



F24 Technological Advances in Forensic Odontology

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The goal of this presentation is to enhance the performance of the postmortem odontological investigation.

This presentation will impact the forensic science community by improving the equipment standards resulting in a swifter and safer forensic odontology investigation.

DMORT teams that exist in the United States are an exception that has no real counterpart in other parts of the world. In many countries the disaster victim identification organization is put together *ad hoc* when the fatal event occurs. Among the disciplines involved in the identification effort, the forensic odontology seems to have the least official affiliation in spite of its fundamental contributions to the establishing of identity. Subsequently, there's often little involvement of the proper agencies in the developing and modernization of the equipment and facilities to suit and enhance the forensic odontologists' working environment. That is ultimately left to the individual forensic odontologist with whatever means that are available, presenting financial problems as the forensic odontology quite often is a sideline occupation for dental professionals in academia or in private or community practice. Since their services are required infrequently it has not been possible to consistently develop the technology needed in the identification work, especially when large efforts are necessary in cases of mass disasters. The odontological identification work requires quite a lot of instrumentation, including x-ray machines as well as the radiographic reception media and very good illumination. All these devices have been traditionally gathered and/or built by the forensic odontologist, comprising among other things "home-made" portable x-ray machines on tripods, which would fall and break all too easily, portable "dark-rooms" for developing analogue radiographs, headlamps, and flashlights. All these things were heavy, cumbersome, and generally difficult to haul around as well as unreliable.

During the last decade the technology of the forensic odontology has gone through a dramatic progress diminishing the amount of equipment that has to be moved by about 75% in volume as well as in weight. Since the combined international effort in identification of the December 26, 2004 Bengal Bay Tsunami victims, there has been a swift innovation in the field of the forensic odontology.

The portable x-ray machine has become a handheld device that works on batteries. Also, replacing the analogue radiographs with digital radiography has reduced both the time needed for obtaining good quality radiographs as well as the quantity of machinery. A battery operated intraoral lamp that can be placed inside the oral cavity will provide bright lighting. Another common feature of these devices is that they can run on batteries for several hours making the forensic odontologist independent of external power supplies for at least a working day at a time. There is however, the drawback of the costs of these devices prohibiting many of the forensic odontologists from acquiring them. Neither the policemen nor the pathologists have to pay for their own equipment.

Conclusion: In order to improve the ability of the forensic odontologists to carry out their part of the identification process the concerned national authorities should be encouraged to obtain the modern equipment needed. Another advantage would be that compatible pieces of equipment can be assembled.

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