



## Physical Anthropology Section – 2007

### H50 Percentage of Body Recovered and its Effect on Identification Rates and Cause/Manner of Death Determination

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After attending this presentation, attendees will better understand the relationship between the percentage of remains recovered and the ability of investigators to identify the remains and determine cause and manner of death.

This presentation will impact the forensic community and/or humanity by describing and quantifying previously unreported correlations between variables of interest to investigators and providing data for comparing identification rates in individual case work and mass death scenarios.

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Forensic anthropologists frequently encounter cases in which only partial or fragmentary remains are recovered. Intuitively, investigators would predict that the greater the proportion of a decedent's body that is recovered, the greater the probability that the individual will be positively identified and that the cause and manner of death can be determined. This study reports how the percentage of remains recovered affects rates of positive identification and cause and manner of death determination.

This study examined a total of 773 cases involving decomposed and skeletal remains analyzed by forensic anthropologists at the New Mexico Office of the Medical Investigator (OMI) from 1974 to 2006. All individuals were initially unidentified. The percentage of remains recovered was scored as follows: complete; 76 to 99% present; 51 to 75% present; 26 to 50% present; < 25% present; or represented by a single skeletal element. The presence or absence of the skull (complete or partial) was also noted. The cause, manner, and identification status of each case was recorded.

Results indicate significant correlations between the percentage of the body recovered and the rate of positive identification. The ID rate for all cases (n=773) was 77%. ID rates were highest (89%) when complete bodies were recovered (n=221), 81% when 50% or more of the body was found (n=483), but only 56% were identified when less than 50% of the remains were present (n=193). In cases where no portion of the skull was recovered (n=66), the ID rate was 61%. It is interesting to note that the introduction of DNA testing to establish ID (circa 1996) had little effect on ID rates. ID rates for all cases pre-1996 (n=520) was 76%, while 79% of the 252 post-1996 cases were positively identified.

Similar patterns were seen in the relationship between the body percent recovered and cause/manner determination. In the total sample, the cause of death could be determined in 66% of cases, while the manner was determined in 62% of all cases. Rates were again highest in complete bodies (83% cause, 79% manner). When more than 50% of the body was recovered, rates were 71% and 68% for cause and manner, respectively. Rates dropped to 40% for both cause and manner when less than half of the body was recovered, as well as when no skull was present.

These findings were compared to data drawn from typical autopsy and death investigation cases (approx. 4,100 – 5,000 cases per year) from the New Mexico medical examiner's office. The office maintains a positive identification rate of 94 to 96%. Cause of death is determined in 98.5 to 99% of all cases, while manner is ruled 96 to 98% of all deaths investigated. Manner of death distributions were dramatically different between typical autopsy cases and the anthropology consult cases. For example, homicides account for 4% of typical cases but 27% of anthropology cases.

The results of this study were also compared to prior published reports on anthropological consult cases. Identification rates for skeletal remains in the current study were significantly higher than those reported by Marks (W.M. Bass and the Development of Forensic Anthropology in Tennessee. *JFS* 40(5): 741-750, 1995) for US anthropologists (25 – 30%) and William Bass (50%). Cases in this study had higher percentages of remains recovered and greater evidence of trauma than those reported in a summary of FBI consults from 1962 to 1994 (Grisbaum and Ubelaker, *Smithsonian Contributions to Anthropology* #45, 2001).

These findings are of interest to anthropologists working on individual casework, as well as those tasked with recovery and identification in mass death scenarios. The results also argue for the participation of anthropologists in body recovery whenever necessary to maximize recovery rates.



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Forensic Anthropology, Positive Identification, Cause and Manner of Death