

Impact of Covid-19 in Health Emergency and Disaster Risk Management System: Healthcare Workforce Management in Covid-19

Odgerel Chimed-Ochir MD, MPH, PhD¹, Jargalma Amarsanaa BA¹, Yui Yumiya PHN, MPH, PhD¹, Ryoma Kayano MD, PhD², Tatsuhiko Kubo MD, PhD¹

1. Hiroshima University, Hiroshima, Japan
2. WHO Kobe Center, Kobe, Japan

Introduction: COVID-19 conforms to key baseline characteristics of disaster which is defined as “a situation or event that overwhelms local capacity, necessitating a request for national or international level of assistance.” Many countries faced shortages of health workforce, maldistribution, misalignment of needs and skills of healthcare workers.

The research goal is to identify the country responses on the shortage of workforce, their best practices and the lessons learned that may help to better handle any similar crisis in the future.

Method: The scoping review was conducted in four electronic academic databases, namely, Medline, Web of Science, EBSCO, and TRIP and 24 scientific articles were reviewed. This study is funded by the World Health Organization Centre for Health Development (WKC-HEDRM-K21001).

Results: The main strategies implemented were a financial coordination mechanism, relaxing standards/rule, redeployment, recruiting volunteers, fast tracking medical students, and using other resources in the workforce such as: the recruitment of inactive healthcare workers, returnees whose registration has lapsed within the last 1-2 years and integration of internationally educated health professionals. All these strategies demonstrated advantages like establishing mutual support across nations, organizations, motivating healthcare workers, lessening the workload of healthcare workers, and creating a new staff model for the next pandemic. If a pandemic lasts longer, financial support mechanisms are no longer feasible and longer working hours result in burnout. Managing volunteers, including supervision of their safety and allocation to the area in need, required hard effort and high-level coordination, especially when a needs assessment is unavailable. Another problem was the absence of an available list of resources, including volunteers and retired medical personnel.

Conclusion: To date, countries have not yet determined clear policies on how to ensure the sustainability and resilience of the workforce during major health shocks. A follow-up study investigating the strategies implemented is needed.

Prehosp. Disaster Med. 2023;38(Suppl. S1):s203

doi:10.1017/S1049023X23005198

Evaluation of Inconclusive Results on the Cepheid X-Pert Xpress Platform (GXP) for the Diagnosis of Severe Acute Respiratory Syndrome-2: A Narrative Literature Review

Andrea van der Vegte MBChB^{1,2,3}, Maria Conradie MBChB¹, Brendan Orsmond MBChB¹, Marco Smit MBChB¹, Rochelle Kleinhans MBChB¹, Ria Abraham MBChB¹, Ashleigh Dowle MBChB¹, Philip Jordaan¹, Keith Kennedy MD¹, Michael Molloy MBChB^{1,4}

1. Wexford General Hospital, Wexford, Ireland

2. University of South Wales, Cardiff, United Kingdom
3. UCD, School of Medicine, Dublin, Ireland
4. Beth Israel Deaconess Medical Centre, Boston, USA

Introduction: Molecular assay for diagnosing and detecting SARS-COV-2 is an essential tool in pandemic management, allowing for early informed decision-making. Worldwide, the gold standard for testing SARS-COV-2 includes real-time reverse transcription-polymerase chain reaction assay (RT-PCR). The Cepheid Xpert-Xpress was authorized for emergency diagnosis of SARS-COV-2. This platform demonstrated various advantages, including faster results, due to a decreased turnaround time, and decreased contamination risk. However, inconclusive results often leave clinicians uncertain regarding individual patient management decisions. Often leading to more confusion than answers.

The aim of this literature review includes the following:

- identify the frequency and clinical implications of inconclusive results for SARS-COV-2 diagnosis utilizing GeneXpert assay
- whether inconclusive results should be interpreted as negative
- assessing the reliability of the GeneXpert platform to diagnose SARS-COV-2

Method: A narrative literature review was conducted with eight critically appraised articles which met the inclusion criteria.

After the initial data collection, the SANRA Framework was implemented to aid in the sorting and filtering of data. The analysis of data was conducted with a critical appraisal tool.

Results: The GeneXpert SARS-COV-2 assay demonstrated high sensitivity and specificity. Studies indicated that inconclusive results associated with a high cycle-threshold value (CT-value) of more than thirty-five on the Cepheid Xpert Xpress were associated with a decreased viral load and, thus, decreased infectivity. However, numerous factors influence the CT-value, such as specimen integrity. Thus, results must not be interpreted in isolation.

Conclusion: This narrative literature review demonstrated the need for institutions to assist clinicians with decision-making regarding inconclusive results. A flow diagram grading a patient's risk of having SARS-COV-2 with an inconclusive result could be of immense value. The flow diagram should incorporate the current epidemiology in the area, patient symptomatology and risk and duration of exposure.

Prehosp. Disaster Med. 2023;38(Suppl. S1):s203

doi:10.1017/S1049023X23005204

“This is a T.E.S.T.” (Tabletop Exercise Simulation Tool): Using Gamification to Train Public Health Staff in Community Reception Centers for a Nuclear or Radiological Incident

Amy Schnall DrPH, Lauren Finklea MS

Centers for Disease Control and Prevention, Atlanta, USA

Introduction: After a nuclear or radiological (nuc/rad) incident, there is a need to screen, potentially decontaminate, and monitor the affected population. A Community Reception Center (CRC) is a site that provides these services,

plus more, to those displaced by a large-scale incident. By using CRCs, federal agencies and state, tribal, local, and territorial (STLT) health departments can monitor the affected population, help prevent hospitals from becoming overburdened with persons not critically injured, compliment shelter operations, and obtain a basis for a long-term registry. However, public health staff often are not fully trained in their CRC role and the decision-making factors.

Method: The Centers for Disease Control and Prevention (CDC) developed a unique training board game, “This is a T.E.S.T.” (Tabletop Exercise Simulation Tool), for public health staff about their CRC role and decision-making factors. We play-tested the game with several CDC and STLT staff in 2022 and received informal feedback.

Results: Players found the game facilitated discussion and identified gaps in CRC plans, safety hazards, population needs, and staffing requirements. They also said the game improved collaboration and communication. Over 90% of players strongly agreed the game accurately simulated both bottlenecks and resource needs, individual needs and anxiety, and allowed a greater understanding of CRC operations.

Conclusion: Games have been used for emergency response using different platforms such as virtual reality and video games. This is a T.E.S.T. facilitates collaboration by tasking players with managing resources, staff fatigue, public anxiety, and hazards. Players provided valuable feedback on its usability while learning more about CRCs. “This is a T.E.S.T.” provides a unique, innovative training experience that incorporates components from typical tabletop and full-scale exercises, CRC capacity estimates through CDC’s CRC SimPLER (Simulation Program for Leveraging and Evaluating Resources), and key principles of adult learning.

Prehosp. Disaster Med. 2023;38(Suppl. S1):s203–s204

doi:10.1017/S1049023X23005216

Outcomes of Hemorrhage Control Training for Community Organizations in Rwanda

Oriane Longerstaey MD¹, Kyle Denison DO, MPH¹, Noelle Lee¹, Innocent Nzeyimana MD², Dieudonne Rutagumba MD², Ashley Hughes³, Chelsea Lacasse⁴, Elizabeth Krebs MD⁵

1. Warren Alpert Medical School of Brown University, Providence, USA
2. Healthy People, Kigali, Rwanda
3. Bryant University, Smithfield, USA
4. Kent Hospital, Warwick, USA
5. Jefferson Health System, Philadelphia, USA

Introduction: Traumatic injury from road traffic accidents is a major cause of morbidity and mortality in Rwanda. Basic first aid training can help bystanders to provide prehospital care. The objective of this study was to determine the impact of Stop the Bleed (STB) hemorrhage control training on participant knowledge, attitudes, and practices regarding bleeding control.

Method: A total of 64 participants from two community organizations (Healthy People Rwanda and the Rwandan Emergency Care Association) were provided with training in STB. The course included a didactic presentation and skills session where participants could practice skills. A KAP (Knowledge,

Attitudes, Practices) survey was provided to participants before training, immediately after training, three months, and six months post-training.

Results: Immediately after training, participant knowledge of bleeding control techniques improved across 5 of 7 questions, including correct tourniquet placement (98% vs 85%) and the correct order of steps to take when treating bleeding (63% vs 9%). There was also a significant increase in confidence across six measures: identifying life-threatening bleeding, applying a tourniquet, applying direct pressure, wound packing, treating severe active bleeding, and teaching bleeding control techniques to others ($p < 0.001$). After three months, 100% ($n = 21$) of participants reported using at least one skill from the course, and 95.24% ($n = 20$) reported using at least one piece of equipment provided during the course. After six months, 93.33% (28 of 30) of participants reported using at least one skill from the course, and 86.67% (26 of 30) reported using at least one piece of equipment provided during the course. Notably, 17 participants reported using the tourniquet they had received by six months post-training.

Conclusion: This study found that STB training increased participant knowledge of bleeding control techniques and confidence in performing techniques for bleeding control. All participants reported using skills learned from the course.

Prehosp. Disaster Med. 2023;38(Suppl. S1):s204

doi:10.1017/S1049023X23005228

To Educate or Not to Educate: Systematic Review of Disaster Medicine Education in Kazakhstan in Compression with Post-Soviet Countries

Aidana Sissenberdiyeva MD

KRMU, Almaty, Kazakhstan

Introduction: Disaster medicine education is a huge challenge, but essential to disaster preparedness. While natural disasters have always been a part of world events, recent large-scale natural and man-made disasters have drawn attention to disaster medicine. As a consequence, medical schools in many parts of the world have begun to incorporate disaster-related topics into their curricula. However, in the territory of the former USSR, disaster medicine has just begun its development, and at the moment it is represented only in a couple countries, including Kazakhstan.

Method: Data collection was performed using a database search through the Ministry of Education and Ministry of Healthcare of the Republic of Kazakhstan, Uzbekistan, Kyrgyzstan, Russian Federation, Belarus, and Ukraine. Disaster Medicine curricula on different education levels, including bachelor, graduate, and postgraduate levels were reviewed and analyzed.

Results: Even though Kazakhstan is the ninth largest country in the world, education in the field of disaster medicine is currently represented only in one medical university in the country: specialists in disaster and emergency medicine are trained in residency and master’s programs. In the Republics of Uzbekistan and Kyrgyzstan, education in the disaster medicine field is not provided, but there are electives for bachelor students. The Federal Center for Disaster Medicine, located in Moscow,