education, along with continued access to affordable and portable equipment, is essential for improving diagnostic capacity and patient care in resource-limited settings.

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Use of Simulation as a Teaching Tool for Trauma Education and Skills Training in Low-Middle Income Countries- a Multimodal Approach to a Case Series.

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Introduction: Global Emergency Care Skills (GECS), an Irish award-winning charity run by emergency medicine physicians, has recently delivered trauma training in rural Kenya, Lusaka, Zambia, and Gaborone, Botswana. Throughout the period from November 2022 to November 2024, simulation has been used as a reliable and effective tool for educational purposes.
Methods: In-person training was delivered to participants, including doctors, nurses, medical officers, and paramedics. The training involved a structured, simulation-based training program. Scenarios used were structured to represent resource and population-appropriate real-life trauma situations. This allowed participants to practice clinical skills in a safe, controlled environment. Pre- and post-training assessments measured knowledge retention, skill application, and confidence levels.
Results: A significant improvement was observed in knowledge scores, which increased from pre-training to the post training cohort. Participants reported a rise in confidence when managing trauma cases. Feedback indicated they found the simulation exercises relevant and effective in reinforcing their clinical skills. Notably, simulations facilitated team dynamics and communication among participants, which are crucial in trauma care settings.
Conclusion: The use of simulation as a teaching tool in these courses run by GECS proved to be highly effective in enhancing the knowledge base, skill level, and confidence of healthcare providers in rural Kenya, Lusaka, and Gaborone. This case series underscores the value of simulation-based education in preparing clinical staff for real-world challenges in trauma care, promoting better patient outcomes in resource-limited settings. Future studies we hope to explore would include long-term retention of skills and the impact of the introduction of simulation training.

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Participant's Experience of Trauma Theory and Skills Training in Lusaka, Zambia, a Multimodal Analysis.

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Introduction: Global Emergency Care Skills (GECS) is an award-winning Irish non-profit organization founded in 2008 that provides high-quality emergency care training and education to healthcare professionals in low to middle-income countries (LMICs) in Africa, where trauma remains a leading cause of death. This study presents a multimodal analysis of trauma theory and skills training for emergency physicians, nurses, clinical officers, and paramedics in Lusaka. Combining quantitative assessments, qualitative feedback, and observational data to evaluate the effectiveness of different training approaches and the participants' experience of these approaches.
Methods: A mixed-methods approach was employed to analyze the impact of trauma training. Quantitative data were collected through pre- and post-training assessments to measure changes in clinical competence, including technical skills and non-technical skills. Qualitative data were gathered through structured interviews and focus groups with participants and trainers to assess perceptions of the training's relevance, feasibility, and effectiveness. Additionally, observational data from simulated trauma scenarios were analyzed to identify performance improvements and team dynamics.
Results: The multimodal analysis revealed that this trauma training significantly improved the participant's confidence and clinical competence. Quantitative findings showed marked improvements in trauma management skills, especially in areas of rapid assessment and management. Qualitative data highlighted the importance of low-cost, adaptable

simulation methods, such as task trainers and role-playing, which allowed for realistic training despite limited resources. Observational data indicated enhanced teamwork and communication in high-stress trauma scenarios. Participants reported increased satisfaction with training that was tailored to local resource conditions and healthcare contexts.
Conclusion: Skills and simulation-based trauma training, when analyzed through a multimodal lens, prove to be an effective and adaptable tool for improving trauma care in LMICs. By integrating quantitative, qualitative, and observational data, this study demonstrates that such training enhanced both technical and non-technical skills among the course's participants, contributing to improved patient care.

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Disaster Readiness - Improving Education, Training and Simulation

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Summary: NDLS™ 4.0 – Continuously Revised, Continuously Improved Board of Directors*, National Disaster Life Support Foundation™. The National Disaster Life Support Foundation™ (NDLSF™) is pleased to provide updates to the World Association of Disaster and Emergency Medicine (WADEM), at its twenty-fourth biennial Congress, on the fourth edition of its internationally acclaimed Basic Disaster Life Support™ (BDLS®) Course, first introduced

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to WADEM at its twenty-third biennial Congress. Maintaining its focus on the PRE-Disaster™ Paradigm and DISASTER Paradigm™, the Course has continuously evolved to expand its accessibility to its increasingly digital worldwide community. It has now been translated into Spanish, Chinese, and Korean. As before, BDLS® 4.0 consists of 4 hours of online prework arranged in 18 topical modules, to be completed before enrollment in a live 4-hour series of 5 instructor-led interactive scenarios, which can be delivered actually or virtually, focused on common problems encountered in disaster healthcare. Comprehensively beta tested by 2,246 students (online component) and 112 students (instructor-led component) at institutions of higher learning within the United States and across the globe, the course has been enthusiastically received. The online component, termed Essentials of Disaster Life Support™ (EDLS®), is now additionally available. At the same time, select modules of interest have been offered to emergency medical teams on-site in Ukraine and elsewhere. Revisions to both the Certified Healthcare Emergency Coordinator (CHEC) Basic and Advanced Courses, which include concepts of meta leadership and novel regulatory issues, have been completed and will be described in detail at the time of presentation.

*Gerald Beltran, Arthur Cooper (chair), Phillip Coule, Cham Dallas, James James, Ira Nemeth, Paul Pepe, Richard Schwartz (vice chair), Raymond Swienton, John Williams (executive director)

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Retrospective Analysis of Prehospital Tourniquet Use in Southeast Michigan

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Introduction: External hemorrhage is a leading preventable cause of death in prehospital settings. Despite established protocols and training, the application and outcomes of tourniquet use vary. Region 2 South, an area of four counties in southern Michigan containing 2.5 million people, implemented tourniquet application protocols and training programs. This study aims to analyze the effectiveness and accuracy of tourniquet applications.
Methods: Retrospective analysis of tourniquets from October 2019 to December 2023 that included patients presenting to level 1 and level 2 trauma centers with pre-hospital tourniquet placement. Data collected included personnel applying tourniquets, mechanism of injury, appropriateness and correctness of indications, associated interventions, and complications.
Results: 473 tourniquets were applied. EMS performed (218, 46.8%), followed by fire/police (196, 42.1%), and the ED (19, 4.1%), and bystander applied in 53 cases (11.3%). The mechanisms of injury were gunshots (185 cases, 39.5%), lacerations (59 cases, 12.6%), and stab wounds (45 cases, 9.6%). 78.3% of tourniquets met appropriate indications, and 89.3% were applied correctly. The odds of applying with appropriate indication were lower when bystanders performed the procedure (OR 0.33, 95% CI 0.18 - 0.60), as were the odds of correct application (OR 0.40, 95% CI 0.19 - 0.87). Data on interventions were missing (54.8%), but when available, it showed blood product administration in 7.8% of patients, suturing in 33.3%, vascular repair in 17.6%, and 27.1% of patients required multiple interventions. Complications related to tourniquets occurred in 2 (0.42%) cases.
Conclusion: EMS and law enforcement are primary applicers of tourniquets, with a significant portion applied correctly and appropriately. There is a lower likelihood of proper application by bystanders. The study indicates tourniquets are generally applied correctly and effectively, with minimal complications. This underscores the importance of continued training and data collection improvements to enhance prehospital care outcomes, as well as the importance of providing continued and further training to the public.

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A Comparison of Three Guidelines on Recommendations of Antidote Storage in the Hospital

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Introduction: Antidote stocking is a crucial part in the treatment of poisoned patients. There are multiple guidelines providing recommendations on the stocking of antidotes. This study aimed to compare the recommendations in three different guidelines.
Methods: Three guidelines on antidote stocking were compared: the United States' Expert Consensus Guidelines for Stocking of Antidotes in Hospitals That Provide Emergency Care, the United Kingdom's Royal College of Emergency Medicine and National Poisons Information Service Guideline on Antidote Availability for Emergency Departments, and Australia's Queensland Poisons Information Centre (QPIC) guideline. The comparison focused on recommendations for antidote availability and stocking quantities.
Results: The US, UK, and Australian guidelines made recommendations for 45, 40, and 40 antidotes, respectively. Antivenom recommendations differed significantly among the guidelines. Only the US and UK guidelines further categorised antidotes based on urgency, providing recommendations on whether antidotes should be immediately available or within an hour. The Australian guideline only provided recommendations on whether to stock the antidote, without specifying urgency. The three guidelines concurred in their recommendations for 22 antidotes that should be stocked in hospitals.

The US and UK guidelines provided recommendations on the quantities of each antidote to be stored for treating an adult during the first 24 hours. The UK guideline also indicated any special storage conditions. In contrast, the Australian guideline recommended varying quantities of antidotes to be stored according to the locality of health facilities, with tertiary

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