

## **Canada's DNA Data Bank: A Valuable Resource for Criminal Investigators**

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The recurrent nightmare of a middle age woman first began in the early morning darkness on April 10, 1991. She was walking home on familiar streets when she was brutally struck in the face and head with a brick, and then sexually assaulted. Eleven years later, after extensive police investigation with the help of diligent police work, forensic DNA analysis and the National DNA Data Bank, this sexual aggressor was found and charged for his crime. Had it not been for the help of one of Canada's newest forensic investigative tools the "DNA Data Bank", this woman's aggressor might never have been discovered. Similarly haunting cold cases elsewhere are being reviewed with the help of Canada's DNA Data Bank.

The National DNA Data Bank of Canada (NDDDB) became operational on June 30<sup>th</sup> 2000, when the *DNA Identification Act* was proclaimed law. Since then, the NDDDB has helped to revolutionize the way crimes are being investigated, and has been a major asset in solving some of Canada's most challenging and older criminal cases. The NDDDB exhibits the hallmark characteristics of the National Police Services in working with Canada's forensic laboratories and provincial and municipal law enforcement partners. The goal is to provide assistance with old and new investigations and in making our homes and communities safer.

### **TWO DISTINCT INDICES**

The NDDDB houses DNA profiles in two distinct indices: the Crime Scene Index (CSI) and the Convicted Offender Index (COI). The CSI profiles in the NDDDB are received directly from all forensic laboratories across Canada, which comprise the RCMP laboratories (Ottawa, Edmonton, Vancouver, Regina, Halifax, Winnipeg), the Centre of Forensic Sciences in Toronto and the Laboratoire de sciences judiciaires et de médecine légale in Montréal. The CSI DNA profiles are first developed from crime scene evidence sent to the regional laboratories by investigators across Canada. The COI profiles are developed at the NDDDB from biological samples collected from post-convictional offenders who are convicted of specific designated offences such as murder, assault, incest, and others, as outlined in section 487.04 and 487.055 of the *Criminal Code*.

The value of DNA to police investigators has been remarkable. Biological samples yielding a DNA profile, collected from crime scenes can either link a person to that crime or rule out a suspect as the perpetrator of the crime. In addition, DNA profiles from different crime scenes can be compared in order to link the same suspect to multiple offences, locally, nationally or internationally.

Since its opening, the NDDDB has made over 452 matches between crime

scenes and convicted offender samples, and more than 29 crime scene to crime scene matches. In its second year of operation, the total number of hits has increased almost ten-fold. There are many success stories, some of which are posted on the NDDB Web site at [www.nddb-bndg.org](http://www.nddb-bndg.org) under "Real Cases" and are also detailed in the NDDB 2001-2002 Annual Report.

### **INCREDIBLE POTENTIAL**

Although the data bank has had unprecedented success in its first two years of operation, there is still incredible potential to make this record even better. Matches with DNA profiles from crime scenes and with convicted offenders depends on the submission of samples. The more samples in the bank, the better the chance of a match, which may lead to solving a case or focusing an investigation. Currently, the NDDB is not being used to its full potential. A study conducted in 1998 prior to the opening of the NDDB showed that, in Canada, there were approximately 18,600 primary offences and at least 94,500 secondary offences per year that could be eligible for entry into the COI of the data bank. However, the NDDB is receiving only a fraction of the expected samples (less than 50 per cent of primary offence samples and less than 10 per cent of the secondary offence samples). The Data bank is an incredible resource that could help solve more crimes or potentially lead to more exonerations - if more DNA profiles are added. If every offender convicted of a primary offence and the majority of secondary offences were ordered to provide a biological sample, matching would grow significantly. Our challenge therefore is two-fold: to convey the message that the NDDB is fully operational and capable of handling tens of thousands of samples a year and to communicate the need for more samples. To do so will increase not only our chances for success but contribute to the safety of all Canadians.

### **EXAMINING TRENDS**

The NDDB has also experienced a trend noted in other large forensic investigative data banks. Police have demonstrated with real casework data that inclusion of DNA profiles from less serious offences helps solve many of our most serious and challenging cases. Certain trends suggest that investigative data banks are indeed contributing to the linking of less serious crimes such as break and enters to more serious offences such as murders. Evidence derived from the NDDB's current 452 matches shows that 15 per cent of these were primary offence investigations that were assisted by DNA profiles originally obtained for secondary offences. This trend has also been noticed at the Florida Department of Law Enforcement's Convicted Offender Data Bank (FDLE). In their 12 years of experience, they have demonstrated that broadening the legislation to include more minor crimes has a dramatic effect on solving major serious offences. From a purely statistical assessment, the FDLE Data Bank observed that over 56 per cent of the offenders linked to sexual assaults and homicides by the DNA database matches had committed burglaries. Their new burglary expansion legislation is credited with helping to solve 16 per cent of all of Florida's sexual assaults and 25 per cent of their murders. Based on their

experience, there is little doubt that the expansion of the National DNA Data Bank would further help the law enforcement community to protect Canadian communities.

As part of the *DNA Identification Act*, the NDDDB has worked with the Office of the Solicitor General and the Department of Justice to develop formal agreements to facilitate the exchange DNA data with other countries, while respecting the privacy and security of such data. In April 2002, the first such international agreement was established with Interpol, offering investigators in Canada as well as in other countries, the opportunity to share the information from this powerful new crime-solving tool. Only 18 days after the Interpol agreement was signed, the NDDDB provided assistance on its first international investigation. Since April 2002, the NDDDB has received over 50 international requests and has made four such requests to other countries.

Future enhancements to the NDDDB include developing new ways of processing more samples in an automated fashion in a shorter period of time. These enhancements will not only expand the potential for the Data Bank but also enhance our readiness for other types of forensic investigations such as mass disaster identification. In addition, such research and development work could also lead to improvements in casework processing, especially in crimes involving numerous samples and automating cases like break and enter.

The success of the NDDDB is due to the support and dedication of many individuals within our government, as well as from legal and police partners. Together, we are working to ensure safer homes and safer communities for Canadians.

For more information on the National DNA Data Bank of Canada and for our most recent statistics, please visit our Web site at [www.nddb-bndg.org](http://www.nddb-bndg.org)