

2014-2015

NATIONAL DNA DATA BANK
ADVISORY COMMITTEE

ANNUAL REPORT

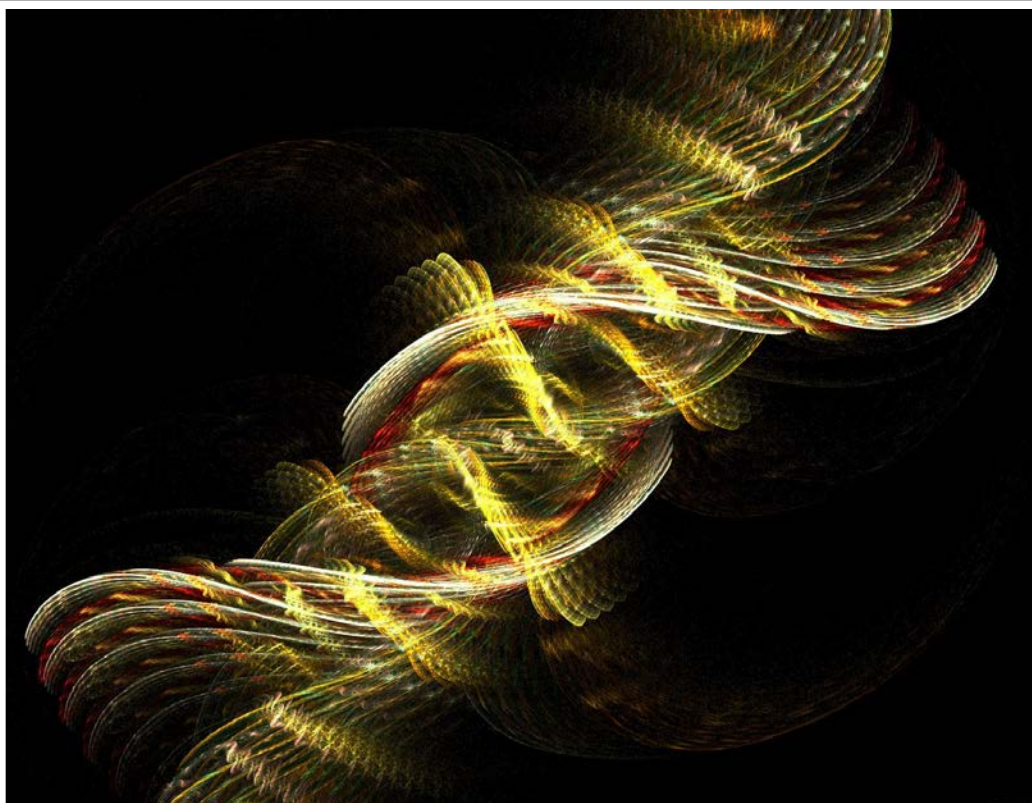


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Introduction

The National DNA Data Bank (NDDB) was established pursuant to the *DNA Identification Act*, 1998, c.37 and commenced operations in June 2000 under the stewardship of the Royal Canadian Mounted Police (RCMP) on behalf of the Government of Canada. The DNA Data Bank Advisory Committee was created pursuant to the *DNA Data Bank Advisory Committee Regulations*; P.C. 2000-635 May 4, 2000 and 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.

The NDDB operates as a national police service available to all Canadian law enforcement agencies and is part of Forensic Science and Identification Services (FS&IS) under the Specialized Policing Services (SPS) business line of the RCMP. The NDDB contributes to the administration of justice and safety of Canadians by assisting in the early identification of those who commit serious crimes across all police jurisdictions in Canada while protecting innocent persons by eliminating suspicion and helping prevent wrongful conviction.

The NDDB is comprised of two indices which include the Convicted Offenders Index and the Crime Scene Index:

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

A snapshot of the activities of the NDDB as noted in the table hereunder demonstrate the contribution the NDDB has made to public safety in Canada since its' inception.

Quick Facts

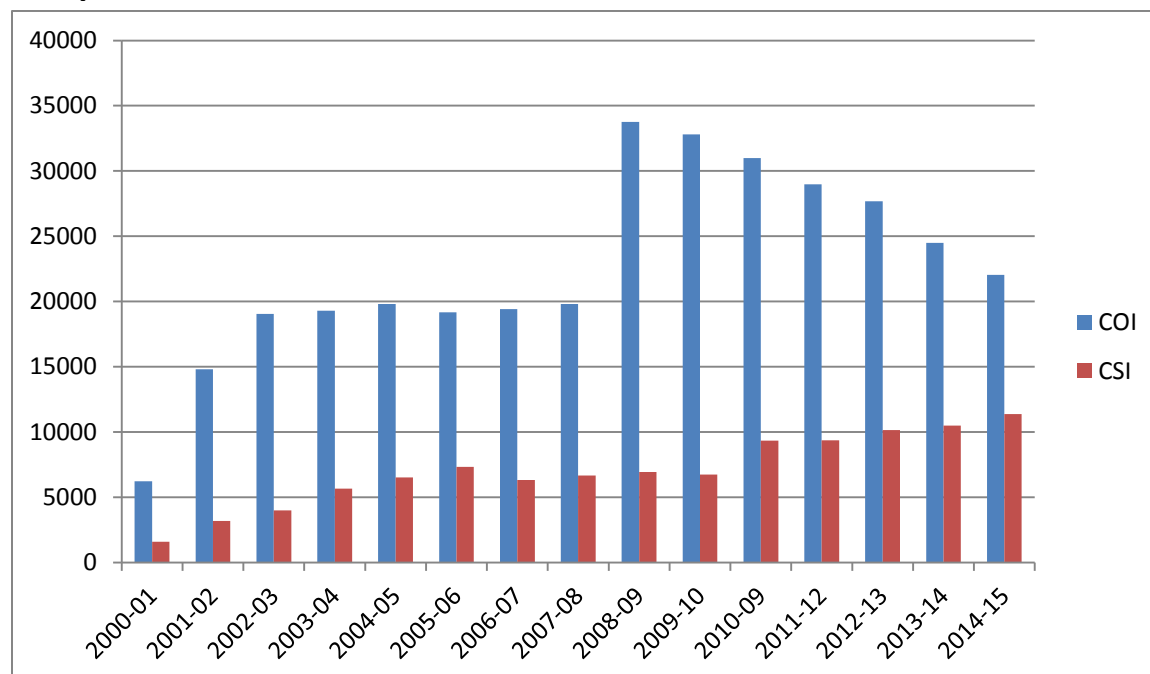
413,517 DNA profiles contained in the NDDB ¹	307,910 DNA profiles contained in the Convicted Offenders Index	105,607 DNA profiles contained in the Crime Scene Index
33,411 DNA profiles added in 2014/15 ²	22,050 DNA Profiles added to the Convicted Offenders Index in 2014/15	11,361 DNA Profiles added to the Crime Scene Index in 2014/15
4,796 Total DNA hits to the NDDB in 2014/15	4,385 DNA hits to the Convicted Offenders Index in 2014/15	411 DNA hits to the Crime Scene Index in 2014/15
38,394 Investigations assisted by the NDDB since June 30, 2000	34,495 Offender Hits since June 30, 2000	3,899 Forensic Hits Since June 30, 2000

¹If no date range is specified the data refers to the period from June 30, 2000 through March 31, 2015

²2014/15 refers to the NDDB's fiscal year from April 1, 2014 through March 31, 2015

As of March 31, 2015, the NDDB contained 413,517 DNA profiles which include 307,910 in the Convicted Offender Index and 105,607 in the Crime Scene Index. The following graph demonstrates the significant growth in entries to the NDDB since its inception.

Samples Received in the NDDB

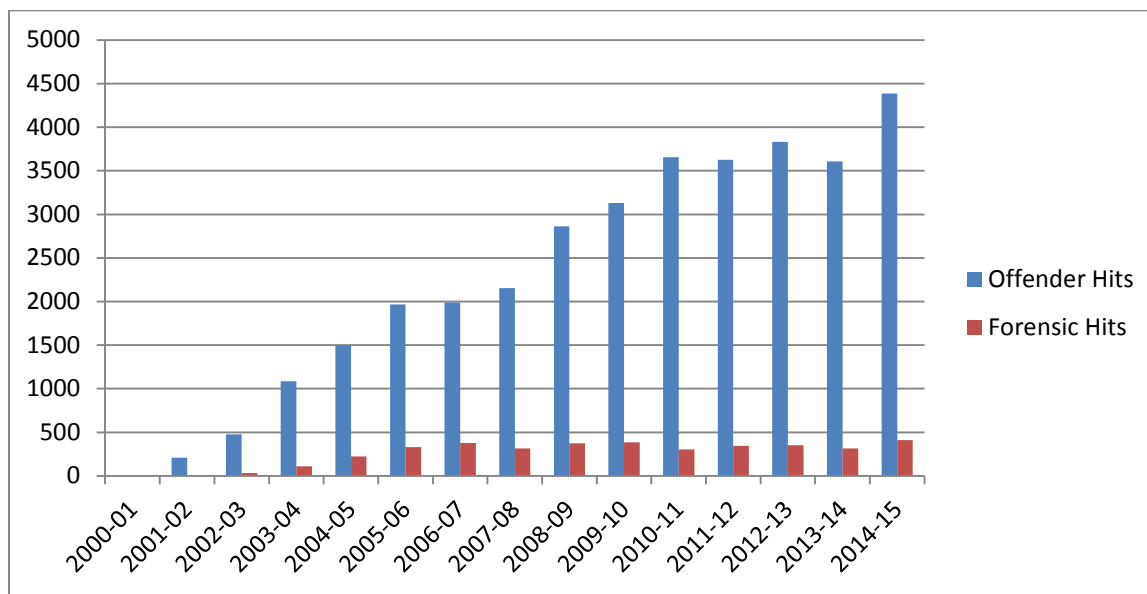


The NDDDB assists law enforcement agencies in solving crimes by:

- 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 NDDDB)
- Determining whether a serial offender is involved

In the 2014/15 fiscal year, there were 4,385 Offender hits (Convicted Offender to Crime Scene) and 411 Forensic Hits (Crime Scene to Crime Scene) for a total of 4,796 hits that assisted police investigations. The overall growth in both Offender and Forensic hits since the NDDB's creation, as shown hereunder, has contributed significantly to public safety over the years.

Growth in Offender and Forensic Hits



Crime scene samples are analyzed and the DNA profiles are uploaded to the NDDDB by the three Canadian forensic laboratory systems:

- The RCMP Forensic Science and Identification Services (FS&IS) has sites in Ottawa, Edmonton, Vancouver and Halifax (the Halifax site closed in March 2015)
- The Centre of Forensic Sciences (CFS) in Toronto and Sault Ste. Marie
- The Laboratoire de sciences judiciaires et de médecine légale (LSJML) in Montreal

Biological samples collected from convicted offenders across Canada are processed by the NDDB and the resulting DNA profiles are entered into the COI.

The NDDB retains the electronic DNA profile information as well as basic details such as the date, location of the submitting laboratory and a unique number identifier that allows information to be compared by the submitting laboratory in the event of a future match.

DNA profiles developed from crime scene samples are compared against DNA profiles from other crime scenes. Matches identify potential links between different crimes, which helps investigators look for other commonalities that may assist with solving crimes.

National DNA Data Bank Advisory Committee

The National DNA Data Bank Advisory Committee (NDDB AC) was formalized under the authority of the *DNA Data Bank Advisory Committee Regulations*. The Committee members are recommended by the Commissioner of the RCMP and appointed by the Minister of Public Safety for a five year term that can be renewed. There are currently eight members of the Committee who have varied backgrounds including law, science, privacy, law enforcement, and ethics. Members of the 2014-2015 Committee are:

Garry LOEPPKY, O.O.M. (Chairperson) Deputy Commissioner (Rtd), served with the RCMP for 34 years. Throughout his career, D/Commr. Loeppky was responsible for coordinating and leading major investigations on both domestic and international levels. He worked with numerous foreign law enforcement organizations and has lectured in a number of countries including Canada, Australia, the United States and Europe.

Gisèle CÔTÉ-HARPER, O.C., Q.C. (Vice-chairperson) Barrister and Emeritus Professor at the Faculty of Law, University of Laval, Sainte-Foy, Quebec. Madame Coté-Harper is recognized nationally and internationally as a legal expert on Human Rights issues and is a graduate of Harvard Law School.

Dr. Frederick BIEBER, Associate Professor of Pathology at Harvard University, Boston, Massachusetts. Dr. Bieber is a medical geneticist and specialist in bio-medical ethics. He has an extensive background in genetics research and has been involved in DNA related projects with academic and law enforcement agencies throughout his career.

Dr. William S. DAVIDSON, Medical Genetics Specialist and Professor of Molecular Biology and Biochemistry, Simon Fraser University, Burnaby, B.C., Dr. Davidson has published widely in the area of molecular evolution, population genetics, genomics, and human genetics.

Dr. Ron FOURNEY, O.O.M. Director, Science and Strategic Partnerships, Forensic Science and Identification Services, RCMP. Dr. Fourney is a research scientist and a founding member of the RCMP DNA program. He has been instrumental in the development and implementation of forensic DNA typing for Canada.

Dr. Anjali MAZUMDER, Research Fellow in the Department of Statistics at the University of Warwick. Dr. Mazumder has published widely in the fields of forensic DNA identification and value of evidence analysis using probabilistic expert systems and best practices in forensic science. She holds a Doctorate in Statistics from the University of Oxford.

Derrill PREVETT, Q.C. Retired Crown Counsel, Criminal Justice Branch of the British Columbia Ministry of the Attorney General. Mr. Prevett has prosecuted complex homicide cases where DNA was used as the sole evidence identifying the perpetrators. He also served on national committees where he was responsible for ensuring consistent implementation of DNA legislation and making recommendations to Parliament regarding the NDDB.

Patricia KOSSEIM, General Counsel and Director General, Legal Services, Policy, Research and Technology Analysis Branch, Office of the Privacy Commissioner of Canada. She is responsible for providing strategic legal and policy advice on privacy issues and represents the Privacy Commissioner before courts and Parliamentary Committees.

Ms. Kosseim was welcomed at her first meeting in May 2014 as the new representative of the Privacy Commissioner of Canada.

All seats on the Committee are now occupied and are not set to expire before the end of 2016.

Contributors to the National DNA Data Bank Advisory Committee Meetings

May 8-9, 2014 Meeting

D/Commr. Peter Henschel	RCMP, Specialized Policing Services (SPS)
A/Commr. François Bidal	RCMP, Forensic Science & Identification Services (FS&IS)
Dave Morissette	RCMP, FS&IS
Sean Jorgensen	RCMP, FS&IS
Justin Ducette	RCMP, FS&IS
Jeremy DeMan	RCMP, Legal Services
Greg Yost	Department of Justice

André Solecki	Department of Justice
Julie Mugford	Public Safety Canada
Derek Pongray	Public Safety Canada
Ken Konzak	Lab Director, California DNA Data Bank (Retired May 2014)
Dr. Tom Callaghan	Senior Chief Scientist, Biometrics Analysis Section, FBI Lab

October 2-3, 2014 Meeting

A/Commr. François Bidal	RCMP, FS&IS
A/Commr. Joe Oliver	RCMP, Technical Operations
C/Supt. Brendan Heffernan	RCMP, FS&IS
Carole Bird	RCMP, National Centre for Missing Persons and Unidentified Remains (NCMPUR)
Dave Morissette	RCMP, FS&IS
Sean Jorgensen	RCMP, Strategic Policy & Integration (SP&I)
Justin Ducette	RCMP, SP&I
Jeremy DeMan	RCMP, Legal Services
Greg Yost	Department of Justice
Michael Holmes	Public Safety Canada
Derek Pongray	Public Safety Canada
Tony Tessarolo	Centre of Forensic Science
Det. Supt. Dave Truax	Ontario Provincial Police
Christine Jolicoeur	Laboratoire de sciences judiciaires et de médecine légale (LSJML) and Canadian Scientific Working Group on DNA Analysis Methods (SWGDM) Chair

This report covers the period from April 2014 to March 2015. During this period, the NDDB AC held meetings in May and October 2014 in Ottawa. The Committee also held a teleconference in November 2014. The meetings included updates on the operations and performance of the Data Bank including statistical updates, ongoing activities and initiatives. The meetings also included updates from Canadian Scientific Working Group on DNA Analysis Methods (SWGDM), Public Safety Canada and the Department of Justice on initiatives in their respective areas impacting the NDDB.

Key issues and highlights of the presentations and their potential impact to the NDDB are further elaborated in this report.

Meeting Cost

The total expense for the meetings held in fiscal year 2014/15 was **\$30,621.67**.

NDDB Year End Summary

The NDDB AC was created under the authority of the *DNA Data Bank Advisory Committee Regulations* fifteen years ago, and since that time has closely monitored the operations of the NDDB and provided advice and guidance when and where appropriate. The science of DNA is evolving at an unprecedented pace, and the involvement of Committee Members in international forums, conferences, and the knowledge which they impart to the Committee from their own careers continue to enlighten the Advisory Committee as a whole to remain current with the evolving science and related technology.

Members have been invited to present professional papers or facilitate DNA working groups at national and international meetings or conferences and this information is shared with the NDDB AC. In July 2014 a member attended the Green Mountain DNA Conference in Vermont. New technologies focusing on innovations in the field of DNA were presented and discussed such as Next Generation Sequencing (NGS). This technology allows scientists to sequence DNA much more quickly and at a reduced cost than previously used methods, and will impact the NDDB as it evolves. Participation in forums such as these ensures the Advisory Committee maintains a leading edge approach with respect to international developments in DNA. The Committee also benefited from a presentation by Mr. Ken Konzak who recently retired as the Director of California's DNA Database. His comprehensive overview of the challenges in establishing and managing the fourth largest DNA database in the world was informative and highlighted advances in technology and the science of forensic DNA. Dr. Tom Callaghan, Senior Chief Scientist with the FBI Laboratory updated the Committee with respect to Rapid DNA(RDNA) research by the FBI and the potential of processing DNA samples at time of arrest for direct searching with the national DNA Database. This project is in its early stages, but technology is advancing at an unprecedented pace and it will be important to monitor the progress and assess implications for Canada, the NDDB, public safety partners, and the public.

The Advisory Committee is pleased to note the continued commitment to training by the NDDB. This ensures that the collection of biological samples from convicted offenders is done professionally and in compliance with standards and legal parameters. It also reduces submission errors which result in rejections and reduced efficiency. In the 2014/15 fiscal year, training was provided to police and court personnel in British Columbia, Ontario, Quebec,

Northwest Territories, Yukon and Nunavut with additional court staff being trained through video conferencing.

During the period that this report covers, the NDDDB has adopted and implemented new processes and technologies that will position it to meet future demands, especially with the passage of legislation which will create additional DNA indices related to missing persons. New robotics workstations, coupled with a sophisticated Sample Tracking and Control System (STaCS™) DB Enterprise that was upgraded in 2014, allow the NDDDB to rapidly and efficiently process DNA samples while ensuring the integrity of the process is maintained. STaCS™ provides for enhanced kit reception, increased flexibility for developing reports and future technology changes. This system will also accommodate the requirements necessitated by the new indices related to missing persons. The NDDDB also introduced the AmpFLSTR® Identifier® Direct PCR Amplification kit which increases discriminating power of DNA analysis, reduces processing time per sample and improves the quality of DNA profiles. It should also be noted that the PowerPlex® 16 HS kit has been validated and is used as a quality control check at this time. The NDDDB has also upgraded the Combined DNA Index System (CODIS); a software package that stores and compares profiles and is a universally accepted tool for forensic laboratories. This upgrade will allow for the enhancement of information exchange between laboratories and the NDDDB.

A more direct method for sharing DNA matching information between the United Kingdom, United States and Canada was developed as part of the G8 sponsored country to country initiative. This method affords the same privacy safeguards as respected by Canada while it promises to reduce the time required to repost a DNA match. The arrangement, known as the International DNA Search Request Network Memorandum of Understanding, was signed by the RCMP on December 13, 2013, and the Australian Minister of Justice signed on as a new participant on November 6, 2014.

To address recent changes in DNA technology, a privacy impact assessment for the National DNA Data Bank was forwarded to the office of the Privacy Commissioner in August 2014.

The Advisory Committee is confident that the NDDDB has identified future needs and is well equipped and prepared for new challenges that will arise as the science evolves or as the indices which will be created as a result of Economic Action Plan, No. 2, are implemented.

In 2012, the RCMP Forensic Laboratory Services (FLS) initiated a project to consolidate its laboratory from six delivery sites to three by March 31, 2015. The sites in Regina and Winnipeg were closed on March 31, 2014 and the Halifax closure took place on March 31, 2015. It should be noted that none of the sites being consolidated offered full DNA services. The Advisory Committee was concerned with the potential disruption between the laboratories and the NDDDB which could influence the effectiveness of the databank. It appears the

consolidation project has had little or no impact on the ongoing interactions with the NDDB or with police agencies regarding DNA services.

Over the past few years, the National Police Services (NPS) suite of programs, under which the NDDB falls, has faced significant financial pressures. A number of efforts taken by the RCMP as part of the NPS Sustainability Initiative, including the successful renegotiation of the Biology Casework Analysis Agreements with provinces and territories, have led to permanent funding for the NDDB.

Missing Persons DNA Program

The NDDB AC has advocated for a Missing Persons DNA Program since 2003 when it thoroughly examined the humanitarian, scientific, privacy and law enforcement principles (including legal, ethical, governance and policy issues) relating to the creation of the Program. The Committee recognizes the importance to Canadians of establishing a program to assist law enforcement in locating and identifying missing persons and of using DNA based technology for family reunifications. In Canada, approximately 400 missing persons and 100 unidentified human remains cases remain unsolved every year, and the creation of a Missing Persons DNA Program would offer hope that more could be done to find loved ones. As documented in annual reports over the past fourteen years, the NDDB is a proven facility with an exemplary track record and the Committee sees no privacy or security obstacles with the NDDB taking on the additional responsibilities of a Missing Persons DNA Program.

As a result of the Government of Canada Budget 2014 allocating funding to establish a Missing Persons DNA Program, the Advisory Committee was provided with a presentation by Public Safety officials at the May 2014 meeting and were pleased to be asked to provide feedback and advice with respect to its Program. Consequently, the Advisory Committee provided their comments and recommendations which were subsequently acknowledged by Public Safety as being very helpful in informing proposed amendments to legislation.

On October 23, 2014, amendments to the *DNA Identification Act (DNAIA)* were tabled in Parliament in Bill C-43, *Economic Action Plan, No.2*. The new legislation supports investigations of missing persons and unidentified human remains through the creation of a national Missing Persons DNA Program. It also amended the *DNA Identification Act* to expand the number of indices in the NDDB. In addition to the existing Crime Scene and the Convicted Offenders indices, the legislation created five new indices: Missing Persons Index, Relatives of Missing Person Index, Human Remains Index, Victims Index and a Voluntary Donors Index. Legislation governing the Missing Persons DNA Program will protect Canadians' privacy interests through

safeguards to ensure that DNA profiles contained in the NDDB are used only for their intended purpose.

Bill C-43, Division 17, *Economic Action Plan, No.2*, received Royal Assent on December 16, 2014, and is anticipated to become operational in the spring of 2017 following the drafting of regulations in collaboration with Public Safety, RCMP representatives and the Department of Justice. Policy and procedures will also be developed in support of the legislation and the Advisory Committee has learned there will be a consultation process to discuss the role of the Committee in relation to the new Missing Persons DNA Program.

At the Advisory Committee meeting in October, representatives from the Centre of Forensic Science (CFS) and the Ontario Provincial Police (OPP) made presentations on current practices involving DNA and missing persons and unidentified remains in Ontario specifically. Currently, Ontario does not have legislation with respect to missing persons. The OPP and CFS representatives discussed the various challenges that the federal MPI legislation could potentially create, outlining the requirement for ample preparation time to mitigate the various risks associated with the creation of the new legislation. Key points for consideration include geographical challenges related to reference sample collection, training and standardized collection kits. It is anticipated that an operational start-up of *Economic Action Plan, No.2*, in 2017 should allow adequate preparation time to address issues as they arise.

Department of Justice / Ontario Provincial Police Research Project

The Committee was advised by Department of Justice (DOJ) officials in May 2014 that support had been received for a research project to be undertaken to demonstrate the probative value of forensic DNA and the role it played in promoting public safety. The Advisory Committee has identified this as a priority for several years while also acknowledging the challenges associated with such a project. The OPP were very supportive and offered their full cooperation to the DOJ in this endeavour. The Committee was solicited for input into the research questionnaire and DOJ has reported that the study is progressing well and cooperation has been excellent. The DOJ is currently analyzing the results and will update the Advisory Committee upon completion of the project. The NDDB AC is keenly interested in this initiative and will review the findings when they become available. However, based on preliminary reports, it is anticipated that it will reinforce the notion that DNA plays a critical role in public safety.

Biometrics

Chief Supt. Brendan Heffernan, Director General, Canadian Real Time Identification Services (CCRTIS) provided an update on business renewal initiatives. Automation with respect to the submission of fingerprints through Livescan will require the NDDDB and CCRTIS to collaborate and ensure a seamless transformation since the current process for the submission of fingerprints with a DNA sample to the NDDDB is still paper based. The Advisory Committee continues to follow developments to ensure the integrity of the process of submitting DNA samples to the NDDDB is not compromised.

Managing Mass Disasters through DNA

The Laboratoire de sciences judiciaires et de médecine légale presented on the findings of two mass disasters which took place in Quebec, including the train derailment at Lac Mégantic and a fire at an elderly residence in Isle Verte. The use of DNA for identification and investigative purposes proved to be the most reliable identification method in both mass disasters. However, the complexities of gathering suitable and relevant DNA in a major disaster are significant, and the importance of having knowledgeable personnel, including those with a background in DNA, at the scene is critical.

Canadian Scientific Working Group on DNA Analysis Methods (SWGDM)

Canadian SWGDAM is responsible for researching, reviewing, and providing recommendations on issues related to evolving DNA science, policy, and technology. In February 2015, SWGDAM provided the NDDDB with draft DNA Data Acceptance Standards for the addition of DNA profiles to the NDDDB. It is anticipated that the Standard will be finalized and provided to the NDDDB CODIS participating laboratories for implementation in 2015/16.

Biology Casework Analysis Agreements and CSI Submissions

Public Safety officials, in conjunction with the RCMP worked collaboratively with RCMP Contract jurisdiction representatives to ensure the sustainability of forensic DNA services. The affected provinces and territories have agreed in principal to new ten year agreements, which will ensure an appropriate and stable funding structure for the next decade as it relates to forensic DNA analysis provided by National Forensic Laboratory Services.

Conclusions for 2014-15

Meeting the challenges of significant advances in technology, organizational changes in the RCMP laboratory structure and increasing expectation from the public and the courts on what the science can deliver in terms of public safety, the NDDB AC are confident that Canada continues to deliver a world class DNA program. The Advisory Committee recognizes the demands placed on those administering the program and confidence in them continues to be unwavering.

The Committee acknowledges that recent amendments to the *DNA Identification Act* relating to Missing Persons and the development work to establish new indices will require significant effort by personnel in the NDDB; however, based on observations to date, the public and police community will be well served by the processes being developed. The Committee looks forward to being engaged as regulations, policies, and terms of reference are developed in support of the legislation.

The Committee would like to acknowledge and thank employees of the NDDB, Public Safety, the Department of Justice and other contributors to the Advisory Committee for their outstanding support and cooperation which greatly enhance deliberations and provides background for recommendations.

G.J. Loeppky
Chairperson
National DNA Data Bank Advisory Committee