



G33 The Contribution of a Digital Fingerprint Protocol to the Medicolegal and Mass Fatality Contexts

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The goal of this presentation is to provide attendees with an example of the benefit of incorporating a digital fingerprinting system into the medicolegal and mass fatality procedures.

The presentation will impact the forensic community by providing data in support of the perceived advantages of the application of digital fingerprint technology in the medicolegal setting. The data presented are extracted from a large medicolegal jurisdiction that acquires the vast majority of its scientific identifications from fingerprint comparison as opposed to other methodologies.

The process of identifying or confirming the identity of the dead is both a core component and a frequent bottleneck in the medicolegal process. This is particularly the case in the mass fatality context, during which the frequent disparity between the time required for scientific identification and the time an average case requires to progress through the disaster morgue can compromise the efficiency of the disaster morgue process. The Harris County Institute of Forensic Sciences (HCIFS) processes approximately 4,000 cases per year, about 800 of which require confirmation of identification. Greater than 90% of these decedents are currently identified using fingerprint comparison, primarily because it is the most efficient and cost-effective option. However, traditional paper and ink fingerprint collection at the IFS required coordination between multiple departments, and considerable hours spent managing the transfer and translation of data. The process regularly takes longer than the remainder of the morgue process from check-in to completion of the autopsy. The HCIFS transitioned to a digital fingerprint process in 2010. The end result has been a significant impact on the time required to identify decedents.

An important distinction is the difference between the turnaround time of the fingerprint identification itself, hereafter referred to as Print Turnaround, and the overall identification (ID) process, hereafter referred to as ID Turnaround (which also includes entry of the fingerprint results into the HCIFS database). Since 2010 was the year that digital fingerprints were made part of the morgue standard operating procedure, the comparative sample was composed of a pre-conversion group represented by cases from 2009 (200 cases) and a post-conversion group represented by cases from 2011 (229 cases). In an analysis of the daily HCIFS caseloads before and after the conversion, it was noted that the conversion to digital fingerprint technology drastically reduced both Print Turnaround and ID Turnaround. This presentation will illustrate the benefits of digital fingerprint technology on the HCIFS daily caseload and on mass fatality incident response.

The median Print Turnaround prior to conversion to digital fingerprints was approximately one-and-a-half hours, with 35% of cases requiring more than two hours, and 18% of cases requiring more than four hours. The median Print Turnaround time following conversion is approximately ten minutes with 94% requiring less than two hours and 89% requiring less than one hour. An additional advantage of the conversion is significant reduction in labor and materials associated with ID. The post-conversion Median ID turnaround for the daily HCIFS caseload is 13 hours as compared to 23 hours pre-conversion. This process involves entry and reconciliation of the fingerprint results for each case into the HCIFS case management system.

The implication of the transition to a digital fingerprint system is that in a mass fatality event with the same demographics as the Harris County population, approximately 90% of the decedents resulting from a Mass Fatality Incident (MFI) can be positively identified via fingerprints before the end of the disaster morgue process, if: (1) prints are taken early during the disaster morgue flow; and, (2) the ID Turnaround is reduced via the disaster morgue operating procedures. This finding has prompted rearrangement of the disaster morgue scheme in the HCIFS Mass Fatality Plan to: (1) place the fingerprint station much earlier in the disaster morgue process; and, (2) to task the Disaster Morgue Data Entry Team with management and rapid entry of fingerprint results. The result is a significant reduction in the separation between Print Turnaround and ID Turnaround, which translates into a substantial boost to the efficiency of the overall disaster morgue process.

Digital Fingerprint, Mass Fatality, Disaster Morgue