



# Forensic Odontology-A Living South Australia Initiative

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## Introduction

### Historically

In 1985, ADA SA suggested to the Federal ADA that some specialty areas within dentistry should be formally recognised. Unfortunately this was not to happen. The then ADA SA President, Dr. Joe Verco, sought a meeting with the then President of the Dental Board of SA Dr. John Day, and with appropriate paperwork in place within weeks, South Australia had three new specialties and specialists: Forensic Odontology Dr. Ken Brown, Oral and Maxillo-Facial Radiology, Dr. Ross McDonald, and Oral Pathology Dr. David Wilson. Dr. Ken Brown went on to become the International President of IOFOS (International Organisation for Forensic Odonto-Stomatology). In 1983 a new Journal of Forensic Odonto-Stomatology was published in South Africa. Dr. Helen James, Head of the Forensic Odontology Unit, The University of Adelaide was editor Jan 2004 - Dec 2007. In March 2011, Joe Verco was introduced to Graeme Rowley (Chief Pilot, Airforce I Malcolm Fraser) who advised how Argyle diamonds were individually laser marked for tracking and identification. Could this be done with an alpha numeric for country specificity for dental implants? The idea went forward to the International College of Dentists President Dick Cook Sec on VIII Australasia, and on to Dr. Charles Siroky, the International President of ICD. ICD then forwarded the idea to International Standards Organisation. The idea then stalled with the International Council of ICD which resolved on 10 Oct 2010. "That the International College of Dentists does not specify a current group of standards in dental practice, but rather informs Fellows of the College they should be aware of current clinical paradigms for the best practices in dentistry".

### 2015

20 Feb 2015 at a meeting for the "Virtual War Memorial" at NM & AFC Adelaide, Sir Angus Houston spoke on MH17 disaster, and how diplomatically the Australian Government had assisted. The Disaster Victim Identification Team from Australia is held

in high regard by the French, Dutch and Interpol. The diplomatic incident was investigated by the Police rather than treated as a military matter. Furthermore, Dr. John Berketa has given talks to ADA SA and DASI. A series of past disasters have warranted DVI help - Christchurch, fires in Victoria, tsunamis, air accidents. Journal Articles: J. Forensic Science Jan 2010; Forensic Science Int 2010; J Forensic Odontostomatology 2010.

3 July 2015 Supt. Bruce James-Martin, Industrial Relations Branch SA Pol, assisted Joe Verco in galvanising a working group to put forward a collaborative and administratively effective methodology for the laser marking of implants for tracking and identification purposes, with an appropriate alpha-numeric.

### The group comprised:

- i. Supt. Bruce James-Martin: Industrial Relations Branch SA Pol.
- ii. Insp. Alex Zimmerman: Disaster Victim Identification Commander (SAPOL), State Emergency Management Plan. Member of the Federal Disaster Victim Identification Committee. National Disaster Victim Identification Committee.
- iii. Dr. John Berketa: The University of Adelaide, Forensic Odontology
- iv. Dr. Richard Sawers: International College of Dentistry (Regent Sec on VII) Pierre Fauchard Academy (Trustee)
- v. Dr. Joe Verco: Pierre Fauchard Academy (Editorial Board)
- vi. Dr. Samantha Mead: ADA SA Branch CEO

### Dr. John Berketa summarised his talk as follows:

#### "Dental implant coding"

Dentistry provides a great service to the community not only to the living but also to relatives of the deceased. Following the death of a person, identification is required for legal and

ethical reasons. Usual comparison methods for identification include visual identification, fingerprint DNA testing and dental comparison. At severe incineration events, fire will damage or destroy physical evidence of victims such as clothing, documents, tattoos, fingerprints, and hair and at high temperatures the DNA, which otherwise would aid the identification process. Dental evidence also could be ashened and fragile leading to a loss of information. Therefore, the identification of victims of incineration events can be a daunting and intensive task. Dental implant placement has become a popular and accepted form of treatment for tooth loss. One of the qualities of titanium and its alloys is it has a very high melting point and has proven to withstand cremation.

Coupled with this, is that Straumann® company has been placing batch numbers within the chamber of their implants which also can be read following incineration. Although the number of implants with the same batch number may vary from 24 to 2400 this is within the context of worldwide distribution. For the identification of a deceased individual cross checking the number to a registry of records would assist in the Coroner. Ideally, if all implant companies had a unique serial number rather than a batch number placed within their chambers and these numbers are recorded onto an Australian wide central registry, this would make the identification of severely incinerated victims with a dental implant a more streamlined process. The Australian Orthopaedic Association set up a registry in 1999 with the help of federal government funding. Initially to keep track of failing orthopaedic implants, it also has a function in assisting victim identification and has proven its worth.

I would suggest that the ADA encourage dental implant companies to initiate the placement of their tracking numbers within their implants and also to make suggestions in forming a central dental implant registry.

*John Berketa*

*Forensic Odontologist*

*Forensic Odontology Unit*

*The University of Adelaide*

### Further aspects raised giving an International Overview

- i. Disaster Victim Identification required a lot of inter professional assistance from comparative anatomy, Facebook and ante mortem OPG's.
- ii. Dental Implants over the world are on the increase: Australia 40/10,000
- iii. Israel 302/10,000 Sweden 260/10,000
- iv. In the USA 3 million patients have implants, often multiple, and is increasing by 500,000pa. 10% of dentists in USA do implants.

- v. 2001 Straumann marked implants within the chamber - Company, date and batch number only. Batches range from 24 to 2,400 have a need for sequential marking (Figure 1).



Figure 1: 2001 Straumann marked implants within the chamber.

- vi. Disaster heat: Tsunamis, causing fires generated 1000°C cf heating in bushfires (7 Feb 2009 Vic) 1385°C. Noted: Cochlear implants do have serial numbers and can survive 1000°C.

### The Collaborative

- a. Political Advocacy: through DFAT, the Minister for Foreign Affairs, Hon Julie Bishop (11 July 2015)
- b. Standards: through the International Standards Organisation, then Food and Drug Administration (USA) and Therapeutic Goods Administration (Australia).
- c. Australian Defence Force: through Sir Angus Houston and Dr. Rick Olive, who is not only the Federal ADA President, but also Lt-Col. RAADC.
- d. Federal Police: Insp. Alex Zimmermann wears two hats - one locally and one Federally, DVI, and is highly regarded internationally.
- e. Academic Input: The University of Adelaide Dr. John Berketa who will liaise with the Australian Orthopaedic Association to "piggy back" dental implants onto their registry.
- f. International Dental Organisations: through Dr. Richard Sawers, ICD Regent Sec VIII and PFA Trustee. ICD meets in Auckland NZ in Aug 2015 and PFA meets in Washington DC Nov 2015.

I take the opportunity of thanking Supt. Bruce James-Martin for being so supportive and proactive in this project. I also thank Sir Angus Houston for his enthusiasm. The Hon. Julie Bishop has always been a skilled politician of international standing, her guidance is flawless.

For the "young guns" of dentistry, please keep going with ideas and try and mentor those around you. Please keep The University of Adelaide and the Dental School uppermost in your

minds - The Medical Health Sciences Building (\$256m) has opened for Medicine (24 February 2017) and Dental School opens 1st July 2017.

The only building in Australasia with Medical School, Dental School and Nursing School co-located. The University of Adelaide is proud of the achievement (Figure 2).



**Figure 2:** The Medical Health Sciences Building, The University of Adelaide, Adelaide, South Australia AUSTRALIA



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