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The Role of Diagnostic Medical Imaging Community in Responding to Nuclear and Radiological Events in Urban Environments

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Introduction: To understand the role of medical providers in general and the radiology community in the prevention, management, and aftermath of a radiological or nuclear event.

Method: Using a power point presentation, the author will describe in detail the role diagnostic medical imagers can play in responding to the radiological or nuclear MASCAL events.

Results: The purpose is to educate the civilian radiology audience about their role amidst the changing nature of current nuclear threats and asymmetric and hybrid warfare in urban settings. It is very likely that in the future the civilian radiology community may be involved and respond to a nuclear crisis or a radiation accident or its aftermath before the military gets involved because it will most likely be initially a MASCAL event in a civilian setting, not immediately under the purview of the military.

Conclusion: Radiologists and nuclear medicine physicians will play a very critical and central role in the event of a nuclear detonation or a radiation dispersal device detonation due to their inherent knowledge of the principles of radiation, contamination, exposure and radiation protection.

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Considerations for Pediatric Mass Shooting Triage Training: A Qualitative Analysis

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Introduction: Accurate triage is crucial for pediatric patients because their physiological differences make them more vulnerable to traumatic injury and mortality. However, pediatric trauma patients are challenging for EMS personnel for several reasons including infrequent clinical encounters and inadequate training. Despite the need for increased training, little is known about EMS readiness to perform triage and lifesaving interventions during pediatric mass casualty incidents (MCIs). Simulation skills assessment correlates with EMS performance in the field and can be used to determine MCI readiness. Pediatric patients are often omitted from MCI training and protocols. Feedback from EMS clinicians who participate in pediatric MCI simulations may be useful for educators seeking to optimize pediatric mass shooting triage training.

Method: This was an observational study assessing EMS clinician accuracy in triaging eight children and two adults in a mass shooting simulation involving intimate partner violence (IPV) set at a private residence. Participating EMS clinicians were attendees of continuing education classes at Yale New Haven Health Centers for EMS. Participants worked in pairs, and triage decisions were documented during the simulation with an evaluation tool and video recording. After the simulation, pairs completed the demographic survey and completed a semi-structured debriefing. Facilitator prompts included correct triage level for each patient, the role IPV plays in mass shootings, and the participants feedback. Recordings of the debriefings were transcribed and analyzed using grounded theory. During the evaluation process, the major themes will be identified and coded. The transcriptions will be re-evaluated and any additional sub-themes will be identified and coded.

Results: As of November 2022, eight paramedics have participated with more sessions scheduled for spring 2023. A preliminary review indicates potential themes will fall under the categories of simulation implementation and clinical approach to triage.

Conclusion: These findings may assist EMS agencies with their pediatric MCI training and response.

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Handover Between Prehospital and Intra-hospital Physicians—Utility of Simulation in Enhancing Quality of Transmission

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Introduction: Handover is of big value in preserving continuity of the medical services chain when managing patients. Simulation is well accepted as a good learning method to acquire non-technical skills. Actual studies dealing with this issue are performed on paramedics. Studies involving physicians are rare and usually focus on interviews or questionnaires describing practical situations.

The aim of our study was to evaluate the utility of simulation in enhancing the quality of handover between both pre-hospital and intra-hospital physicians.

Method: We conducted a prospective pre-test/post-test study in a regional Emergency Medical System (EMS) on the hand-over topic.

We included voluntary physicians who signed participation consent. The study was designed as a three-step project: theoretical training with pre-test and post-test, 1st simulation session, 2nd simulation session with post-test. The two simulation sessions were evaluated according to a specific score. We evaluated the progression of knowledge (tests means) and skills (percentages of good answers): before and after theoretical training and before and after simulation sessions.

Results: Sixteen EMS physicians were enrolled. Thirteen were under 40 years old and ten were emergency medicine physician



specialists. Theoretical training made progression in means and percentage good answers (post-test 1 vs. pré-test : 9.5 ± 3.3 vs 6.9 ± 2 ; $p=0.008$ et 22 vs. 10% ; $p=0,001$ respectively). Progression of means after simulation was noticed (2nd session vs. 1st session) (16.3 ± 0.9 vs. 12.3 ± 2.5 ; $p < 0.001$). Simulation enhanced significant quality of handover. Means and percentage of good answers in tests was better after simulation sessions (post-test 2 vs. post-test 1 vs. pre-test : 10.7 ± 2.8 vs. 9.5 ± 3.3 vs. 6.9 ± 2 ; $p=0.01$ et 29% vs. 22% vs. 10% ; $p < 0.001$ respectively).

Conclusion: Our study showed the utility of simulation in enhancing handover between pre-hospital and intra-hospital physicians. Simulation as an active learning method, combined with theoretical training, can improve knowledge and enhance skills.

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Preparing Hospitals for CBRN Emergencies in Israel—A Review

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Introduction: The mission of the medical department in the Home Front Command is to support the preparedness of Israel's health system for emergencies, both in day-to-day routine and during wartime. This is achieved by practicing emergency scenarios in all general hospitals, including biological, chemical, and radiological mass-casualty events.

Method: Implementing an annual drill plan in all general hospitals and practicing emergency scenarios, including non-conventional events such as mass toxicological events and radiological mass casualty events.

Results: The presentation describes the hospital radiological and chemical mass casualty event doctrine and the drills performed in hospitals to achieve better preparedness.

Conclusion: The drills conducted in the general hospitals in Israel enable better preparation for CBRN emergency scenarios.

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Identifying Core Competencies for Medical Command and Control Teams Managing Covid-19

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Introduction: The Covid-19 pandemic strained most of the world's health care organizations to, and sometimes beyond, their limits. To anticipate, coordinate, mobilize, and prioritize hospital resources, Sweden's health care regions established regional medical command and control teams according to the medical major incident structure. This command structure

was initially developed based on an all-hazards approach focused primarily on sudden mass casualty incidents with a relatively short time frame. Covid-19 management was active for several months with a most intense operations period during the spring of 2020. This study aimed at identifying competence needs by employing a co-creative approach with members of the staff involved in the pandemic management.

Method: Data was collected and analyzed using a modified Delphi consensus method. The respondents were subject matter experts serving in the regional medical command and control teams during the COVID-19 pandemic. One workshop was held to gather opinions, which were included as statements in a consensus survey and answered by the participants after the first workshop. A second workshop was held to discuss statements that did not reach initial consensus in the survey and establish final consensus.

Results: The consensus agreed statements were sorted into five themes, which constituted the collective agreement of medical command and control core abilities. The five core competence themes were: Situation report, Team organization, Co-operation, Competence management, and Analysis. The consensus agreed statements highlighted competencies needed for creating situation reports, organizing medical command and control teams, effective cross-organization co-operation, decision-making, and medical intelligence analysis.

Conclusion: The core competencies of medical command and control identified in the present study can be used to further affirm current learning objectives and to formulate future learning objectives for education and exercises. The evaluation approach could potentially be used as a post-incident review to fine-tune an organization's training plan.

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Improving Hospital Preparedness for Pediatric Abductions

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Introduction: In the United States, 840,000 children are reported missing annually. While no concise data is available on the incidence from healthcare facilities, infant and child abductions and elopement events pose a high risk to infants and hospital staff. Following an update on the missing child and missing infant policy at a tertiary care hospital in New York, the hospital's emergency preparedness team conducted a full-scale hospital drill. The drill included input and participation from administration, nursing, hospital police, and the pediatric department.

Method: New updates in the policy which had not been tested before were evaluated during this drill, including plain language verbiage to activate a code, the process of alerting hospital police of the missing pediatric patient, hospital police response, and the response of hospital staff in their work areas. Inpatient pediatric wards, the emergency department, and outpatient clinics were given teaching about the new policy and their responsibilities in the event of a missing child or infant. Evaluators were