Utilizing Free DNA From Decomposed Cadaver to Facilitate MPS-Based Disaster Victim Identification in Tropical Climates

Wikanda Worrapitirungsi MSc[1,2], Pagparpat Varrathyarom MD[1,2], Kornkiat Vongpaisarnsin MD[1,2]
1. Center of Excellence for Forensic Genetics, Ratchadapiseksompotch Fund, Faculty of Medicine, Chulalongkorn University, Thailand
2. Department of Forensic Medicine, Faculty of Medicine, Chulalongkorn University, Thailand

Introduction: Tropical climates pose significant challenges to disaster victim identification (DVI) due to heat- and humidity-induced DNA degradation.
Methods: This study investigates the preservation of free DNA from decomposed cadavers for MPS-based DVI. Psoas muscle tissues were preserved in modified TENT and DNA/RNA Shield™ at 25°C and 35°C for 1, 2, and 3 months. Following silica-based purification (QIAquick®), free DNA was analyzed using the ForenSeq™ DNA Signature Prep Kit to assess its quality and completeness for MPS analysis.
Results: Coverage of Y-STRs, X-STRs, and identity SNP markers relevant to DVI was evaluated. The study confirms that DNA/RNA Shield™ is more effective than modified TENT in preserving free DNA integrity, allowing for higher STR allele detection over time. This finding aligns with previous research, emphasizing DNA/RNA Shield™'s superior performance in maintaining variant and marker detectability across various conditions.
Conclusion: This research explores the feasibility of utilizing free DNA as an alternative source for reliable MPS-based identification in challenging tropical conditions.

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Development of an Information System Application for French Medical Psychological Emergency Units to Manage Mental Health Support During Crisis Events ("Cellule d'Urgence Médico-Psychologique – CUMP")

Charles-Henry Martin MD[1,2], Amalia Voskanyan RN[3], Nathalie Prieto MD[4], Jean-MarcPhilippe MD[5], Gregory R Ciottone MD[3]
1. Mental Health Public Hospital Charles PERRENS, France
2. University Hospital of Bordeaux, France
3. Harvard Medical School, United States
4. "Hospices Civils" University Hospital, France
5. Health Crisis Center, French Ministry of Health, France

Introduction: Following a wave of terrorist bombings in the mid-1990s, France established Medical-Psychological Emergency Units (MPEUs - "Cellule d'Urgence Médico-Psychologique - CUMP"). These units aim to provide immediate mental health and psychosocial support to victims and emergency responders.

During the COVID-19 pandemic, the Bordeaux MPEU pioneered the use of cloud computing to coordinate real-time activities across 13 regional mental health units serving 6 million people.

Based on 30 years of disaster psychiatry expertise and national guidelines, this innovative

The approach was recognized by the government's Regional Health Agency, leading to the development of an information system application (ISA) specifically tailored to manage mental health and psychosocial support during crisis events.
Methods: The alpha version of the ISA for MPEU has been tested locally since the Paris 2024 Olympics. It is a multimedia app that offers various functionalities based on the user's profile. Volunteers are mobilized via the app on their smartphone, have real-time event tracking, and can record their clinical activity. For unit managers, it facilitates triggering the network, deploying resources, and coordinating real-time responses to the evolving crisis. For institutions, it enables monitoring of the ongoing crisis and adjusting responses.

The app, designed for major multi-site events, has been beta tested in full-scale disaster simulations in Bordeaux since October 2024. The simulations showed that the ISA system significantly improved the speed and accuracy of information dissemination among responders. The mental health research functions remain to be integrated and tested for the full version.
Results:
Schedule :
- End of 2024: full version for departmental level
- Early 2025: full deployment for regional version (Nouvelle Aquitaine, 6.3 M inhabitants). Data will be collected and reported in April 2025.

Conclusion: The ISA-MPEU improves the network's capacity to provide rapid and effective support in emergencies, while at the same time providing a research tool through its database of mental health responses.

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Level of Seal Across Advanced Airway Management Devices

Ricardo S. Pinto-Villalba MSc, René M. Abarca-Tenemasa Msc
Carrera de Atención Prehospitalaria y Emergencias, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Ecuador

Introduction: Appropriate seal of airway management devices is a crucial factor during ventilatory support in critically ill patients. The presence of a leak during ventilation is associated with worse patient outcomes. This study aims to evaluate the level of seal of advanced airway management devices during mechanical ventilation in a manikin model.
Methods: Advanced airway management devices, such as an orotracheal tube, a laryngeal mask 1st generation, a laryngeal tube, and an i-Gel, were placed in the manikin simulator Code Blue® III Adult with OMNI® (Gaumard). Ventilatory support was delivered through the Ventway Sparrow mechanical ventilator at predefined ventilatory settings across all devices for ten minutes.
Results: Ten device placements were conducted for each one. The manikin provided feedback on achieving the target volume set during ventilatory support across all evaluated devices. For the analysis, a total of 1200 ventilations in each device were

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