## Mixed Reality–To Better Prepare Medical First Responders for Mass-Casualty Incident Response

*Lina Gyllencreutz PhD[1], Fredrik Schulz PhD(c)[1], Helmut Schrom-Feiertag PhD[2]*
1. Department of Nursing Umeå university, Umeå, Sweden
2. Austrian Institute of Technology, Vienna, Austria

**Introduction:** Mass-casualty incidents (MCI) featuring a large number of injured persons caused by human-made or by natural disasters are increasing globally. During these incidents, medical first responders (MFR) need to take appropriate action that saves lives. In this context, the adage "practice makes perfect" is befitting to MCI training. However, providing large-scale MCI training is often difficult due to the significant effort required to create these types of exercises. Drawbacks include a large number of actors needed to portray victims, availability of infrastructure, and realistic treatments. Virtual Reality (VR) has been demonstrated in several domains to be a serious alternative, and in some areas also a significant improvement to conventional training. As an advanced alternative to VR, Mixed Reality (MR) have the potential to provide a dynamic simulation of an VR environment and hands-on practice on injured victims.

The aim is: 1) to present insights of a newly developed MR training system for increasing MCI preparedness and 2) discuss pedagogical aspects e.g. how the intended learning outcomes are perceived in MR training, how the participants experience the learning in MR training, and what impact MR training will have in their future work practice.

**Method:** An MR training system, designed for teams of up to four MFRs to perform training in real-time, will be pilot-tested at the beginning of 2023. The system features a fully functional touch-enabled human manikin design for practicing skills in emergency situations. The pilot tests will be carried out within the Med1stMR project (https://www.med1stmr.eu/) where approximately four teams of MFR will be evaluated based on the intended learning outcome.

**Results:** Preliminary results from the pilot tests will be available at the conference.

**Conclusion:** Research is needed to strengthen the knowledge and impact of MR training as a pedagogical method to better support MCI training and preparedness.

*Prehosp. Disaster Med.* 2023;38(Suppl. S1):s137
doi:10.1017/S1049023X23003606

## Emergency Department-Based HIV Testing Services and Self-Testing Programs: A Qualitative Study of Healthcare Providers and Patients in Kenya

*Adam Aluisio MD[1], Scarlett Bergam MPH[2], Janet Sugut MD[3], Kate Guthrie[1], John Kinuthia MD[3], Michael Mello MD[1]*
1. Alpert Medical School of Brown University, Providence, USA
2. GW University, Washington DC, USA
3. Kenyatta National Hospital, Nairobi, Kenya

**Introduction:** Young people in Sub-Saharan Africa, especially males, have been insufficiently engaged in HIV Testing Services (HTS). In Kenya, these persons are often treated in emergency departments (EDs) for injuries, a healthcare interaction where HTS including HIV self-testing (HIVST) could be leveraged. There is, however, limited data from stakeholders on ED-HTS which impedes programmatic advancement.

**Method:** A qualitative study was completed to understand facilitators and challenges for ED-HTS and HIVST delivery in Kenya (12/2021-03/2022). Data were collected via 28 in-depth patient interviews (14 males and 14 females) who had been treated in the Kenyatta National Hospital (KNH) ED and through seven focus-group discussions conducted with 49 ED healthcare personnel (nurses, doctors, HIV testing counselors, and administrators). Transcripts were double-coded and thematically analyzed with Dedoose™ software using a parallel inductive and deductive approach to capture both a priori and emergent themes.

**Results:** Patients and providers viewed ED-HTS as a beneficial provision that was facilitated by engaged staff, education, perceived high HIV risk, and confidentiality. However, ED-HTS was limited by burdens on staff time and material resources, lacking systems integration, and patient illness severity. Facilitators of ED-HIVST delivery were perceived to have greater autonomy and confidentiality as well as lower health resource utilization. Challenges for ED-HIVST identified included patients' concerns about HIVST accuracy and psychological stress, as well as providers' concerns for loss to follow up and inability to complete confirmatory testing.

**Conclusion:** ED stakeholders are receptive to HTS and HIVST provisions. This data provides insight into the patient, provider, and systems aspects that can be leveraged in ED-based HTS to enhance program impacts via intervention functions in the forms of education, care integration, resource scaling, and solidified post-self-testing follow-up mechanisms.

*Prehosp. Disaster Med.* 2023;38(Suppl. S1):s137
doi:10.1017/S1049023X23003618

## Web-Based Multistate Disaster Rehearsal of Concepts Exercises

*Charles Little DO[1,2], Samantha Noll MD[2], Brianna Nielsen[1], Steve Ellen[1], Britta Nally[1], Carolyn Persson[1], Connie Price MD[1]*
1. Mountain Plains Regional Disaster Health Response System, Denver, USA
2. University of Colorado Denver, Aurora, USA

**Introduction:** The Mountain Plains Regional Disaster Health Response System (Mountain Plains RDHRS) works to build disaster capacity across US Federal Region VIII, a rural western six-state region. It conducts an annual rehearsal of concepts and exercises to identify gaps and inform policy development. In 2022, a multi-state exercise was conducted involving responders from individual hospitals coordinating with Healthcare Coalitions and State Public Health. These responses rolled up to a multi-state emergency operations center overseen by the Mountain Plains RDHRS.

**Method:** A fictitious mass multi-state botulism incident generated a pediatric surge across the region. Individual patient cards with demographic information were given to a set of hospitals in participating states. The communication pathways within states were identified. Communication between local

and regional pediatric transfer centers were assessed. Overall situational awareness was tracked.

The exercise format was incident occurrence and notifications by normal channels and a Zoom conference call held on day one. Situational awareness and patient movement occurred in multiple Zoom rooms on day two. An after-exercise review occurred by Zoom on day three including all participants from the exercise.

**Results:** There was generally good information flow within states, but minimal information exchange across states There was poor regional situational awareness with a lack of complete patient lists and transfers. The Mountain Plains RDHRS planned to exceed the hospital's patient capacities with a large number of pediatric patients to practice patient movement across state lines. Instead the hospitals showed a surprising willingness to keep and manage critical pediatric patients instead of transferring to tertiary care pediatric centers. This was identified as a consequence of the COVID-19 experience.

**Conclusion:** Web-based exercises vertically spanning responses from individual hospitals to multi-state regional entities are feasible. This exercise demonstrated multiple gaps in regional disaster response.

*Prehosp. Disaster Med.* 2023;38(Suppl. S1):s137–s138
doi:10.1017/S1049023X2300362X

## Public Conformism with Health Regulation is Crumbling as COVID-19 Becomes a Chronic Threat – A Cohort Study

*Moran Bodas MPH, PhD, Leora Wine*
Department of Emergency & Disaster Management, School of Public Health, Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel

**Introduction:** Three years into the COVID-19 pandemic, experience and studies have shown that public behavior significantly contributes to the disease spread increase or reduction. As the pandemic becomes a chronic threat, maintaining public trust to comply with health regulations proves challenging as people develop pandemic fatigue. This study aims to analyze the long-term trends in public attitudes toward the COVID-19 pandemic and compliance with health regulations.

**Method:** A longitudinal cohort study was performed from February 2020 until January 2022, collecting data from nationally representative samples (N=2,568) of the adult population in Israel. Data Collection was timed with the first five morbidity waves of the COVID-19 pandemic. We examined public trust in Israeli health regulations, public panic, worry, and compliance with health regulations, particularly self-quarantine.

**Results:** The data shows that public trust in health regulations in January 2022 is at an all-time low (25%) compared to the maximum value measured in March 2020 (~75%). The perceived worry from COVID-19 is steadily declining, whereas the perception of public panic is increasing as the pandemic progresses into a chronic threat. While public compliance with self-quarantine was reported to be close to 100% in the early stages of the pandemic, it has dropped to 38% in early 2022, mainly when compensation for lost wages is not offered. Regression analysis suggests that trust is a significant predictor of compliance with health regulations.

**Conclusion:** The findings, spanning more than two years of the pandemic, highlight the importance of maintaining public trust as a significant driver of public compliance with health regulations. The "fifth wave" of the pandemic resulted in an all-time low in public trust. The Israeli public, usually highly compliant, shows signs of crumbling conformity. Decision-makers ought to consider means to foster public trust.

*Prehosp. Disaster Med.* 2023;38(Suppl. S1):s138
doi:10.1017/S1049023X23003631

## Response to Mass-Casualty Incidents and Outbreaks: A Prehospital Disaster Training Package Developed for the National Emergency Medical Service in Sierra Leone

*Marta Caviglia[1], Josè Da Silva-Moniz[2], Francesco Venturini[2], Amara Jambai[3], Matthew Vandi[3], Abdul Wurie[4], Moi Sartie[4], Giovanni Putoto[2], Luca Ragazzoni[1]*
1. CRIMEDIM – Center for Research and Training in Disaster Medicine, Humanitarian Aid, and Global Health, Università del Piemonte Orientale, Novara, Italy
2. Doctors with Africa – CUAMM, Padova, Italy
3. Ministry of Health and Sanitation, Freetown, Sierra Leone
4. The National Emergency Medical Service – NEMS, Ministry of Health and Sanitation, Freetown, Sierra Leone

**Introduction:** In 2018 Sierra Leone, a country highly prone to disasters, launched its first National Emergency Medical Service (NEMS) aiming to strengthen the provision of essential health services to the population with the long-term goal of creating a resilient health system able to effectively respond to and recover from emergencies. The Center for Research and Training in Disaster Medicine, Humanitarian Aid, and Global Health (CRIMEDIM), together with the Italian NGO Doctors with Africa (CUAMM), under the supervision of the Ministry of Health and Sanitation (MoHS), developed a prehospital Disaster Training Package (DTP) delivered to all NEMS personnel to boost the prehospital management of mass-casualty incidents (MCIs) and outbreaks.

**Method:** The DTP was designed following the six-step approach to curriculum and training development with the ultimate goal of creating a workforce comprising qualified emergency responders with specific professional competencies to respond to outbreaks and MCIs. The DTP included a first phase in which NEMS local trainers underwent a training-of-trainers (ToT) course, enabling them to deliver cascade trainings to 16 district ambulance supervisors, 441 paramedics, 441 ambulance drivers, and 36 operators working in the NEMS operation center.

**Results:** Starting on July 19, 2021, the ToT course was delivered to the seven national trainers. All trainers successfully passed the final examination and achieved high scores in the practical sessions, demonstrating active participation, commitment to the project, and good awareness. Following the ToT course, the series of cascade trainings started on August 2, 2021, delivered by the just-trained national trainers under the direct supervision of the two training managers.

**Conclusion:** The NEMS' DTP is the very first Disaster Medicine training course delivered to prehospital healthcare providers in Sierra Leone. The authors believe that the