



Original Research

Importance of dental records for victim identification following the Indian Ocean tsunami disaster in Thailand

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Summary Objectives: To determine the usefulness of dental records for victim identification following the Indian Ocean tsunami disaster in Thailand, and to evaluate the dental identification system in Thailand, the homeland of a large number of the victims.

Study design: A descriptive study conducted at the Thai Tsunami Repatriation Centre in Phangnga Province one year after the tsunami hit Thailand on the 26th December 2004.

Methods: The dental records of 3750 dead bodies and 3547 missing persons in the Thai Tsunami Victim Identification (TTVI) database, updated on 12th December 2005, were analysed.

Results: The identification rate of missing persons with dental records was significantly higher than that of those without ($P < 0.01$). Most victims identified by dental records were returned home within the first four months after the disaster. Dental records were the primary identifier in 46.2% of those identified. However, among the Thai citizens reported missing, only 2.0% used dental identification, 18.1% had dental charts and 0.8% had dental X-rays. In addition, only 7.4% of Thai dental records could be used for dental identification and one-third of Thai victims remained the majority of those unidentified.

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Conclusions: Based on this study, the usefulness of dental records for victim identification in a disaster was confirmed. The dental identification system for nationals of Thailand could not work efficiently due to lack of dental records and insufficient recorded detail.

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Introduction

The Indian Ocean earthquake and resultant tsunami of 26th December 2004 killed more than 200 000 people in 12 countries around the Indian Ocean.¹ In southern Thailand, six provinces along the Andaman coast were hit and 5395 people were killed.² The most devastated area was Khao-Lak, a renowned tourist area on the west coast of Phangnga Province, where 96 resorts were destroyed,³ resulting in the death of 4225 people, half of whom were foreigners. Approximately 1600 bodies were released by the local authorities in the first period before a formal identification system was set up; their identifications were made by visual recognition of family members and by physical appearance under the various protocols of several contributors who self-reported to the site in the early chaotic situation.

On 12th January 2005, the Thailand Tsunami Victim Identification (TTVI) operation was formally established by the Thai government to integrate operations into a single process using the International Police Organization (Interpol) guidelines for mass fatality incidents. Nearly 2000 personnel from 31 countries contributed their expertise and skill to this operation,⁴ resulting in the identification of 2894 victims within one year. Dental identification was reported to be the most useful method in this disaster,⁵⁻⁷ especially in the case of victims from Europe and North America.

The success of the dental identification of foreign victims has created challenges in forensic identification in Thailand. Prior to the tsunami disaster, forensic dentistry in Thailand had played only a minor role in the forensic sciences and no national standards or guidelines had been established.⁷ Although dental records are commonly used to identify unknown persons and victims recovered from mass disasters in other countries,⁸ they are used significantly less in Thailand and their study is still inadequate. As the local team at the Thai Tsunami Repatriation Centre in Phangnga, the authors aimed to determine the usefulness of dental records for victim identification and to evaluate the performance of the dental identifica-

tion system in Thailand following the Indian Ocean tsunami disaster.

Methods

Dead bodies

Dental evidence from the recovered bodies was examined by forensic dentists from over 20 countries⁵ and 520 dentists throughout Thailand.⁹ Initially, the international teams were restricted to processing the bodies presumed to be foreigners after being so classified by the Thai authorities. The Thai team examined the bodies of those presumed to be Thai.⁶ All data were recorded in a single database and then assessed. Finally, after quality control assessment, those bodies with incomplete or unclear photographs or X-rays were referred for re-examination.

Missing persons

The dental records of foreign missing persons were collected by the police agencies of their home countries, coordinated by Interpol.⁵ In the case of Thai victims, their families were asked to collect dental records from clinics or hospitals and send them to TTVI. Phangnga provincial dental personnel contacted the victims' families directly to locate dental records available in their areas. At the same time, the Thai Dental Council distributed lists of the missing to all dental facilities and requested them to submit the appropriate records back if any of their patients were on the list. All dental data for the missing persons were entered into the same database as that for dead bodies.

Dental identification process

Thailand used the Disaster Victim Identification (DVI) System International Software to assist in the identification process. The software is based on the Interpol DVI antemortem and postmortem forms. The antemortem form is yellow and records the most current known data concerning a missing

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