

DEVELOPMENT OF THE AUSTRALIAN SOCIETY OF FORENSIC ODONTOLOGY DISASTER VICTIM IDENTIFICATION FORENSIC ODONTOLOGY GUIDE

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ABSTRACT

The need for documented procedures and protocols are important in every specialist group to ensure a consistent service to the community. They provide guidance to members of the specialist group about responsibilities and appropriate practices, and confidence to the community that the services are of the highest possible standard. In a Disaster Victim Identification (DVI) incident, by enabling the process to be audited, they also serve to ensure that identifications are reliable.¹

Following the Bali Bombings of 2002 and the 2004 Asian Tsunami the Australian Society of Forensic Odontology recognised the need for a practice guide to assist the management of their members in DVI incidents. 31 members of the Australian Society of Forensic Odontology participated in the development of a guideline document for Disaster Victim Identification using a Delphi based model.

The advantage of using the iterative Delphi process is that it encouraged participants to think about the processes used in the forensic odontology aspects of a DVI incident and their expectations of a guiding document.

The document developed as a result of this project is comprehensive in coverage and places the Australian Society of Forensic Odontology at the vanguard of professionalism in the forensic odontology and DVI community.

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INTRODUCTION

Society accepts that each and every person has an identity, and would in fact cease to function if this were not the case. This concept is enshrined in the United Nations Universal Declaration of Human

Rights² where Article 6 states “*Everyone has the right to recognition everywhere as a person before the law*”. The need for this identity is also paramount after the death of the individual and represents a basic human right.³⁻⁵ It is well accepted within the forensic community that to have identification of the deceased carried out with dignity and respect requires the establishment of practical guidelines and provision of technical support.⁶⁻¹⁰

The only truly international guidelines that currently exist for Disaster Victim Identification (DVI) are those published by Interpol.¹¹ These guidelines contain overarching principles for the management of a mass fatality incident, and provide forms for the collation of all relevant ante- and post-mortem data, but they do not direct specific operating procedures for each of the activities of the response. In 2004 the International Organisation of Forensic Odonto-Stomatology (IOFOS) did attempt to compile and promulgate guidelines for identification practices using forensic odontology, but these are yet to receive international agreement and acceptance.¹²⁻¹³

The difficulty of both developing and obtaining agreement for international guidelines were discussed by Vermeylen.¹⁴ He concluded that any international guidelines can only be broadly descriptive and outline general principles that should apply to the management of the incident response and to the successful and timely identification of the deceased. It is thus imperative for local jurisdictions and disciplines to develop procedures and protocols directly relevant to their own laws and conditions. It would be expected that these would be based on the

principles outlined in the international guides.

To this end many police jurisdictions have developed DVI manuals including, but not limited to, the US Department of Justice (NIJ), the Royal Canadian Mounted Police (RCMP), Association of Chief Police Officers of England, Wales and Northern Ireland, the Australasian Disaster Victim Identification Committee (ADVIC) and the Disaster Mortuary Operational Response Team (DMORT).¹⁵⁻²⁰

In addition, some groups have developed protocols and procedures specific to forensic odontology, including the American Board of Forensic Odontology²¹ and the British Association of Forensic Odontology.²² Many authors have documented the necessary contents of such documents which included membership criteria, chain of command, team notification details, standardised methods of charting, and supply and payment issues among others.²³⁻²⁶

Brannon and Kessler,²⁷ and Nuzzolese and Di Vella¹⁰ have reinforced the difficulties that are regularly encountered in the management of multiple fatality incidents. They cited: condition of the human remains mentioning in particular fragmentation, co-mingling and incineration; determination of a potential victim list; collection of reliable ante-mortem information; legal and political issues both of the jurisdiction involved and as part of the overall organisational structure; documentation and communication; experience of workers and the application of universal human forensic identification codes. Stressing the importance of planning and coordination in the successful management of a multiple fatality incident, they commented that well constructed and precise guidelines can contribute to the amelioration of regularly experienced complications.

Subsequent to participation in the DVI processes after the 2002 Bali Bombings and the 2004 Asian Tsunami the Australian Society of Forensic Odontology determined that it would be well served by the development of an overarching and consistent set of operating principles that could be adopted nationally and used when assistance of AuSFO members was requested internationally.

This paper will discuss the techniques used to develop the Australian Society of Forensic Odontology Disaster Victim Identification Forensic Odontology Guide.

MATERIALS AND METHODS

Initially, the author prepared a draft guideline document using the Interpol Guide to Disaster Victim Identification,¹¹ various Australian state procedures,^{28, 29} the ABFO Body Identification Guidelines,²¹ the IOFOS guides for single and disaster identification^{12, 13} as directive documents, combined with 20 years personal experience as a practicing forensic odontologist. This draft guideline was edited once by a group of senior Australian forensic odontologists, each with considerable experience in DVI. This provided the first draft of the document which was distributed to participants in the research.

The original document was divided into 16 sections. The first 6 sections could be defined as the preamble and included an introduction, a brief summary of AuSFO, the mission statement, a description of the scope of the document, terms and definitions, and current AuSFO representation on DVI related Committees. The 'role organisation and management' section addressed the structure of an odontology team in a DVI incident and interactions with other stakeholders while the 'personnel' section defined qualifications and experience necessary to participate in national and international incidents and to assume certain roles of responsibility within the DVI team. 'Documentation' related to the keeping of a register of suitable qualified and available personnel. The 'procedures' section was essentially a duty statement for each of the roles and 'competencies/responsibilities' looked at the tasks that needed to be completed by each of these roles. The final sections covered equipment, mainly who and how it would be provided; training, both prior and on-going, and how complaints and review processes would be managed. Section 16 provided the appendices that included progress logs for procedures, recommended standards for acceptance of identification, templates for standard forms, the equipment list, annual review of proficiency and recommended remuneration levels.

All members of the Australian Society of Forensic Odontology (AuSFO) who were resident in Australia were invited to participate in the project, under ethics approval from the University of Newcastle, Australia. As the final document would only apply to forensic odontologists deployed within or from Australia it was considered inappropriate to invite members not resident in Australia to contribute to the development, as application and implementation of the document would not apply to them. At the commencement of the project (September 2005) the study group comprised 41 members. Members not resident in Australia (3 in number) and 2 forensic odontologists known to the researcher and not members of the AuSFO were invited to participate in validating the first round questionnaire prior to the initial mail out to Australian members.

In addition, DVI Police Commanders from each state and territory in Australia, the Australian Federal Police and an individual from the private disaster management sector (11 in total) were invited to participate in Round 1 only. The rationale behind the inclusion of this group was that as members of the AuSFO work under the command of police jurisdictions during DVI incidents, any obvious shortcomings, inconsistencies or discrepancies evident to these stakeholders needed to be identified. Disaster Victim Identification work also requires considerable collaboration and cooperation between members of the various specialist disciplines, including the police, and an appreciation by them of the goal and principles of forensic odontology in a DVI incident could only be of benefit. It was stressed to both first round groups of participants that the opinions of this second group may not necessarily lead to change in the opinions of AuSFO members or the content of the document.

The Delphi technique³⁰ is one of a number of formal methods used for obtaining consensus from groups of individuals or experts, and was selected as the most appropriate tool for use in this project for a number of reasons. The ability to incorporate a large sample size while not requiring the group to meet was a distinct advantage for AuSFO which has members across all states and territories of Australia. All interactions were completed

via written questionnaire, and the comments expressed by each respondent were provided as feedback to all in subsequent rounds to encourage further deliberation and consideration. The anonymity of these responses allowed people free reign which may have been removed in face to face setting. The number of rounds required to achieve consensus, or acknowledge that the point beyond which benefits are negligible, is not predetermined, enabling as much discussion about an issue as the group feel appropriate or necessary.

The iterative nature of the methodology is said to produce more robust levels of consensus. The Delphi technique has been recommended as a tool for the development of treatment protocols and best practice guidelines.³¹

The process involved preparation of an initial questionnaire based around the draft guidelines. The first round of the survey also required participants to nominate the level of consensus for the project. The range of responses, and comments provided by participants were summarised, and areas of the draft practice guide that failed to achieve consensus were reviewed and edited according to the comments made. The summary of responses and comments and the revised draft practice guide were distributed with the Round 2 questionnaire. Subsequent rounds (4 rounds in total) followed a similar format.

At the completion of the four rounds of the Delphi survey, a final version of the document was prepared and forwarded to the executive of the AuSFO for ratification as required by the constitution of AuSFO. All members of the AuSFO, including those who had participated in the project and those who had not, were eligible to vote. Ratification was conducted by electronic voting in accordance with the rules of the constitution of AuSFO.

RESULTS

Thirty seven members of the AuSFO responded to the invitation to participate, which was 90 percent of the eligible membership and 84% of the total membership of the AuSFO. Four members did not reply to the invitation. Of those who responded 6 members declined

to be involved. This resulted in 31 participants at the beginning of the project. Two members withdrew from the project during the course of the research. Including members who participated in the validation of the first round questionnaire, and the researcher who did not answer questionnaires but was nonetheless an active participant, 79% of the membership of the AuSFO contributed to the final document.

The personal details survey revealed that 24 (77%) respondents were male and seven (23%) female. The age range of respondents is presented in Figure 1.

Twenty six (84%) of the respondents indicated their experience in forensic odontology. The range of years of experience working as a forensic odontologist was from 1 to 50 years, and is presented in Figure 2. Collective experience of the participants totalled approximately 400 years. Eighteen (58%) of the respondents had graduate qualifications in forensic odontology, and 13 (42%) did not. Five (16%) respondents had received these qualifications in the last 5 years, 3 (10%) in the last 10 years and 10 (32%) more than 10 years ago. The least time since graduate qualification was 1 year and the greatest 29 years. Twenty-nine (94%) of the respondents had DVI experience, while 2 (6%) did not. Twenty-five people (81%) had previously been deployed internationally and 6 (19%) had not.

The first round of the survey saw the consensus level being set at 80 percent. At the completion Round 1 only two of the 16 sections of the document achieved consensus regarding the contents. These two sections were in the introduction section of the document. By the end of Round 2 it became apparent that for a number of issues, particularly the call out activation mechanism; detailed standard operating procedures and responsibilities; training; and continuing professional development, it was going to be extremely difficult to achieve this high level of agreement. Consequently, at an annual meeting of AuSFO the participants requested that the consensus level be reduced to 66 percent, which enabled considerable progress to be made.

The four rounds of the survey generated considerable comment from participants. In total 955 comments were made over the 4 rounds, 30 comments by police respondents and 925 by AuSFO members. The distribution of these comments over the rounds is seen in Figure 3.

As can be seen the areas of Personnel which incorporated the call out mechanism, Standards Operating Procedures and Remuneration generated the most comment.

At the end of Round 4 the document had undergone considerable modification but all sections achieved agreement from the participants. The levels of consensus achieved over each of the four rounds are presented in Table 1. As multiple questions were asked about each section and the questions differed in each round some of these results represent the lowest level of agreement for each section. Some sections (Training in Round 2, and Requests for assistance and Code of Conduct in Rounds 1-3) did not appear in each round of the survey. This final document was then accepted by the membership of AuSFO as a formal, and thus binding, document of the society.

DISCUSSION

Identification of the deceased is not only a legal necessity, but also a human right and dignity that society has a duty to preserve. It is imperative that those tasked with identifying the deceased do so with respect and professionalism. Overarching guiding principles and documented procedures are one mechanism to ensure this humanity is always delivered.

Prior to this project the Australian Society of Forensic Odontology did not have a reference document to assist in the management of responses to DVI incidents, either national or international. Previous responses ran the risk of being *ad hoc*, exclusive of some members and inconsistent with respect to procedures and practices.

Thirty one members of the Australian Society of Forensic Odontology participated in the project. This group had considerable forensic experience and knowledge of the DVI process with 58%

having completed formal graduate training in forensic odontology, 94% having had DVI experience and 81% having been deployed internationally. One aspect worthy of discussion is that of the age and experience of members of AuSFO. Sixty one percent of the respondents in this study (Fig.1) were aged over 50 years of age. Pretty, Webb & Sweet³² reported a similar distribution in a survey of experienced odontologists and commented that major recruiting for younger practitioners was needed to address this skew in age toward older practitioners. While experience is a benefit in DVI and forensic odontology generally, all countries need to find a way of encouraging younger dentists to become interested in the field. A majority of male practitioners was also seen in both studies, with 89% of the Pretty, Webb and Sweet sample and 77.5% of this cohort being male.

The strengths of the Delphi technique proved beneficial for the development of the Australian Society of Forensic Odontology Disaster Victim Identification Forensic Odontology Guide. A large number of the members of AuSFO (84%) participated in the project, which is undoubtedly more than would have been able to attend a face to face meeting or meetings. Additionally, it was highly unlikely that all the discussion and consideration generated by the Delphi process would have been possible in one or even more face to face meetings as evidenced by 955 well considered comments generated over the process. The content of some of these comments also supported that participants felt comfortable with the format and were not intimidated as can occur in face to face meetings. This reinforces that all members of the group were able to make a contribution. That consensus was ultimately achieved supports the use of the Delphi technique as it enables reflection and offers the ability to change an opinion without embarrassment.

The level of support for the project also indicated that the participants felt a level of ownership of both the project and the final practice guide. This can only be of benefit for AuSFO as a guiding document that has been developed by the majority of the membership will be likely to be respected

and the principles abided by when the document is put to use.

Considerable modifications were made to the original document during the progress of the project. The resultant document entitled 'Disaster Victim Identification Forensic Odontology Guide' and copyrighted to the Australian Society of Forensic Odontology, included a preamble addressing the use and scope of the document which remained largely unchanged from the original. The 'role, organisation and management, and 'personnel' sections were similarly unchanged. The 'documentation' section became 'deployment register' and two sections; 'requests for odontology assistance' and 'code of conduct' were added. The 'procedures' and 'competencies/responsibilities' sections were considerably redrafted and enhanced to become 'responsibilities' and 'recommended standard operating procedures' these being much more descriptive and applicable than the original versions. The final sections, although refined, were also largely unchanged apart from the equipment list and the recommended remuneration sections.

Brown³³ commented in 1988 that true professionalism in forensic odontology required "... *financial support by the government of every country to establish within their borders a central identification agency and procedures which are internationally compatible. Well organised protocols will not only expedite the identification process and improve morale of the personnel involved, but more importantly, will project an image of professionalism that will inspire the confidence of relatives of the deceased thus minimising their mental trauma and distress*". Importantly, the Australian Society of Forensic Odontology now has clear guidelines, and consequently the Australian community can be assured that should they require these services they will be delivered to the highest professional, scientific and ethical standards.

The value of these guidelines was evidenced by their use in the odontology response to the Victorian bushfires of February 2009. The application of the principles and practices contained in the guidelines enabled the Forensic

Odontology aspect of the DVI response to be well co-ordinated and the standard operating procedures provided a ready template for an operating structure to be

easily and rapidly developed. Future research should be directed at developing similar procedures and protocols for other areas of forensic odontology.

Table 1: Levels of consensus (as percentages) for each section for the four rounds: Delphi survey.

	Round 1	Round 2	Round 3	Round 4
Introduction	83	83	93	94
AuSFO	69	88	93	100
Mission Statement	66	88	93	100
Scope	83	83	93	100
Terms & Definitions	72	72	78	100
AuSFO Representation	66	68	96	100
Role, Organ & Mngmnt	75	71	96	100
Personnel	60	71	96	100
Document/Deploy Reg	76	76	86	100
Requests for assist	-	-	-	100
Code of Conduct	-	-	-	100
Procedures/Responsibilites	62	54	85	100
Competencies/SOP's	69	39	93	97
Equipment	69	96	86	88
Training	79	-	93	94
Complaints	55	60	89	100
Review	57	58	96	100
Remuneration	50	40	93	94

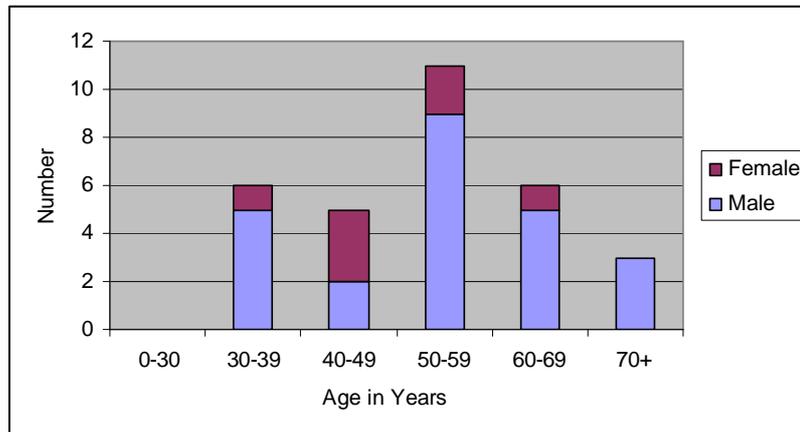


Fig. 1 Age range of respondents.

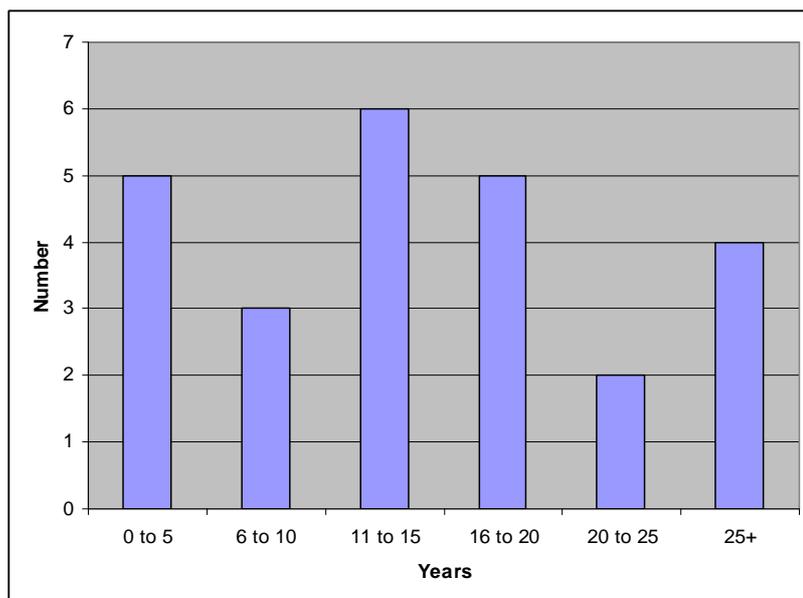


Fig. 2: Distribution of years of experience in Forensic Odontology.

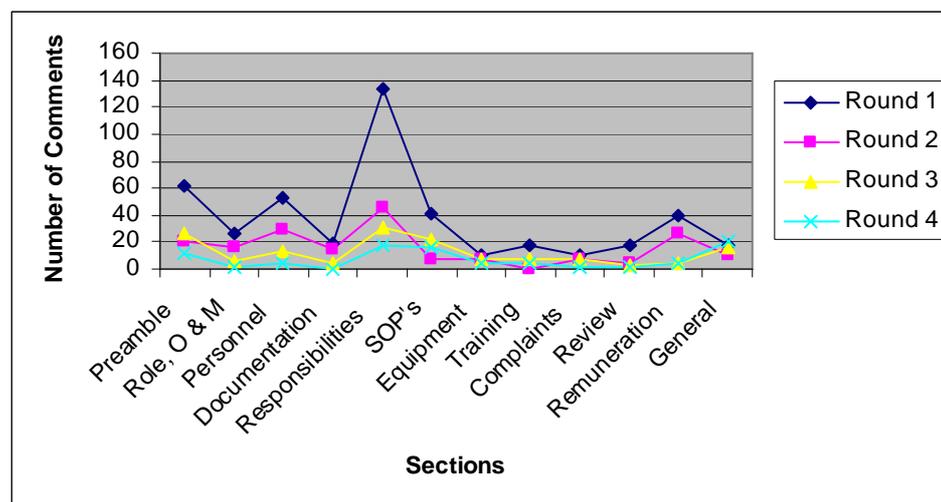


Fig. 3: Comments per section per round for the four rounds: Delphi survey.

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