



## Preliminary communication

## Integrating dental data in missing persons and unidentified remains investigations: The RESOLVE INITIATIVE and DIP3

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## ABSTRACT

DIP3, a computerized aid to assist in dental identification, was integrated into the RESOLVE INITIATIVE, a joint endeavour by the Ontario Provincial Police and the Office of the Chief Coroner for Ontario, to resolve cases of missing persons (MP) and unidentified remains (UNID). Dental data, from the UNID, collected by the coroner and the dental records of MP, provided by investigating police, are streamed separately for input into a dedicated computer program. All dental management is provided by forensic dentists. The advantage of having experienced dentists managing this data is explained. A description of the RESOLVE INITIATIVE and DIP3, including the method used for record transmission is provided.

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## 1. Introduction

Every jurisdiction in Canada has a statutory requirement to attempt to identify individuals who die within their borders. Presumptive identification is customarily made by reliance on visual recognition, fingerprints, dental or DNA evidence. Coroners or medical examiners may use one or more secondary factors such as unique medical interventions, tattoos and personal effects to support a personal identification; however, the application of a primary method, whenever possible, is preferred. When human remains are recovered without a presumption of identity, the coroner or medical examiner, usually acting in conjunction with a police agency, attempts to resolve the matter by seeking a possible identification from a list or lists of MP. These lists may originate locally, regionally, nationally or internationally.

In some circumstances, unique comparative features are shared by both the unidentified human remains (UNID) and an individual on a MP list. In other cases, a match may be less than apparent. Lists of MP themselves are not inclusive of all MP and they do not allow for the physical changes which might have occurred between the

date of the registration as a MP and the date of body recovery. Ageing software has been used to attempt to graphically illustrate what the person might look like after the passage of time [1]. Although personal effects may be unique, they may not be found, when found they may not belong to the deceased, or they may have been displaced, leading to a mismatch between the personal effects recovered and the data recorded in the MP report. Personal effects are useful aids in attempting to determine identity; however, they should only be used as a guide to lead investigators in a direction that may ultimately substantiate or refute a positive identification. Quite often, recovered UNID are in the advanced stages of decomposition (putrefaction, mummification or skeletonization) and therefore may not allow for visual or fingerprint identification. DNA may be useful to investigators, if reliable personal or familiar reference samples are available for comparison. Facial reconstruction is occasionally attempted but the technique is inconsistent and not supported by strong scientific evidence [2].

Teeth, being durable, characteristic and often containing unique dental interventions can be useful if there is a reliable MP dental data base which can be readily searched [3]. The developers of the RESOLVE INITIATIVE<sup>1</sup> recognized the potential value of dental identification and sought to include it as one of the search

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<sup>1</sup> [www.missing-u.ca](http://www.missing-u.ca).



**Fig. 1.** An example of the post mortem dental source data recorded for unidentified human remains. This material is streamed to the DIP3 operator.

components. The computerized aid to dental identification, DIP3, was chosen because of its simplicity of use, acceptance by dentists and ease of incorporation into the active search apparatus of the Project.

## 2. The RESOLVE INITIATIVE

The vision of overcoming unresolved identification challenges began early in 2005 as PROJECT RESOLVE, when the Office of the Chief Coroner for Ontario (OCC) began working with the Ontario Provincial Police (OPP) to develop a collaborative strategy that would enhance the investigation of both UNID and MPs in Ontario. Solving these very important cases is a difficult task shared by all jurisdictions throughout the world. The ultimate goal was to create a tool for investigation that would be consistently successful in helping to solve these cases. It was agreed that the advanced technology of the Internet would be an excellent method because of its widespread use within our local communities and its global capabilities.

The OCC and the OPP entered into a working partnership, and in May 2006 the RESOLVE INITIATIVE was launched through the release of a publicly accessible website, and the creation of a new unit within the OPP named the Missing Persons and Unidentified Bodies Unit (MPUB). This official partnership, between a death investigation service and a police agency, was the first of its kind in North America. The OCC now uses the RESOLVE INITIATIVE as a tool to assist with cases that remain unidentified. The website also displays information on MP cases that are being investigated by the OPP and in addition will include cases from other police jurisdictions that request the MPUB's assistance.

In Ontario, it is the legislated authority and responsibility of the coroner, under the *Coroner's Act*<sup>2</sup> to investigate death under defined circumstances. The safe and secure control of the information regarding the deceased, which is gathered as part of the death investigation, is the coroner's responsibility. Determining the identification of found human remains within Ontario also

<sup>2</sup> Coroners Act, R.S.O. 1990, c. C.37.

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