requirements, HDP should be beyond that. Since 2008, CHPM UGM has been providing various HDP training. However, during the COVID-19 pandemic, there was a change in offline assistance that shifts to online. This study reports the learning activities, output, and challenges.
Method: There were three batches of HDP-paid online courses in 2021. Each batch consists of three series courses. The first series was a basic HDP seminar. The second series was for intensive HDP mentoring for two months. In the second series, the participants focused on analyzing risk and hospital safety index (HSI), detailing job action sheets, and detailing disaster standard operating procedures. Moreover, the third series in the fourth month was an online tabletop exercise (TTX).
Results: 25 hospitals and 112 people participated. However, only five hospitals that committed finalized the HDP document. The learning process challenges were the participant's unstable network and their focus on who was on duty while attending the courses. Although the TTX online was a new trial, it worked to asses hospital preparedness for disaster management through well preparation, detailed scenario and proper evaluation instrument. However, it was still difficult to assist participants in completing the HDP documents online, because observation of the hospital environment cannot be carried out while the evidence provided by participants were limited, for example supporting evidence for the HSI indicators.
Conclusion: The online series of HDP is feasible because it saves accommodation and transportation costs. However, the intensive online mentoring should be carried out longer to allow participants to do assignments and collect evidence of indicators that must be shown to the facilitators.

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The Effect of Different Degrees of Cold Exposure on Medical Laypeople's Tourniquet Application Time and Quality: A Within-Group Trial

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Introduction: Cold exposure generally has a negative effect on tasks that rely on finger dexterity. It is not known if cold exposure will affect medical laypeople's ability to perform first aid for life-threatening bleedings, specifically tourniquet application. This study investigates the effect of cold exposure on medical laypeople's tourniquet application ability.
Method: Twenty-nine adult medical laypersons received brief tourniquet application training and then completed a tourniquet application test in a baseline condition and three partial cold immersion conditions where their hands were immersed in nearly 0°C water. The three cold immersion conditions were 16°C, 12°C, and 8°C hand-skin temperature. Tourniquet application quality was measured using a procedural checklist. Time until bleeding control was also measured.
Results: The results show that cold exposure significantly increases the time to bleeding control, $F(3, 84) = 5.42$, $p < .01$, $\eta^2 = .05$. Planned contrasts revealed a significant increase in time between baseline and 8°C hand-skin temperature ($M_{baseline} = 65.5$s, $SD = 17.0$; $M_{8°C} = 76.9$s, $SD = 19.6$), $t(28) = 3.77$, $p < .01$, $r = 0.38$. No effect was found on the procedural application quality, $F(3, 84) = 2.21$, $p = .09$.
Conclusion: Cold exposure can decrease the chance of survival for the injured person when a medical layperson provides first aid for life-threatening bleedings due to increased application time. The results can also be used when educating medical laypeople in first aid for life-threatening bleedings as it provides evidence of specific effects from a stressor that is common in regions with cold climate. Future research should be aimed at exploring possible mitigation strategies such as tourniquet design or rewarming procedures and investigating if a similar effect exists for prehospital professionals.

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Regional Program for Knowledge Co-creation on Disaster Health Management in ASEAN and Japan

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Introduction: Knowledge management on Disaster Health Management (DHM) is one of the priority areas in the Plan of Action to implement the ASEAN Leaders' Declaration on DHM (POA/ ALD DHM) (2019-2025). The Japan International Cooperation Agency (JICA) has been implementing the Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management (ARCH Project) since 2016 to assist the ASEAN region in strengthening coordination capacity on DHM. A regional training course on DHM for ASEAN member states (AMS) in Japan was proposed to be implemented in 2022 as a JICA's Knowledge Co-creation Program (KCCP).
Method: The training curriculum of the KCCP included emergency and disaster medicine in Japan, international trends on DHM, and underwent reviews by AMS representatives of the ARCH Project. Prior to the training, participants were required to prepare country reports (CRs) outlining information on legislation, system and structure related to emergency and

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disaster medicine, as well as systems to receive international emergency medical teams (I-EMTs).
Results: The four-week KCCP course contained a trial implementation of a four-day training program for receiving I-EMTs and coordination among stakeholders in ASEAN disaster response, based on the regional standard curriculum developed by the ARCH Project, and invited experts in DHM not only from Japan but also from AMS as instructors. Participants analyzed and identified challenges on DHM in their countries, and developed draft action plans (APs) to improve the situation through the knowledge obtained from the program.
Conclusion: The draft APs, the training deliverables, will be shared with the ARCH Project, and used to build a support mechanism to achieve national level targets of the POA/ALD DHM, and the progress will be reflected in the CR in the subsequent year. The KCCP on DHM is expected to facilitate knowledge sharing in AMS and Japan, and contribute to fostering the culture of mutual learning.

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Assessing the Sympathetic Response of Medical Doctors and Trainees when Exposed to a Virtual Realty Mass Casualty Incident Simulation

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Introduction: The occurrence of disasters and mass casualty incidents (MCIs) is on the rise, thus training and rehearsal for disaster response remain paramount. Virtual reality (VR) platforms have previously been shown to be well-received, engaging, and immersive for disaster training. The primary objective of this study was to ascertain if a human actor-based VR MCI scenario could elicit a sympathetic response, as measured by heart rate variability (HRV), in medical doctors and trainees compared to a baseline state.
Method: A simulation was filmed with students, residents, and surgeons on a GoPro 360 camera. Subjects (n=35) were recruited to sufficiently power (1-b=0.8) a Wilcoxon matched-pairs test and Welch's t-test. Subjects watched the simulation on an Oculus Quest headset while having HRV recorded. Multivariate logistic regression was performed to identify factors associated with increased odds of significant sympathetic activation. Statistical significance was established at $p<0.05$.
Results: Thirty-five subjects were enrolled and included three trauma surgeons, three emergency medicine (EM) attendings, eight EM residents, six surgery residents, and 15 medical students. A significant decrease in HRV was observed across all groups in the MCI (median 20 ms IQR 16.2, 31.4 ms) compared to baseline (33.2 ms IQR 27.2, 44.1 ms; $p<0.0001$). Sympathetic activation was most pronounced in students, then attendings, then residents. There was no significant difference in the fold-difference of sympathetic activation of EM physicians (-48.5% +/- 32.1%) versus surgeons (-49.5% +/- 25.2%; $p=0.57$). In all groups, SNS activation occurred independently of heart rate, age, sex, number of years in practice, first responder experience, or prior MCI response.
Conclusion: Live-actor VR MCI simulation elicited a strong sympathetic response from students, residents, and attending physicians. By recruiting and disinhibiting essential neural pathways via controlled SNS activation, VR MCI training has the potential to enhance the encoding and consolidation of disaster training in a low-cost and reproducible manner.

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A Disaster Medicine Education Program for Undergraduate Medical Students in Tohoku

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Introduction: In Tohoku, the northeastern part of the main island of Japan, students entered medical school following the Great East Japan earthquake that occurred on March 11, 2011. Such students wished to volunteer at the time of disaster, however, the undergraduate medical curriculum was inadequate to enable the practice of disaster medicine. Thus, the Tohoku Disaster Medical Assistance Student (DMAS) holds workshops for undergraduate students to acquire disaster medicine knowledge.
Method: Tohoku DMAS offers Peer Learning Education. In the DMAS course, students learned disaster medicine through lectures and simulations under the supervision of disaster medicine experts. The workshops vary in length between 3–8 hours. Tohoku DMAS's goal is to support disaster management headquarters and shelters. Students are expected to provide logistical support that includes recounting the chronology of events at disaster management headquarters and helping with managing evacuation shelters.
Results: According to the activity reports and roster of the course, there were only three students initially when the course was formed in 2018, however, the group continued to grow, and 165 students currently belong to the Tohoku DMAS. Those students include medical students, nursing students, and paramedics students at various universities and colleges. The DMAS has held 30 training sessions since 2018. The total number of training participants was 1,308. The DMAS has held tabletop simulation exercises and lectures on various topics such as shelter management, disaster triage, and nuclear disasters. Furthermore, some members have participated in emergency drills for each prefecture. The current challenge of the program was obtaining adequate insurance coverage for

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