

# JCHS

Journal of Clinical and Health Sciences

#2  
2026

**SUPPLEMENTARY ISSUE**

## Abstracts from Pre-Clinical Elective Presentation and Innovation 2025

Issue September 2026 | Volume 11 Issue 2 (Supplementary)  
eISSN 0127-984x  
[jchs-medicine.uitm.edu.my](http://jchs-medicine.uitm.edu.my)



UNIVERSITI  
TEKNOLOGI  
MARA

## GROUP 43

### Bones Don't Lie: Development of Visual Learning Tools for Forensic Anthropology Education

Nur Edlynna Rania Azman<sup>1</sup>, Muhammad Ilham Muhkreez Pauzi<sup>1</sup>, Nurul Batrisyia Sorfina Ahmad Sufi<sup>1</sup>, Nur Suhaila Mohammad Shariff<sup>1</sup>, Sittiporn Ruengdit<sup>2</sup>, Muhammad Zaid Zainuddin<sup>3</sup>, Kunasilan Subramaniam<sup>4</sup> and Choy Ker Woon<sup>5</sup>

<sup>1</sup>Faculty of Medicine, University Teknologi MARA (UiTM) Sungai Buloh Campus, Selangor, Malaysia.

<sup>2</sup>Department of Forensic Medicine, Faculty of Medicine, Chiang Mai University, Thailand.

<sup>3</sup>Department of Anatomy, Faculty of Dentistry, University Teknologi MARA (UiTM) Sungai Buloh Campus, Selangor, Malaysia.

<sup>4</sup>Institusi Perubatan Forensik Negara, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

<sup>5</sup>Department of Anatomy, Faculty of Medicine, University Teknologi MARA (UiTM) Sungai Buloh Campus, Selangor, Malaysia.

Corresponding Author email: [choykerwoon@uitm.edu.my](mailto:choykerwoon@uitm.edu.my)

**Introduction:** Forensic anthropology plays a crucial role in the medico-legal system by evaluating skeletal remains to assist in identification and crime scene reconstruction. However, in regions like Malaysia, training is hindered by strict legal regulations, religious sensitivities, and a shortage of human skeletal collections. **Objective:** This project aimed to develop visual learning tools to strengthen forensic anthropology teaching and learning in resource-limited settings. **Methods:** Three sets of visual learning tools were developed. Firstly, standardized A4-sized 3D dioramas representing five local forensic scenarios, including sexual homicide, dismemberment, and blunt/sharp force trauma, were constructed to simulate realistic crime scenes. Second, to enable comparative analysis between animal and human bones, various animal bones were subjected to controlled maceration via simmering and diluted bleaching to evaluate defleshing efficiency while preserving structural integrity. Thirdly, non-skeletal materials mimicking bone anatomy specifically sea corals, wood/tree branches, and pebbles were collected to train learners in differentiating non-bone artifacts from actual human skeletal remains. **Results:** The 3D dioramas provided concrete spatial representations of body positioning, grave sites, and associated evidence for crime scene reconstruction training. Controlled bone maceration demonstrated that simmering (60–70°C) required fewer processing rounds for large specimens, whereas 2.5% diluted bleaching suited smaller bones, yielding processed animal specimens that clearly revealed morphological and density disparities when compared to human remains. Furthermore, collected non-skeletal materials mimicked anatomical bone structures, with corals resembling spongy bone, branches mirroring degraded long bones, and pebbles mimicking carpals, establishing visual benchmarks to train learners on ruling out non-bone artifacts. **Conclusion:** Combining standardized maceration protocols with 3D scenario-based dioramas offers an accessible, practical framework for forensic anthropology education. These cost-effective learning materials enhance interpretation skills and comparative analysis, bridging training gaps in resource-limited settings.