included ALS Emergency Vehicles and support for main events.

The plan addressed satellite events with varying populations. Health care responses were organized into three levels: aid stations and mobile teams from Pilgrim support and the Portuguese Red Cross; Advanced Medical Posts; and EMT Type 1. Rigorous record-keeping covered admissions, clinical records, vaccination forms, birth certificates, death verifications, informed consents, narcotics controls, and personal belongings.

The response mobilized 500 staff, 124 mobile teams, 94 first aid sites, 4 EMT Type 1, 17 Advanced Medical Posts, and 7 "Calm" tents. This effort assisted 4376 patients within WYD sites, 253 outside, and 153 were evacuated to hospitals.

Conclusion: Key lessons from WYD2023 include the importance of collaborative planning from local to national levels, meticulous record-keeping, diverse logistical and operations levels, and establishing a WHO-classified EMT-based response. Flexibility and dynamic planning were essential for adaptability, and psychological support was integrated across all areas.

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Crowd Simulation Models for Enhanced Mass-Gathering Medical Response: A Practical Application

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Background/Introduction: The ability to predict a dynamic crowd response during Mass Gatherings may improve medical access and egress in a mass casualty incident. Validated models that accurately anticipate the chaos and crowd flow are not readily available. Recent advances in machine learning for crowd simulation offer an under-explored opportunity to improve emergency response strategies.

Objectives: Train a crowd simulation model on video data and prove validity by comparing its predictions to an actual crowd-egress event.

Method/Description: A physics-based Social Force Model was used to simulate crowd movement. The model considers obstacles and other pedestrians in trajectory prediction, seeking best to estimate crowd density rather than individuals' positions. Four parameters– maximum speed multiplier, motivation factor, social force factor, and obstacle repulsion factor –were found to be meaningful when comparing simulations to known pedestrian video. These parameters were optimized using an evolutionary algorithm to predict crowd response to an actual bomb scare in Times Square. A convolutional neural network model, CSRNet, was used to analyze crowd density frame by frame from an actual video for comparison.

Results/Outcomes: Predicted density heat maps were compared to the video, demonstrating a realistic simulation of crowd egress. The pedestrians filter similarly in the prediction model and the ground-truth video. Divergence is mainly noted in the upper portion of the image, accounted for by the fact that the model currently does not adjust for additional population to enter the frame.

Conclusion: This study marks a significant stride in demonstrating the potential of machine learning in crowd-egress prediction using video data.

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Impact of Regular Short Term Humanitarian Missions: A Qualitative Case Study in Uganda

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Background/Introduction: Since the first documented medical mission of Doctor Peter Parker in 1834 to China, the practice and study of medical missions have gained prominence. Despite the increasing prevalence of medical missions, significant ambiguity surrounds their definitions, benefits, and challenges.

Objectives: This study investigates the effectiveness of regular Short-Term Humanitarian Missions (STMMs) focusing on the Mission of Hope (MoHope) III conducted in the Kyangwali refugee settlement in Uganda.

Method/Description: A qualitative case study approach was employed, utilizing semi-structured interviews and focus group discussions (FGDs) to gather insights from participants, including volunteers and beneficiaries. Data collection adhered to the Standards for Reporting Qualitative Research (SRQR), and thematic analysis was conducted using Clarke and Braun's approach. Ethical considerations were strictly followed, ensuring participant confidentiality and informed consent.

Results/Outcomes: Analysis of data from 16 participants revealed six emergent themes: barriers (financial constraints, health information flow, infrastructure, etc.) benefits (quality improvement, capacity building, etc.), doubts (sustainability, patient rights, etc.), requirements (decolonization, training, etc.), and new paradigm. Participants highlighted significant

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