent consent documentation and absent or dubious ethics review board approvals.
- The International Society of Forensic Genetics (ISFG), who provide guidance, good practices, education, and DNA commissions who investigate specific questions and make recommendations to the forensic community, have created a non-profit

company who own the public (population) databases. Their role is to overlook the maintenance and legal liability for the benefit of the forensic community. The ISFG have published the first report on the ethical aspects of Forensic Genetic Frequency databases. They used a risk-assessment approach, identifying entries that potentially violate universally accepted ethical principles, standard ethical practices, and specific guidelines.

- Previous initiatives aimed at updating Canadian population databases have not yet succeeded.

2018 Ali Case

Inspector Adam Gander and Inspector Matthew Turner from RCMP E Division presented on the successes and challenges of the 2018 Ali case. Insp. Gander & Turner explained how they used investigative genetic genealogy / genome mapping to find the offender.

The Advisory Committee questioned the inspectors on the legal push back and challenges that they faced from using this investigative method. Insp. Turner highlighted the lack of understanding from the public and others in the legal system as to what genome mapping can do, what the process is, and how it should not be used as a first resort in an investigation, it should be seen as the same as a judicial order authorizing the lawful interception of private communications (wiretapping). Insp. Turner indicated the importance of articulating “why” an investigator is choosing to utilize this tool in an investigation.

BILL S-231

Long-standing committee advisor Greg Yost provided the Advisory Committee with an overview of the history of DNA recommendations made to the House and Senate over the years.

Bill S-231 was tabled in the Senate on December 2, 2021, with Senator Carignan sponsoring the Bill. Senator Carignan made his speech to the Senate regarding Bill S-231 on March 29, 2022. There were only two other speeches on the Bill. Senator Dagenais was the appointed critic and spoke on May 12, stating his support of the Bill. Senator Cotter spoke on October 27; he supported the Bill but expressed reservations about taking DNA on arrest and on familial searching. The Bill was then referred to the Senate Committee on November 3, 2022, more than 10 months after tabling and more than 7 months after Senator Carignan spoke to the Bill.

It took a year and a week from the referral to Committee before hearings began on Bill S-231. The suggestion was made that experts on criminal procedure could be called in to explain the inaccuracy of Senator Simons’ concern.

On April 9, 2024, Senator Cotter presented the report of the committee to the House, the Bill did not pass.

The Advisory Committee recommended that the following steps be taken:

- Obtaining support from Senator Carignan: speaking with the Senator for him to debate the report and try to get the Bill restored.
- The possibility of bringing forward this Bill as a Government Bill to have success.

FORUMS AND CONFERENCES

The science of DNA and the technology supporting its use continue to advance at an unprecedented pace. The NDDB Advisory Committee remains at the forefront of these developments through its members' participation in international forums, conferences, and their highly specialized expertise. This engagement ensures the Committee stays current with evolving science and related technologies.

In November 2023, Derrill Prevett and Dr. Bieber represented the Advisory Committee as witnesses before the Senate Standing Committee, regarding Senate Bill S-231.

Throughout 2023, Dr. Bieber delivered lectures on:

- *Genetics and privacy* at the Investigative Genetic Genealogy National Conference.
- *Genetics, law, and public policy* at the International Symposium on Human Identification.
- *Ethics and genomics* at the University of Toronto.

In 2024, Dr. Bieber:

- Presented *DNA on Trial* at the 13th ISABS Conference in Forensic, Anthropologic, and Medical Genetics.
- Served as keynote speaker on *DNA on Trial* at the Green Mountain DNA Conference.
- Lectured on *Genetics and Genealogy* at the International Homicide Investigators Association quarterly meeting.
- Attended the *Policy and Practice of Investigative Genetic Genealogy* session at the University of Toronto.

In 2025, Dr. Bieber participated in:

- A session with the Office of the Ontario Privacy Commissioner.
- A University of Toronto conference on the use of Y-STR profiling and whole genome sequencing (WGS) for forensic and humanitarian efforts.

Dr. Ron Fourney attended the 2024 Green Mountain DNA Conference as part of the organizing committee, contributing to its mission of promoting education, research, and collaboration in forensic sciences. He also:

- Supported the review of Senate Bill S-231 during committee hearings.
- Provided direct feedback on the draft report “*Guardrails for Police Use of Investigative Genetic Genealogy in Ontario*” prepared by the Information and Privacy Commissioner of Ontario.

Dr. Nancy Laurin attended the 30th International Congress of the International Society for Forensic Genetics (September 9–13, 2024), which focused on the latest advances in DNA profiling techniques and ethical considerations in forensic genetics.

Dr. Benjamin Koop delivered the keynote address at the 2024 International Conference on Integrative Salmonid Biology (ICISB), discussing genomics - where we’ve been, where we are today, and what lies ahead. In 2025, Dr. Koop joined the Genome BC Board of Directors.

Dr. Szego’s work was published in *Screening Rare Genetic Diagnoses for Amenable to Bespoke Antisense Oligonucleotide Therapy Development: A Retrospective Cohort Study*, as well as in *Ethics Debriefs and Moral Distress: What Are We Doing?*

On March 26, 2025, Dr. Szego was interviewed by David Common, host of *Metro Morning* on CBC Radio 1, to discuss the implications of 23andMe’s bankruptcy on the security of its 15 million customers.

In 2024, Dr. Szego presented at the American College of Medical Genetics Annual Meeting and at Massey College Grand Rounds, focusing on how ethics can enable precision medicine. In May 2025, Dr. Szego delivered a presentation on Parent Perspectives on Whole Genome Sequencing for Autism Spectrum Disorder at the European Society of Human Genetics Annual Conference.

LEGISLATION

Since its creation in 2000, the NDDB has been a valuable tool in enhancing public safety by helping to solve crime, protecting the safety of Canadians while respecting the privacy rights of individuals. Over the past 25 years, several legislative amendments, primarily focused on expanding the number of offences eligible for sample collection following conviction, have taken place to increase the number of profiles in the Convicted Offenders Index. A recommendation, from both the House of Commons Standing Committee on Public Safety and National Security (2009) and the Standing Senate Committee on Legal and Constitutional Affairs (2010), was to amend the law to allow for the automatic collection of DNA from any adult who had been convicted in Canada of a designated offence as defined

by Section 487.04 of the *Criminal Code*. NDDB Advisory Committee representatives appeared before both Parliamentary Committees and were in support of the recommendation. Since that review, ongoing efforts by the NDDB to educate the judiciary, courts, the legal community and the police through training sessions, educational forums, conference presentations and information sessions continue to take place. Despite these efforts, research data indicates that the number of submissions to the NDDB falls well below what criminal convictions for DNA specified offences suggest should be in the NDDB.

In 2018, the government introduced Bill C-75, An Act to amend the *Criminal Code*, the *Youth Criminal Justice Act* and other Acts and to make consequential amendments to other Acts. The NDDB Advisory Committee reviewed this Bill and recognized there could be a significant potential negative impact, which could decrease eligible convicted offender sample submissions to the NDDB and consequentially limit the number of DNA matches in aid of criminal investigations. The NDDB, endorsed by the Advisory Committee, provided continuous advocacy and support to the Canadian Association of Chiefs of Police (CACP) as Bill C-75 proceeded through the parliamentary process. The Bill was fortunately amended to remove the negative impact on the NDDB and received Royal Assent on June 21, 2019.

In June 2021, Senator Carignan introduced Senate Bill S-236, *An Act to amend the Criminal Code, the Criminal Records Act, the National Defence Act and the DNA Identification Act*. It sought to expand the list of eligible DNA designated offences and make DNA sampling orders automatic upon conviction. S-236 also made references to familial DNA searching and communication of search results with Canadian investigative authorities and those of other countries. The NDDB Advisory Committee met on July 27, 2021, to review the proposed legislative changes outlined in Bill S-236. S-236 died on the order paper with the dissolution of Parliament and the calling of the election in August 2021. In a letter written in response to Senator Carignan, the NDDB Advisory Committee endorsed the efforts in Bill S-236 and encouraged the Senator to move forward in reintroducing such a bill in the next Parliament.

Upon the resumption of Parliament, in December 2021, Senator Carignan reintroduced Senate Bill S-231, *An Act to amend the Criminal Code, the Criminal Records Act, the National Defence Act and the DNA Identification Act*. The preamble of S-231 correctly sets out why amendments need to be made: The usefulness of the NDDB increases with the number of DNA profiles it contains. S-231 sought to make nearly every offence in the *Criminal Code of Canada* a DNA designated offence and make the issuing of Orders for DNA samples from offenders automatic.

Following an extensive review of Bill S-231 among the committee members, in January 2022 the NDDB Advisory Committee submitted a letter to the Commissioner highlighting their agreement with the suggested amendments, providing various recommendations, as well as endorsing the furtherance to the Minister of Public Safety to work with Senator Carignan

to advance the proposed legislative amendments. On March 29, 2022, Senator Carignan moved the second reading of Bill S-231. During the second reading discussions, two members of the NDDB AC, Derrill Prevett and Dr. Fred Bieber, appeared as witnesses to give testimony supporting the Bill in principle. The Bill was considered by the Standing Senate Committee on Legal and Constitutional Affairs in November and December of 2023. The Committee heard from a range of witnesses and ultimately amended the Bill to remove several key components. The Bill was at Report Stage on December 12, 2023, and did not progress to Third Reading debate before it died on the Order Paper with the 2025 General Election. A similar Bill has yet to be reintroduced in this Parliament.

The NDDB Advisory Committee wishes to thank Mr. Greg Yost, the Department of Justice legal representative to the committee (now retired) for his continued guidance and contribution to the above-noted deliberations over the past several years.

FAMILIAL SEARCHING

Familial searching is an additional search of a law enforcement DNA database conducted after a routine search has been completed and no exact DNA profile matches are identified to a donor in the database during the process. The DNA found at crime scenes is compared against a law enforcement DNA database to identify a person with many shared DNA characteristics and who could be a close family member. Simply put, investigative leads to parents, offspring or siblings can be identified using this means of investigation. Familial searching has been successfully utilized in the United States, United Kingdom, and other countries to create new investigative leads for heinous crimes where all other procedures have been exhausted.

The NDDB Advisory Committee studied, reviewed, and had numerous presentations on this issue over a ten-year period and included comments on this matter in previous annual reports. Members of the Advisory Committee appeared before the Standing Senate Committee on Legal and Constitutional Affairs in 2010. The Senate Committee recommended that the Department of Justice study the matter to determine how to appropriately craft a provision that would balance the need to protect society, ensure the respect of privacy rights, and preserve the presumption of innocence as it relates to familial searching.

In 2015, the NDDB Advisory Committee once again reviewed this matter and concluded that the value of familial searching to solve challenging, serious cases and protect Canadians outweighs the inherent risks associated to its use. The humanitarian aspect of not doing what is possible to protect the public must also be considered since Canadians can be at

risk when violent criminals remain at large. Additionally, familial searching has been used to exonerate the innocent.

As a result, the Advisory Committee wrote to the Commissioner of the RCMP in December 2015 recommending that the value of familial searching be pursued with the Minister of Public Safety for serious, violent, and serial crimes for open cases where all other investigative avenues have been exhausted. The NDDDB Advisory Committee recognizes that the current *DNA Identification Act* legislation effectively prevents familial searching as the NDDDB can only report exact matches and partial matches where the profile cannot be excluded as a candidate. It would therefore be necessary to pursue legislative amendments to make it possible to report similar matches to family members.

In 2018, the RCMP commissioned the preparation of a “discussion paper” about familial searching. Dr. Chris Maguire, a respected external subject matter expert on this subject and a forensic scientist from the UK with over 30 years’ experience and professional links to the international forensic science community, was engaged to conduct the research and draft the paper. The RCMP asked the NDDDB Advisory Committee to review the Discussion Paper document and offer comments based on the committee’s professional expertise. The Committee widely endorsed the document and offered specific feedback in support of ensuring that privacy protections and Charter rights be of paramount concern, that appropriate restrictions and safeguards be put in place and that legislative language needs to reflect:

- 1) Ethical oversight;
- 2) Procedural governance; and,
- 3) When all other investigative leads have been exhausted.

The Committee noted that the risk of not conducting familial searching in these exceptional cases interfered with the safety of Canadians and the integrity of the criminal justice system. It was also pointed out that the main purpose and use of the Convicted Offenders Index is to identify criminals and to solve crime. Therefore, enabling DNA familial searching of the NDDDB would ensure that we remain true to the index's primary purpose.

On June 15, 2021, Senator Carignan introduced Senate Bill S-236, *An Act to amend the Criminal Code, the Criminal Records Act, the National Defence Act and the DNA Identification Act*. It sought to expand the list of eligible DNA designated offences and make DNA sampling orders automatic upon conviction. S-236 also made references to familial DNA searching and communication of search results with Canadian investigative authorities and those of other countries. S-236 died on the order paper with the dissolution of Parliament and the calling of the election in August 2021.

Upon the resolution of Parliament, in December 2021, Senator Carignan reintroduced Senate Bill S-231, *An Act to amend the Criminal Code, the Criminal Records Act, the National Defence Act and the DNA Identification Act*. Familial searching is not addressed by any current legislation, but it was addressed by S-231 in clause 18 by proposing to amend the *DNA Identification Act* by adding section 6.41(1). The wording of S-231 would have allowed familial searching to be employed in a Canadian and international investigation for any designated offence carrying a maximum sentence of fourteen years or more, some approximately 171 offences. Additionally, the amendment proposed by S-231 would have expanded familial searching beyond the Convicted Offenders Index to the Victims Index, the Missing Persons Index, the Voluntary Donors Index and the Human Remains Index. It is important to note that although Bill S-231 proposes to amend the *DNA Identification Act* to include Familial Searching, it does not propose to include Investigative Genetic Genealogy Technique (IGGT). The Advisory Committee recognizes that any amendments to include Genetic Genealogy would require extensive modification of the legislation and would require significant discussion and further review.

FORENSIC INVESTIGATIVE GENETIC GENEALOGY

Forensic investigative genetic genealogy refers to the use of public genealogy databases (e.g., GEDmatch, Family Tree DNA etc.) to find relatives of the unknown DNA profiles that have been developed from evidence from a criminal or humanitarian investigation. Many major serious cold cases in the past year have been revisited to identify previously unknown perpetrators. The process involving commercial or publicly accessible genealogical databases has the potential to link family members to ongoing investigations and distant relatives by popularized commercial direct-to-consumer genetic testing. This is a new process and is often confused with familial searching. Although familial searching has been supported and recommended by the Advisory Committee as a forensic process that will enhance the NDDDB, investigative genetic genealogy has additional challenges that must be carefully reviewed.

The Advisory Committee has identified the potential use of investigative genetic genealogy as a major advantage for case investigations but understands more discussion is needed regarding privacy and personal information. Investigative genetic genealogy has many considerations that attract the interest of the Advisory Committee, end users, and the Canadian public and will be a source of major discussion in the upcoming meetings of the committee.

The NDDB Advisory Committee has had considerable interaction with representatives of the NDDB, individuals involved with drafting new legislative regulations, and employees from NCMPUR over the past two years. The attendance of Sergeant Shaun Foley with Contract and Indigenous Policing at the November 2020 NDDB Advisory Committee meeting introduced the Advisory Committee to the Investigative Genetic Genealogy Technique (IGGT) and the policy being developed by the RCMP. The policy would act as an accountability mechanism and ensure oversight to prevent the misuse of the technology. This would entail having clear approval authority at senior management levels as well as the possible use of a strategic advisory group who would assess whether there are pre-existing legal/investigative/evidentiary issues.

Following the initial discussion regarding the IGGT Policy, at the June 2021 Advisory Committee meeting, the Committee members were given an opportunity to review, question, and provide comments on the draft IGGT Interim policy. The Committee identified the clauses where more information is needed, and advice was offered. The Committee concluded with the overall recommendation to reduce the length and complexity of the document. The Committee has offered to review and discuss any further iterations of the policy and would welcome C&IP back at future AC meetings to provide updates on their program.

ACKNOWLEDGEMENTS

Since its inception, the NDDB has played a critical role in solving crime and enhancing public safety in Canada. It continues to enhance its capabilities through modernization of technology and training of personnel, which ensured successful implementation of the NMPDP in March 2018. The Advisory Committee is confident the NDDB will continue to deliver a professional science program as it relates to the use of DNA for forensic and humanitarian purposes in Canada. The Advisory Committee appreciates the opportunity to review documents such as the Familial Searching Discussion Paper and acknowledges the dedication and highly specialized contribution of the NDDB staff in continuing to deliver a world-class DNA program.

The Committee would like to acknowledge all employees of the NDDB, the Department of Justice, forensic and police partners as well as other contributors for their outstanding support and cooperation. It enhances the Advisory Committee's performance and helps inform our discussions and recommendations. The Committee would further like to acknowledge the RCMP FS&IS Executive Committee Secretariat Services for their assistance and logistical support.



Brendan Heffernan
Chairperson National DNA Data Bank Advisory Committee