H40 The Sixth Biggest Earthquake in the World: The Working Strategy of a Forensic Identification Team Among Chaos

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After attending this presentation, attendees will understand the organization of the identification team and their importance during the 8.8 earthquake and tsunami that affected the coast of Constitucion City, Chile, on February 27, 2010.

This presentation will impact the forensic science community by indicating that identification processes were successful in this huge mass disaster event.

On February 27, 2010, Chile was affected by the sixth biggest earthquake in human history. The 8.8mww (per the United States Geological Survey (USGS)) had a duration of 3 minutes and 45 seconds and was felt by nearly the whole country. After the earthquake, three tsunamis hit the Chilean coast and created more damage in Constitucion City, Concepcion, and Talcahuano.

The city with the most deceased as a result of this natural disaster was Constitucion. Constitucion is a city in the central south coast of Chile, 359 kilometers south of Santiago (Capital City); they have an urban population of 37,000. At the moment of the mass disaster, Constitucion had a local medical examiner's office (the SML) and a local office of national registration ID office (the RCI). The nearest police forensic laboratory was Laboratorio Carmelo Garcia (LABOCAR) located 111 kilometers away in Talca City.

Immediately after the disaster, all utilities (water, electricity, and gas) and communications were lost with some damage to freeways and highways. The chiefs of the SML, RCI, and LABOCAR created an ad hoc protocol to work collaboratively and create a temporary morgue in the Municipal gymnasium where the SML and LABOCAR received, analyzed, and identified all the victims' bodies.

The main goal for SML and LABOCAR was to examine the bodies and verify if they had injuries related to the event, complete the antemortem International Criminal Police Organization (INTERPOL) form, fingerprint all victims, and attempt preliminary identification with the relatives of the victims. The goal for RCI was to confirm the identity using the preliminary identification and the fingerprints of the victims.

The identification process was divided into three steps: (1) Step 1 — Although a large victim pool, identification was achieved with relative ease using fingerprints and visual identification by next of kin; this step was completed three days after the earthquake; (2) Step 2 — Identification was more difficult due to decomposition, which was observed in nearly all bodies; this step was complete six days after the earthquake; and, (3) Step 3 — Identification using visual appearance or fingerprints was not possible due to decomposition. The only techniques useful for identification were DNA and forensic odontology; this stage was completed 33 days after the earthquake.

During the work on this mass disaster in Constitucion City, the identification team received 94 decedents between February 27 and March 31, 2010. Of the total victims, 51 were female and 43 were male; the ages of the victims were between 0 and 89 years. The cause of death in the victims was crushing, suffocation, drowning, heart attack, polytrauma, and cranial polytrauma.

This collaborative effort resulted in the positive identification of 100% of the victims. The visual and fingerprint identification process was successful in 89 cases. In the other five cases, the identification was confirmed by forensic odontology and reconfirmed with DNA.

This study is significant for several reasons. Understanding the importance of teamwork in the successful victim mass fatality identification process, in difficult/challenging working conditions, along with strategies to work with other agencies is essential. This event is an example of effective interagency collaboration in an emergency situation (without a pre-existing protocol).

Earthquake, Tsunami, Disaster Victim Identification

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