H49 A Multidisciplinary Test of the Lamendin Age Estimation Method

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After attending this presentation, attendees will be informed of the results of the first multidisciplinary test of the Lamendin age estimation method which has been described as "simple," "fast," and "easy to use" by its developer.

This presentation will impact the forensic community by providing insight into the utility of this purportedly simple method at scenes that require forensic identification. Such scenes could be in a classic morgue situation or in a large temporary facility functioning as a mass disaster response.

This presentation will summarize a study funded by the National Institute of Justice in 2006-2007 designed to test the Lamendin (1992) age estimation technique. This method puts to use single-rooted teeth to determine age at death. Lamendin and his co-authors described their technique as "simple," "fast, easy to use, and reasonably accurate" (1992: 1373). It appears to be an attractive method for predicting age at death, especially in rapid-response morgue situations, since it requires very little technology and calls for little to no damage to the unidentified human remains.

Lamendin *et al*.'s original research, as well as others' later follow- up studies, explored interobserver error and came to different conclusions. Lamendin *et al.* (1992) concluded that interobserver error was not significant, yet Prince and Ubelaker (2002) discovered that the experience of the observer can indeed affect the age assessments. Using 40 and 30 teeth respectively, Prince and Ubelaker (2002) discovered that the intra-observer test showed a mean error of 6.5 years. The interobserver test included three participants, one with some experience with the technique (profession not specified) and two without any prior exposure to the method (graduate students). There was a difference between the experienced and non-experienced results, with a maximum mean error of 13 years, and a maximum range of 0 to 37 years reported. These results indicated that the "features described on some teeth are subject to varied interpretation and this can lead to variable age estimates" (2002:116). The Prince and Ubelaker study demonstrated that there may be some difficulty practicing the method for the first time, thus experience may have an impact on results and overall accuracy.

More recently, the Lamendin method has been used in combination with other age estimation methods (Martille 2005), and has shown effectiveness for the age group between 40 and 60 years (ibid). This is notable since other methods, such as those involving the pubic symphysis or the sternal end of the fourth rib, are more applicable to younger individuals. In addition, practitioners have suggested refinements to the method to obtain more accurate results, either by adding a new dimension to measure (Prince and Ubelaker 2002) or by devising new formulae for specific single-rooted teeth (Prince and Ubelaker 2002; Sarajlic 2005).

This project differs from any done to date since it included more observers (five) and a larger tooth sample (over 150 teeth rather than a small subsample). In addition, the observers in this study differed from prior studies since they were four practicing professionals from different fields in the medico-legal community – anthropologist, pathologist, odontologist, and death investigator – as well as one forensic science master's level graduate student. Furthermore, qualitative data were gathered along with the required quantitative data. This qualitative data assisted in the understanding of discrepancies between observers and the reason for them. No prior studies make mention of collection of such data from participants.

The preliminary results suggest that the Lamendin technique has its strengths and weaknesses with users from various disciplines. Qualitative data revealed that periodontosis proved to be the most ephemeral variable to be measured. It was described as "difficult to see" or "visualize" in numerous specimens measured in this study. Quantitative data suggest that differences exist between observers (mean error of 7.9 years), and that observers had consistent difficult correctly estimating the age of younger adults, such as those in their late teens and twenties. However, this method appears to be useful and helpful between differently-trained practitioners. This would certainly be the case in a mass disaster situation when general triaging by age categories was an initial goal in the identification process.

Given these results, the application of the Lamendin method to mass disasters with high numbers of unidentified victims may be recommended. The lack of damage done to remains, the rapidity of the data collection, the minimal equipment requirements, and the simplicity of training multiple individuals to use the method make it ideal for triaging and processing of remains.

Lamendin Age Estimation Method, Mass Disaster, Forensic Identification

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