ABSTRACT BOOK

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APCDM 2024 SEOUL

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Invited Speaker 03	Hanjin Lee	Korea, Republic of	Radiation exposure accident cases in South Korea
Invited Speaker 04	Hee Jung Jeon	Korea, Republic of	Special Considerations for Kidney Transplant Patients in Disaster Situations
Invited Speaker 05	Heejun Shin	Korea, Republic of	Chemical Disasters and the Role of HBOT
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Invited Speaker 09	Inmok Oh	Korea, Republic of	Prevention of PTSD in the military: Current Efforts
Invited Speaker 10	Jeon ByeongJu	Korea, Republic of	Korea disaster life support education
Invited Speaker 11	Jeong-gil Kim	Korea, Republic of	Role of Military Medical Personnel as Part of Korean Disaster Relief Team for Turkey Earthquake 2023
Invited Speaker 12	Jongil Na	Japan	Disaster Relief and Recovery Program in Korea: A Comprehensive Analysis and Recommendations for Enhancement
Invited Speaker 13	Jundong Moon	Korea, Republic of	Human stampede in S. Korea I: Descriptive analysis and Issues
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Invited Speaker 16	Kentaro Kajino	Japan	Sharing disaster scene information between prehospital paramedics and hospital DMAT in Japan
Invited Speaker 17	Kyoungwon Jung	Korea, Republic of	Application of Damage Control Principles and the Role of Trauma Centers in Disasters in Korea

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Invited Speaker 01

Detection, Response and Sharing Information During Emergencies in Taiwan

Chien-Hao Lin [1]

1. National Taiwan University Hospital, Taiwan

Aims

Taiwan has experienced various disasters throughout its history. The Emergency Medical Services (EMS) system often serves as the primary and core responder in emergencies and disasters.

Methods

This presentation shares insights from two mass casualty incidents: the 2015 Formosa Fun Coast Dust Explosion and the 2018 Yilan Train Derailment, highlighting Taiwan's disaster management experiences. We demonstrated the standardized, focused protocols currently in use within our disaster response system, including “The First Ambulance Strategy.”

Results

However, several underlying challenges in detection, response, and data sharing were identified. These include the potential underestimation of recorded casualty numbers resulting from self-admitted casualties, the overwhelming impact on the current system of large-scale disasters involving extensive or multiple areas (e.g., earthquakes, floods, and typhoons), and the unintentional neglect and biased assessment posed by unreported affected areas.

Conclusions

Therefore, we emphasize the need to integrate multiple detection systems at the level of emergency operations centers and underscore the importance of efficient information analysis for critical decision-making. The ultimate goal is to achieve effective disaster response through comprehensive data collaboration among all stakeholders.

Keywords

Invited Speaker 02

Disaster Medical Management in Indonesia

Endy Nurhayati, MD, Psychiatrist, M.Biomed

Indonesia is a disaster-prone country, frequently affected by earthquakes, tsunamis, volcanic eruptions, and other natural catastrophes. Effective disaster medical management is critical to mitigating the health impacts of such disasters and ensuring the well-being of affected populations. This paper provides an overview of disaster medical management in Indonesia, outlining the key agencies involved, the disaster management system, and the structured medical response framework. It examines the stages of disaster management—pre-disaster, in the midst of disaster, and post-disaster—highlighting key strategies and actions at each stage. The paper also discusses notable disasters and their associated medical responses, drawing lessons from past experiences. Challenges in disaster medical management, including coordination issues, resource limitations, and the complexities of remote and hard-to-reach areas, are explored. Finally, the paper concludes by summarizing key takeaways and offering recommendations to strengthen Indonesia's disaster medical management system in the future.

Keywords: Disaster Medical Management, Indonesia, Disaster Response, Healthcare Crisis Management, Healthcare Agencies, Disaster Stages, Challenges

Invited Speaker 03

Radiation exposure accident cases in South Korea

Hanjin Lee [1], Changsu Park [1]

1. Korea Institute of Nuclear Safety, Korea, Republic of

Aims

This study aims to present two cases of radiation exposure accidents in South Korea, focusing on the radiological response to radiation accidents and the importance of radiation safety management in preventing similar accidents.

Methods

The study reviews two radiation exposure accidents: one that occurred in late 2016 at a chemical plant during high-altitude work, where a worker was conducting radiographic testing on a pipe weld joint, and the second case in 2019, involving workers conducting semiconductor defect testing. Both cases were assessed through retrospective dosimetry and medical diagnosis.

Results

In the first case, the worker's dosimeter reading exceeded the legal dose limit, which was reported to government authorities. The worker was diagnosed with aplastic anemia and received emergency blood transfusion based on a complete blood count. In the second case, workers suffered warmth, erythema, and pain in their fingers, which were confirmed as tissue reactions from localized radiation exposure at the Korea Institute of Radiological & Medical Sciences (KIRAMS). Investigations conducted by the Korea Institute of Nuclear Safety (KINS) revealed that in both cases, the exposed workers exceeded the legal dose limits, primarily due to non-compliance with radiation safety regulatory procedures.

Conclusions

These cases highlight the serious health impacts of radiation exposure and emphasize the need for strict adherence to radiation safety regulatory procedures to prevent similar accidents. Moreover, the ability of healthcare professionals to quickly identify and diagnose radiation exposure symptoms plays a critical role in the effective response. The study underscores the necessity of robust radiation safety regulations and radiological preparedness for responding to radiation exposure accidents.

Keywords

Radiation accident, Retrospective dosimetry

Invited Speaker 04

Special Considerations for Kidney Transplant Patients in Disaster Situations

Hee Jung Jeon [1]

1. Kangdong Sacred Heart Hospital, Korea, Republic of

Natural disasters, armed conflicts, and global pandemics have significantly increased in recent years, posing unique challenges for kidney transplant (KT) recipients and patients awaiting transplantation. This presentation explores the multifaceted impact of disasters on KT patients and outlines comprehensive strategies for disaster preparedness. KT recipients are particularly vulnerable during disasters due to their need for specialized care, advanced diagnostics, and uninterrupted immunosuppression. Disruptions in healthcare infrastructure can lead to medication shortages, increased infection risks, and compromised access to essential services. The Syrian crisis exemplifies how conflicts can dramatically reduce transplant rates and give rise to ethical concerns such as illegal organ procurement. We present a multi-level approach to disaster preparedness, encompassing governmental responsibilities, roles of nephrology and transplant communities, transplant center protocols, and patient preparedness. Key strategies include developing comprehensive emergency plans, establishing communication systems, and creating patient emergency kits. The DESCARTES Workgroup recommendations for immunosuppression management during the COVID-19 pandemic are highlighted as an example of adaptive strategies. A case study illustrates the potential consequences of inadequate disaster preparedness for a KT recipient, emphasizing the importance of proactive planning. Survey data revealing gaps in patient preparedness underscores the need for improved education and support. In conclusion, robust disaster preparedness and response systems are crucial to safeguard KT patients during crises. It is necessary to establish a comprehensive strategy to protect this vulnerable population in disaster situations and to raise awareness and promote them.

Keywords

Disaster, Kidney Transplant, Disaster preparedness, Immunosuppressants

Invited Speaker 05

Chemical Disasters and the Role of HBOT

Heejun Shin [1]

1. Soon Chun Hyang University Bucheon Hospital, Korea, Republic of

Aims

Chemical disasters, whether accidental or intentional, present significant challenges due to their potential for mass casualties. These incidents primarily cause injuries through blast mechanisms and inhalation of toxic substances, leading to respiratory and systemic toxicities. The management of chemical disaster victims requires prompt identification of toxidromes and targeted treatments to mitigate morbidity and mortality.This study explores the therapeutic potential of Hyperbaric Oxygen Therapy (HBOT) in managing chemical poisoning, with a focus on its application in cases involving carbon monoxide (CO), hydrogen peroxide (H_2O_2), and methemoglobinemia.

Methods

A comprehensive review of historical chemical disaster cases was conducted, examining the types of chemicals involved and their impact on human health. The study also reviewed current guidelines and evidence supporting the use of HBOT in the treatment of various toxic exposures.

Results

HBOT was identified as an effective intervention for specific toxic inhalations and poisonings. For carbon monoxide toxicity, HBOT rapidly increases oxygen delivery, counteracts hypoxia, and reduces the risk of long-term neurological damage. In hydrogen peroxide exposure, it helps alleviate systemic gas embolism by enhancing oxygen solubility. Additionally, HBOT is recognized as an alternative therapy for methemoglobinemia when methylene blue treatment is insufficient.

Conclusions

Chemical disasters require rapid and precise medical responses. HBOT offers a valuable therapeutic option for selected cases of chemical toxicity, especially in managing carbon monoxide poisoning, hydrogen peroxide exposure, and methemoglobinemia. However, it is not recommended for poisoning by substances such as cyanides, opioids, and nerve agents where other specific antidotes and treatments are prioritized. Future research should focus on refining HBOT protocols and expanding its application in emergency disaster medicine.

Keywords

Chemical Disasters, Hyperbaric Oxygenation (HBOT), Carbon Monoxide Poisoning, Hydrogen Peroxide, Methemoglobinemia

Invited Speaker 06

Counter-Terrorism Medicine in the Prehospital Disaster Response

Heejun Shin [1]

1. Soon Chun Hyang University Bucheon Hospital, Korea, Republic of

Aims

Counter-Terrorism Medicine (CTM) addresses the unique challenges posed by terrorist attacks targeting prehospital emergency medical services (EMS). Increasingly complex terrorist tactics, such as the use of ambulances for vehicle-borne improvised explosive devices (VBIEDs) and attacks on healthcare facilities, necessitate specialized preparedness strategies to protect responders and optimize patient care. This study explores the integration of CTM principles into prehospital disaster response, focusing on enhancing responder safety, rapid triage, and specialized medical interventions in the context of terrorist incidents.

Methods

A review of global terrorist attack trends from 1970 to 2020 was conducted using the Global Terrorism Database (GTD). Case studies of past terrorist incidents, such as the Paris 2015 attacks and the Tokyo sarin attack, were analyzed to identify key lessons and best practices in prehospital response. The study also reviews tactical medical protocols like Tactical Emergency Casualty Care (TECC) and CBRNe response strategies.

Results

Key findings highlight the critical role of tactical emergency medical support (TEMS) and interoperability of communication systems in enhancing prehospital care during terrorist incidents. Implementing protocols such as "Stop the Bleed" and TECC guidelines for CBRN (chemical, biological, radiological, nuclear) scenarios can significantly reduce casualties. Effective coordination between military and civilian medical services was shown to improve outcomes in multi-site attacks. Additionally, safeguarding EMS personnel against secondary explosions and VBIED threats is crucial for maintaining operational effectiveness.

Conclusions

Preparedness for prehospital terrorism response requires robust training, integrated command systems, and the adaptation of military medical strategies to civilian contexts. By prioritizing responder safety and optimizing tactical medical interventions, healthcare systems can improve resilience in the face of asymmetric threats. Future efforts should focus on refining counter-terrorism medical protocols and expanding specialized training for EMS personnel.

Keywords

Counterterrorism, Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNe) Agents, Emergency Medical Services (EMS), Tactical Emergency Medical Support (TEMS), Civil-Military Cooperation

Invited Speaker 07

Lessons Learned Regarding the Medical Response to Fukushima NPP Accident and Changes in Radiation Emergency Medical System of Japan

HIDEO TATSUZAKI [1]

1. Radiation Safety Forum - Non-Profit Organization, Japan

2. NPO Radiation Safety Forum, Japan

Aims

The 2011 great east-Japan earthquake happened on 11 March 2011, which evoked tsunami. The tsunami caused disfunction of emergency diesel generators and lead to the TEPCO Fukushima Daiichi Nuclear Power Plant (NPP) Accident with massive release of radio nuclides to atmosphere and ocean. In this lecture, improvement in radiation emergency medical system of Japan based on the lessons learned from the accident is discussed.

Methods

There were some workers with radiation exposures and/or injury who required medical attention in the early phase of the accident. Public evacuation was also conducted which involved more than 150 thousand people in Fukushima prefecture. There were many problems encountered during the mitigation operation and medical response even though a part of the plans decided before the accident worked effectively.

Results

During the response to the accident, some designated hospitals were located in the evacuation area and lost its function. Hesitation to accept contaminated patients in some hospitals was a problem. Iodine thyroid blocking (ITB) was mostly not implemented for the residents.After the accident, medical emergency preparedness and response (EPR) for nuclear emergency was intensively discussed mainly in governmental sectors and academia in Japan. As a result, a new medical system was established in Japan. The new system is composed of “nuclear emergency core hospitals”, “nuclear emergency medical cooperative institutions”, two types of “advanced radiation emergency medical support centers”, and “nuclear emergency medical support centers”.Policy of ITB was also changed. Pre-distribution to individual houses or public places was introduced.

Conclusions

The medical EPR in Japan was improved and strengthened after the accident. Because nuclear or radiological accidents are rare, medical EPR tends to be neglected. Thus, systematic medical preparedness is important. In order to maintain and improve the preparedness, all medical community needs to be involved with proper support from the government sector.

Keywords

medical emergency preparedness and response, medical system, TEPCO Fukushima NPP Accident, iodine thyroid blocking, radiation exposure

Invited Speaker 08

Burn injuries in disaster

Huan Chun M.D

Bestian Seoul Hospital, Department of Burn Surgery

Skin graft surgery for severely burned patients

After a minor burn or small wound, the skin is able to heal on its own. The skin can make new skin cells to replace the damaged tissue. But after a severe burn, the skin usually needs some help to heal.

Skin grafts are used to treat severe burns by placing healthy skin tissue over damaged areas. When the skin can't make new cells on its own, skin grafts can help you heal as quickly as possible.

Skin graft

A skin graft is a surgical procedure where we take a piece of healthy skin and attach it to an area of burned skin that has been excised (cleaned). While first-degree (superficial) burns heal naturally, more severe burns(Deep Second degree burn or deeper) require skin grafts.

Deep second-degree burns and third-degree (full thickness) burns aren't able to naturally replace damaged skin cells on their own. Skin graft surgery enables these severe types of burns to heal quickly and with minimal scarring.

Types of skin grafts

Some of the different types of skin grafts are allografts, xenografts, autografts and synthetic skin substitutes. Skin grafts can be done temporarily and permanently, depending on the needs of the patient.

Temporary burn wound coverings

Temporary skin grafts can be used until the burn wound heals or until the burn survivor has enough healthy skin to create a permanent skin graft.

2 types of temporary skin grafts: allografts and xenografts.

Allograft

An allograft, also known as cadaver skin or homograft, is human cadaver skin donated for medical use. Cadaver skin is used as a temporary covering for excised wound surfaces before a permanent covering can be used.

Xenograft

A xenograft, also known as heterograft, is a skin graft taken from a variety of animals, usually a pig. Heterograft skin became popular because of the limited availability and high expense of human skin tissue.

Wound coverage using heterograft is a temporary covering used until an autograft is available.

Permanent burn wound coverings

When we need to cover the burn wound permanently with a skin graft, we use autografts and synthetic skin grafts.

Autograft

An autograft is skin taken from the person burned. Because the skin is a major organ in the body, an autograft is essentially an organ transplant.

The autograft is surgically removed using a dermatome. Only the top layer of skin is used for donor skin, and the site the skin is taken from, will eventually heal on its own.

Sheet grafts and meshed skin grafts are two types of autografts used for permanent wound coverage.

Sheet graft

Meshed skin grafts

Synthetic skin substitutes

In some cases, we may use synthetic skin substitutes to cover your burn wound. Artificial skin grafts are used when there isn't enough healthy tissue to cover the wound.

Synthetic skin substitutes are made to mimic natural skin as closely as possible. They are made to have two layers of skin, dermis and epidermis, just like your natural skin tissue.

How skin graft surgery is performed

Skin graft surgery consists of:

- The removal of burned tissue.
- Selecting the donor site – the area from which healthy skin is removed and used as cover for the cleaned burn area.
- Removing the skin graft from the donor site (also called harvesting).
- Placing and securing the skin graft over the surgically cleaned wound so it can heal.

During skin graft surgery, general anesthesia will be performed.

Recovering from skin graft surgery

To help the skin graft heal and become secure, the area of the graft isn't moved for five days following each surgery. During this immobilization period, blood vessels will begin to grow from the tissue below into the donor skin. This bonds the two layers of skin together.

Invited Speaker 09

Prevention of PTSD in the military: Current Efforts

INMOK OH [1]

1. Armed Forces Guri Hospital, Korea, Republic of

Aims

PTSD prevention in the military encompasses three key stages: universal prevention, selective intervention, and targeted treatment

Methods

Universal prevention includes pre-exposure training and trauma education for high-risk units. Selective intervention provides early stabilization, screening, and specialized counseling for trauma-exposed individuals. Targeted treatment offers comprehensive psychological and medical support for diagnosed PTSD cases, aiming at functional recovery and reintegration into military or civilian life.

Results

This lecture examines the Army's PTSD prevention manual, emphasizing its structured approach to early intervention, family support, and the deployment of mental health response teams

Conclusions

Looking forward, the implementation of telemedicine and expanded trauma education for base counselors are discussed as strategies to further strengthen PTSD prevention, especially in isolated or high-stress deployments.

Keywords

military trauma, PTSD prevention, mental health support team

Invited Speaker 10

Korea disaster life support education

Jeon ByeongJu [1]

1. NEMC, Korea, Republic of

Aims

This study aims to systematically analyze the current status of disaster life support education in South Korea to identify issues and propose improvement measures. Effective medical support during disaster situations plays a critical role in saving lives and minimizing harm, making the education and training of professional personnel essential.

Methods

We investigated the national disaster life support education program implemented by the National Emergency Medical Center(NEMC) in Korea and the regional disaster life?support education program implemented by disaster medical managers(NEMC), and evaluated key issues including consistency of training content and method, and training target.

Results

The analysis results showed that Korea's disaster life support education is being implemented differently depending on the education target (DMAT, RRT, Paramedics) and Disaster medical managers are providing training that reflects regional characteristics for Disaster medical personels. however, a shortage of scenario-based education tailored to disaster situations limits the improvement of practical response capabilities on-site.

Conclusions

This study proposes the need for expansion of educational opportunities, customized education for each occupation, strengthening of education that reflects regional characteristics, and the enhancement of scenario-based disaster response exercises. Such improvements are expected to contribute to a more effective disaster life support education system, thereby strengthening disaster response capabilities in South Korea.

Keywords

disaster life support education, education status, medical personnel education, South Korea

Invited Speaker 11

Role of Military Medical Personnel as Part of Korean Disaster Relief Team for Turkey Earthquake 2023

COL. Jeong-Gil Kim, MD., MPH.

Chief Medical Officer of Armed Forces Capital Hospital, Republic Of Korea

On February 6, 2023, at around 4:17 am, a strong earthquake with a magnitude of 7.7 occurred in the Turkiye Gaziantep region, and at around 1:24 pm, a strong earthquake with a magnitude of 7.5 occurred in Kahramanmarash again. The area where the earthquake occurred is the border area between Turkmenistan and Syria, and it caused great damage to Turkiye and Syria. Southern Turkiye is an area where no major earthquakes have occurred for 200 years since the magnitude 7.4 earthquake in 1882, so the buildings were not properly designed to withstand earthquakes. Moreover, the earthquake occurred at a shallow depth of 18km in the early morning hours, amplifying the damage. As of February 25, 2023, this earthquake caused at least 50,000 deaths and more than 100,000 injuries. The first team of Korea Disaster Relief Team for Turkiye earthquake carried out rescue work within the Golden Time, and as a result of active rescue efforts by the civil, public, and military as one team, the largest number of survivors were rescued in the history of the Korea Disaster Relief Team. The six-member military medical team fully demonstrated its military medical capabilities in disaster situations by treating crew members, survivors, and rescue dogs at the camp and rescue sites, which served as an opportunity to raise awareness of the role of military medical care in future overseas disaster situations. Based on this experience, we expect to prepare packaged materials and personnel for ready-to-go and play a role as a military medical organization that the public can trust in future national disaster situations.

Invited Speaker 12

Disaster Relief and Recovery Program in Korea: A Comprehensive Analysis and Recommendations for Enhancement

Jongil Na [1]

1. Kwansei Gakuin University, Japan

Aims

This study undertakes a critical analysis of the disaster relief and recovery program in Korea, evaluating its efficacy and identifying key areas for strategic enhancement to bolster disaster resilience. The research investigates the roles of governmental bodies, private sector organizations, and local communities in disaster relief and recovery, with a specific focus on the legal framework, resource allocation mechanisms, and long-term resilience-building strategies.

Methods

This research employs a multi-faceted methodological approach, encompassing:A comprehensive review of the Disaster Relief Act and its implementation modalities.An in-depth analysis of recent disaster case studies, including the 2019 Goseong wildfire and the COVID-19 pandemic.Through these methods, the study examines the strengths and weaknesses of the current system, with particular attention to fundraising and distribution channels, public-private partnerships, and community-based recovery initiatives.

Results

The study reveals that while Korea possesses a well-established disaster management framework with robust immediate relief capabilities, certain challenges persist. These include fragmentation in fundraising and resource distribution channels, potential inequities in aid allocation, and a need for enhanced long-term regional resilience, community recovery, and psychosocial support mechanisms. The study also underscores the growing significance of private sector organizations in complementing governmental efforts, particularly in the context of social disasters.

Conclusions

To optimize Korea's disaster relief and recovery program, this study proposes key recommendations:Streamlining donation channels and establishing a unified legal framework to ensure equitable resource allocation.Strengthening public-private partnerships to provide comprehensive victim support and address systemic gaps in service provision.Enhancing community recovery and resilience through integrated long-term strategies encompassing psychosocial support and regional development.Modernizing the legal framework to adapt to the evolving nature of disasters and emerging challenges.These measures are aimed at enhancing disaster resilience and ensuring effective and equitable support for affected communities nationwide.

Keywords

Disaster relief and recovery, Public-private partnership, Disaster resilience, Social disaster, Korea Disaster Relief Association

Invited Speaker 13

Human stampede in S. Korea I: Descriptive analysis and Issues

Jundong Moon [1]

1. Kongju National University, Korea, Republic of

Aims

Through the distribution of patients and the dispatch of descriptive statistics in the Itaewon disaster, we seek to find lessons learned

Methods

Although officially disclosed data is still limited, information on prehospital time, major symptoms or injury, receiving hospital, etc. were collected retrospectively through the emergency services records.

Results

from about 70 fire stations. It shows a dual wave with peaks in the beginning. The resources to respond to the surge in the number of patients over the two waves were very insufficient.Prehospital time was proportional to the increase in the number of patients The most dominating part of prehospital time was at scene time, which was mostly CPR cases. 70% were female. DOA and cardiac arrest were 60.9%. Chest and abdomen injuries and shock were approximately 5%, each.Although they were distributed to about 37 hospitals, most of them were transferred to hospitals within 4.3km. Hospital data were not directly obtained, but they said that most of the patients transferred to the hospital barely survived, except for patients with limb fractures. The cause of death was traumatic asphyxia and shock due to hemoperitoneum.

Conclusions

There are no static disasters. There is always a surge in the number of patients. Disaster is very dynamic and difficult to predict.In general, triage is key if EMS resource is appropriate, but when the number of patients exceeds EMS resource, on-site medical direction, treatment, and disposition are more important. Also, load and go is usually the rule, but not always. On-site hemostasis might save lives. In case of disaster, CPR is usually considered contraindicated. But we think controversy exists regarding CPR in patients with traumatic asphyxia which has been reported to have relatively a good prognosis.

Keywords

Mass gathering, Human Stampede, Disaster

Invited Speaker 14

Disaster training for Paramedic in Thailand

Kanpaphop Buangam [1]

1. Siriraj Hospital, Mahidol University , Thailand

Aims

Disaster training for paramedics in Thailand is crucial for enhancing emergency response capabilities in a country frequently affected by natural disasters, such as floods, earthquakes, and tsunamis. This abstract explores the importance of specialized training programs aimed at equipping paramedics with the necessary skills and knowledge to effectively respond during disasters

Methods

Such programs encompass practical simulations, advanced medical techniques, and coordination with local disaster management authorities. By focusing on culturally relevant scenarios and the integration of modern medical practices, paramedics are better prepared to provide timely and efficient care, ultimately reducing fatalities and improving patient outcomes in disaster situations.

Results

Key recommendations include the implementation of recurrent training exercises, interdisciplinary collaboration, and the incorporation of community awareness initiatives to foster a more resilient health care response to disasters in Thailand.

Conclusions

The findings underscore the significance of continuous education and preparedness in shaping a robust emergency medical service capable of withstanding the challenges posed by foreseeable disasters.

Keywords

Paramedic, Disaster in Thailand, Paramedic Training

Invited Speaker 15

Risks of stochastic effects of radiation exposure through studies of atomic bomb survivors

Kenji Kamiya [1]

1. Radiation Effects Research Foundation, Japan

Aims

The Radiation Effects Research Foundation (RERF) was reorganized from the Atomic Bomb Casualty Commission (ABCC) and established in 1975 by an agreement between the Japanese and U.S. governments to take over its research studies. ABCC was established in 1947 and operated by the U.S. National Academy of Sciences with funding from the U.S. Atomic Energy Commission to conduct longitudinal studies of the biological and medical effects of A-bombs on humans. The objectives of the research studies of RERF are to clarify the long-term health effects of A-bomb radiation on A-bomb survivors, to contribute to the maintenance of their health and welfare, and to contribute to the enhancement of human health.

Methods

To achieve the above objectives, RERF has conducted large-scale cohort studies of A-bomb survivors and their children: the Life Span Study (LSS) on a cohort of approximately 120,000 people followed since 1950 to examine mortality and cancer incidence; the In Utero Study on a cohort of 3,600 people who were born in and after 1946; and the study of approximately 77,000 children of A-bomb survivors (F1). Information on deaths and causes of death is obtained through the national family registry system and vital statistics, and information on cancer incidence is obtained from population-based cancer registries. In addition, clinical studies through health examinations have been performed as part of these three studies, with the Adult Health Study (AHS) conducted for the LSS/In Utero cohorts and F1 Clinical Study (FOCS) conducted for the F1 cohort. AHS and FOCS perform health examinations every two years and every four years, respectively.

Results

In LSS, comprehensive papers on mortality and cancer incidence have been published periodically. A 2007 paper by Preston D.L. et al., summarizing the findings on solid cancer incidence for the period from 1958 to 1998, detected significantly increased excess relative risks for cancers of the bladder, female breast, lung, brain (tumors), thyroid, colon, esophagus, ovary, stomach, liver, and skin (excluding melanoma). In addition to these organs, an analysis covering the findings for the period from 1958 to 2009 revealed significant dose-response relationships for cancers in the pancreas and uterus corpus in females and the prostate in males. Regarding the dose-response relationship for all solid cancers, the 2007 paper found a linear fit for both sexes, but the analysis of results for the period up to 2009 showed a linear fit for females, yet a linear-quadratic fit for males (Grant E.J. et al.). Meanwhile, the LSS leukemia study showed increased risks of acute myeloid leukemia, acute lymphocytic leukemia, and chronic myeloid leukemia. Subsequent analyses also revealed a significant dose-response relationship for chronic lymphocytic leukemia. The risk of developing leukemia peaked around five to 10 years after A-bomb radiation exposure, but the risks of acute myeloid leukemia and myelodysplastic syndrome have persisted beyond 2000. The dose-response relationship for all types of leukemia showed a linear-quadratic fit.

AHS has been examining non-cancer diseases, and the analysis for the period from 1958 to 1998 suggested an increased risk of radiation for benign thyroid tumors, hyperparathyroidism, strokes, heart disease, chronic liver disease, uterine fibroids, and cataracts (Yamada M. et al.). We are currently preparing a report on the analytical results for the following period.

Conclusions

Through large-scale, epidemiological cohort studies on A-bomb survivors and their offspring, RERF has developed an accurate picture of the long-term health effects of A-bomb radiation. The findings from these studies form the basis for relief measures for A-bomb survivors and inform health management, diagnosis, treatment, and prevention. At the same time, such achievements are highly valued by international organizations, such as UNSCEAR, ICRP, and IAEA, have served as key scientific information that contributed to the establishment of the international radiation protection framework, and have greatly contributed to the creation of radiation protection policies by the national governments through international organizations. This scientific health information on radiation effects, endorsed by international organizations, also plays a crucial role in risk communication for the public both domestically and internationally, promoting an accurate understanding of the health impacts of radiation.

Keywords

Atomic bomb, A-bomb survivors, cohort study, radiation effects, health risk

Invited Speaker 16

Sharing disaster scene information between prehospital paramedics and hospital DMAT in Japan

KENTARO KAJINO [1]

1. Kansai Madical University, Japan

January 1, 2024, many injured, sick and elderly people were transported from the affected area (northern Noto peninsula) to non-affected areas like Kanazawa city in order to prevent disaster-related deaths (Number of people transported for wide-area evacuation: 1,616).During my disaster relief period from January 15th to 21st , total of 495 people were evacuated over a wide area (166 medical evacuations (hospital evacuation), and 299 elderly facilities evacuation), but these missions caused extreme confusion for both disaster relief workers in the affected areas (senders) and disaster relief workers in non-affected areas (receivers).During this period, I worked as the commander of the Ishikawa Central DMAT activity headquarters for receiving refugees from January 14th to 16th in Kanazawa city (non-affected area) and I worked as a member of the DMAT logistics team for sending the refugees from January 17th to 21st at the Suzu City Health and Medical Coordination Headquarters in Suzu city (Affected area).This time, I will introduce about the emergency medical information system (EMIS) in Japan and report on the situation regarding the wide-area evacuation of elderly people in Suzu city (affected area), as well talking about the difficulty of sharing disaster scene information between DMAT and fire agencies during large-scale disasters in Japan

Keywords

DMAT, information, evacuation, paramedics

Invited Speaker 17

Application of Damage Control Principles and the Role of Trauma Centers in Disasters in Korea

Kyoungwon Jung [2,3]

1. Ajou University Hospital, Korea, Republic of

2. Ajou University School of Medicine, Korea, Republic of

3. Ajou University Hospital Gyeonggi South Regional Trauma Center, Korea, Republic of

Aims

The objective of this presentation is to explore the effective application of the concept of damage control, a crucial principle in the treatment of severe trauma patients, in disaster situations. Specifically, we aim to highlight the role of regional trauma centers, which have been established in Korea since 2012, in applying these principles in such scenarios.

Methods

We will review the concept of damage control, its historical application in the field of trauma care, and its proven effectiveness. The study will include an examination of international cases where trauma centers have successfully utilized damage control principles to manage disaster scenarios involving mass casualties. Additionally, we will assess the potential role that Korea's regional trauma centers could play in similar domestic disaster situations.

Results

Damage control, originally developed during World War II as a naval combat principle, refers to the prioritization of treating life-threatening injuries such as severe hemorrhage or infection while deferring less urgent interventions based on the patient's stability. Notable disaster cases, including the 2016 Pulse Orlando Nightclub Shooting and the 2013 Boston Marathon Bombing, demonstrated the effectiveness of damage control surgery principles in managing mass casualty events. In both instances, local trauma centers successfully applied these principles to mitigate casualties.

Conclusions

In the event of a disaster involving multiple severe trauma patients in Korea, the regional trauma centers, which have already mastered damage control principles, should take the lead in triaging and treating patients. Their ability to quickly apply these principles will be crucial in effectively managing patient outcomes in such high-stress, high-casualty scenarios.

Keywords

damage control, severe trauma, trauma center, disasters, Korea

Invited Speaker 18

Preparedness and management of renal failure patients in disasters: Focusing on the great east Japan earthquake

Mariko Miyazaki [1,2], Kazuhiko Tsuruya [2,3], Tomoyuki Yamakawa [2,4]
1. Tohoku University Graduate School of Medicine, Japan
2. Crisis Management Team of Japanese Society of Dialysis Therapy , Japan
3. Nara Medical University, Japan
4. Japanese Association Of DialysisI Physicians, Japan

Aims

In Japan, great earthquakes occur with a certain frequency. While there are many common issues in disaster response, the issues may partially vary depending on the geographical and social conditions of the affected area. In other words, since the exact same situation as in past major earthquake disasters will not be repeated, it is important to minimize the damage and impact by preparedness and flexible responses each time.A characteristic of kidney replacement therapy in Japan is that the number of patients with end-stage kidney disease receiving dialysis treatment is 2,781.0 people/1 million as of the end of 2022 (excluding kidney transplant patients) which is the second highest in the world, and more than 90% of them are treated by hemodialysis at medical facilities.

Methods

Review of disaster responce.

Results

Patients' lives are at risk by interruption of dialysis. We should share that dialysis treatment is highly vulnerable to disasters and needs an effective disaster relief.When a disaster occurs, we can get the information on the damage situation and support needs via information network operated by Japanese Association of Dialysis Physicians (JADP) if internet was available.Although we certainly had prepared, The Great East Japan Earthquake occurred on March 11, 2011. A huge tsunami struck the northern part of Honshu, Japan including nuclear power plant in Fukushima. We cooperated widely to overcome those serious and complex disaster.Since then, several great earthquakes have occurred in Japan.In this context, the Ministry of Health, Labor and Welfare's (MHLW’s) scientific researches were conducted to ensure a dialysis care system in the great disaster.Throughout those approaches, the government concerned disaster measures for dialysis seriously. The JADP was invited to the MHLW’s emergency liaison meeting after Noto Peninsula earthquake of our first attending.

Conclusions

Disaster preparedness and response in dialysis treatment can achieve ?through collaboration among a wide range of organizations.

Keywords

Great earthquake, Hemodialysis, Kidney replacement therapy, JAPAN

Invited Speaker 19

Advances in disaster medicine in Japan and JADM efforts over 30 years

Masato Homma [1]

1. Tottori University, Faculty of Medicine, Japan

Aims

It has been 30 years since the Japan Association for Disaster Medicine (JADM) was established. This paper introduces the efforts made in disaster response during this period and examines the role of our society.

Methods

Retrospective case studies over the past 30 years.

Results

Through numerous disasters experienced over this period, disaster base hospitals, Emergency Medical Information System, wide-area aeromedical evacuation, DMAT, Japan Medical Association Team (JMAT), Disaster Psychiatric Assistance Team (DPAT), and Disaster Health Emergency Assistance Team (DHEAT) have been introduced, and integrated operation of health, medical, and welfare services during disasters has begun. The disaster response in our country has become more comprehensive. The unique feature of our society is the participation of various professions, and the current membership has increased to about 5,600 people.

Conclusions

Before the establishment of our society, valuable disaster experiences were not passed down to future generations. After the establishment, The PDCA (Plan-Do-Check-Act) cycle has been functioning, and reflections on past disasters are being utilized in subsequent disasters. Many initiatives of the society during normal times are being tested in the event of a disaster.The disaster response in our country is steadily progressing, and the role of our society is extremely significant in the accumulation of multi-professional collaboration, technology, and evidence.

Keywords

academic society, multi-professional collaboration, natural disaster

Invited Speaker 20

The Role of NGOs in Prehospital Disaster Medicine: Experiences of Peace Winds Japan

Mototaka Inaba [1]

1. Peace Winds Japan, Japan

Aims

To evaluate the contributions and challenges faced by Peace Winds Japan (PWJ), a non-governmental organization (NGO), in prehospital disaster medicine during the Noto Peninsula earthquake, with a particular focus on the use of helicopters for patient transport, and to identify best practices for effective disaster response.

Methods

A retrospective analysis was conducted on PWJ's activities during the Noto Peninsula earthquake. Data were collected from staff reports and local partners, focusing on deployment strategies, utilization of technology?including helicopters for aeromedical transport?collaboration with local authorities and other aid organizations, and the types of medical and logistical support provided.

Results

Immediately after the Noto Peninsula earthquake, PWJ rapidly deployed to the affected areas, utilizing helicopters to reach locations that were difficult to access due to damaged infrastructure. Specialized medical teams provided initial emergency care, facilitated patient transport via helicopters, and distributed essential supplies. The use of helicopters significantly reduced response times and allowed for the swift evacuation of critically injured patients. Close collaboration with local municipalities and other support organizations enhanced information sharing and effective relief operations. Challenges included difficulties in mobility and information gathering due to damaged roads and communication networks, as well as ensuring staff safety amid aftershocks. These issues were addressed through prior preparedness and flexible response measures.

Conclusions

PWJ's experience during the Noto Peninsula earthquake demonstrates the indispensable role of NGOs in prehospital disaster medicine. Rapid response, effective use of technology?especially helicopter-based aeromedical transport?and collaboration with local organizations optimize support to disaster victims. The lessons learned highlight the importance of strengthening the role of NGOs in future disaster responses and underscore the significance of cooperation with governments and international bodies.

Keywords

Prehospital Disaster Medicine, Non-Govermental Organizations (NGOs), Aeromedical Transport

Invited Speaker 21

Disaster Emergency Medical Response Manual

Myeongil Cha [1]

1. NEMC, Korea, Republic of

Aims

This lecture introduces Korea's disaster emergency medical response manual

Methods

The first disaster emergency medical response manual created in 2016 and the subsequent two revisions were explained

Results

The contents of the disaster emergency medical response manual have also changed due to Multi-casualty Incidents that have greatly affected Korean society

Conclusions

Disaster Emergency Medical Response Manual will continue to develop based on experience in responding to various disasters

Keywords

disaster, DMAT, Manual

Invited Speaker 22

Advanced Hyperbaric Oxygen Therapy : Essential Equipment and Facilities for Disaster Response

PARK JONGJOON [1]

1. IBEX MEDICAL SYSTEMS Co., Ltd., Korea, Republic of

Aims

To utilize a hyperbaric oxygen therapy (HBOT) chamber in a disaster response setting, We aim to show how to establish the equipment, facilities, and environmental conditions for using emergency HBOT situations.

Methods

To establish a mobile ambulance-based hyperbaric oxygen therapy system, components are set up inside the container, including a hyperbaric oxygen therapy chamber, chamber control, air & oxygen and patient monitoring system.

Results

Development and production have been carried out on mobile mono HBOT systems and ambulance-based HBOT system, designed for use at disaster sites.

Conclusions

The system is expected to significantly reduce casualties by ensuring first-aided hyperbaric oxygen therapy in various disaster situations, fires, maritime accidents, gas leaks, in securing the golden hour.

Keywords

Hyperbaric, Disaster, Hbot, Oxygen, Chamber

Invited Speaker 23

HEMS operation in disaster, Japan

Ryukoh Ogino [1]

1. Mizushima Kyodo Hospital, Japan

Aims

One of major Japanese HEMS systems, Doctor-Helicopter Service (Doctor-Heli), has started its operation from April, 2001 after successful trial period of one and half year from October, 1999 to March, 2001. Since then the number of Doctor-Heli base has progressively increased. As of April, 2023, we have 57 Doctor-Heli bases in 46 Prefectures.It has been recognized that the HEMS activity is must for the mass disaster since the epoch-making event of Hanshin-Awaji great earthquake occurred in 1995 around Kobe area in Japan .The lessons we learned from this great earthquake resulted in the establishment of the new systems in Japan to cope with the coming megaquakes in the near future. The systems include Doctor-Heli service, DMAT (disaster medical assistance team) with EMIS (emergency medical information system), SCU (staging care units) and so on.These systems have been established in early 2000 and have progressively improved to cope with the future megaquakes in Japan.And these systems have worked efficiently to some extent for the recent great earthquakes and other natural disasters. However, these systems need further improvement by repeating the drills for the megaquake.In Japan, HEMS includes not only Doctor-Heli but also helicopters from fire department and self-defense forces. Those HEMS need to cooperate in the future megaquake or other disasters.Especially major natural disasters such as Nankai-Trough earthquake are anticipated in the near future. Therefore, progressively revised disaster plans and drills in every year have been under way in many prefectures and national-level. In this lecture, the role of the Doctor-Heli will be mainly presented and discussed in order to cope with the future major disasters in collaboration with DMAT and other emergency air-transport services.

Invited Speaker 24

Education of disaster medicine for firefighters and paramedics in Japan

Satoshi Ishihara [1], Yu Kikuchi [2], Akira Katayama [3], Tetsunori Kawase [1], Shinichi Nakayama [1]

1. Hyogo Emergency Medical Center, Japan

2. Kobe Fire Department, Japan

3. Hyogo Fire Academy, Japan

Aims

To review an exercise of prehospital care for mass-casualties after the Great Hanshin-Awaji Earthquake (GHAE).

Results

In Japan, the standardization of disaster medicine in accordance with UK original MIMMS was instituted to train Disaster Medical Assistance Team (DMAT) since GHAE in 1995. Mass Casualty Life Support (MCLS), consistent with the perspective of DMAT, is held nationwide by the Japanese Association of Disaster Medicine, in order to enlighten police and fire department (FD) personnel for collaboration with DMAT. MCLS has been emphasizing that the disaster mode must be triggered quickly, because delay in the initial response can lead to irreparable delays in definitive care and preventable deaths.Despite these educational activities, a survey conducted by the Kobe FD Training Committee in 2018 revealed that many members were anxious about on-site activities in case of mass casualties, and they wished for training in disaster response. In a traffic accident?that occurred at downtown in 2016, the prolonged time spent on-site was pointed out at a review, where FD staffs and physicians in critical centers participated.?Lessons learned by this case were easy initiation of mass casualty protocols for incidentsinvolving few injured could lead to confusion and significant delays in transport in large-scale FDs. This is in stark contrast to the MCLS policy. Accordingly, unit dispatch protocol?(staging dispatch depending on number of casualties) was promptly initiated. Moreover, a simulation of a mass casualty case was conducted at an annual technical training session. Based on the issues noted in this training, the mass casualty protocol cpuld?be revised. In addition, joint training with FD?in Hyogo including rescue team is conducted in the DMAT training, to remember JR Fukuchiyama Line train derailment.

Conclusions

Numbers of current activities are contributing to the coordination of medical and FD personnels.

Keywords

drill, prehospital care, mass casualty, Great Hanshin-Awaji Earthquake, DMAT

Invited Speaker 25

Human stampede, experience and lessons learned

Seo Kangyoon [1]

1. NFA, Korea, Republic of

Aims

저는 서울소방 119 특수구조단 119 항공대에서 구조&구급대원으로 근무하고 있습니다.2022 년 10 월 29 일, 친척집을 방문하고 집으로 돌아가는 저녁시간. 그날 저는 이태원에서 발생한 다수의 사상자 속생존자면서 구조자였습니다. 10 년간 현장에서 사람들을 구조하고 살리는 직업을 가진 제가 그 이야기를 처음 해보고자 합니다.

Methods

이태원 해밀턴 호텔 골목에선 그날 다수의 사람들이 깔리면서 159 명 사망, 부상자 197 명, 외국인 사망자 26 명의 사상자가 발생하였습니다. 그 골목에서 빠져나와 무너진걸 지켜본 후 사고 초반에는 경찰과 시민들, 그리고 현장에 출동한 소방직원들과 함께 소수의 인원들을 구조하였습니다. 그러나 야속하게 시간은 흐르고 흘러 1 시간 남짓 시간이 지나고 모두를 구조할 수 있을거라는 희망과는 다르게 너무 많은 인명피해가 발생하였습니다. 사고 현장은 너무 좁았고, 사람은 너무 많았습니다. 아직도 그 사람들의 얼굴과 목소리를 떠올리면 쉽게 잠을 이루지 못합니다. 시간이 흘러 사고가 발생한지 2 년이 지났습니다. 그곳에서 어렵게 살아남은 사람들, 용기내어 사람들을 구조했던 시민들, 가족과 지인들을 잃어버린 사람들. 아직 이태원은 누군가에게는 두렵고 무서운 장소입니다.

Results

1959 년 부산행사에서 67 명이 압사했고,150 명이 부상당했습니다. 1960 년 서울역에서 31 명이 압사 당했고 41 명이 부상을 입었습니다.1996 년 음악방송에선 여학생 2 명이, 2000 년엔 타종행사에서 5 세 남아가, 2005 년 방송 콘서트 프로그램에서 11 명이 압사 당했고, 110 명이 부상당했었습니다. 과거 규모는 이태원 사고보단 작지만 수많은 사상자를 만들었던 비슷한 사례들? 반복해가고 있습니다. 추후에는 압사에 관한 행동 매뉴얼과 국가적 관심이 필요하다고 생각합니다.또한 이태원 사고 직후 본인은 생존하였으나 현장에서 친구들을 잃어버린 고등학생이 자살을 한 사건이 발생하였습니다. 그 사건 이후 자살을 한 생존자나 목격자는 없었지만 다른 사람들은 정말 괜찮은건지 되짚어봐야합니다. 저는 그날 근무를 쉬는날이였고 현장에서 구조를 하였지만 이태원 사고 관련 인원에 포함은 되지 않았습니다. 다행히 서울심리지원센터에서 지원하는 상담을 자발 신청하여 도움을 받고 있습니다.

Conclusions

이태원 사고에 피해를 입은 생존자도, 심폐소생술과 환자 이동을 도왔던 시민들도, 현장에서 수많은 사상자들을 구조하고 보살핀 소방관,경찰관들도 상처를 가지고 살아갑니다. 미국은 911 테러 사건, 일본은 고베 대지진 사고 이후 현재까지도 끊임없이 생존자와 구조자 등의 심리치료를 지원하고 모니터링하고 있습니다. 아수라장 같은 다수의 사상자가 발생한 재난 현장은 일반적인 사고와 다르다고 생각합니다. 개인에게 더 많은 PTSD 와 사회적 단절을 만들 수 있습니다. 국가와 국민들의 지속적인 관심이 필요합니다

Keywords

이태원, 다수사상자, 압사사고, 생존자, 구조자

Invited Speaker 26

Review of the Biological Studies on the Effect of Low-dose Radiation

Seong-Jun Cho [1], Jiyoung Kim [1], Eunhee Hong [1]

1. Radiation Health Institute, KHNP, Korea, Republic of

Since the biological effects of ionizing radiation have been conducted for a long time, many studies have shown that high-dose radiation was clearly harmful to living organisms due to genome-wide apoptotic/necrotic tissue injury induced by DNA damage. However, the biological effect and its risk of low-dose ionizing radiation (LDIR), i.e., 100 mGy, has not been fully determined. Nevertheless, based on a recommendation by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), a linear-no-threshold (LNT) model whereby risk of harm increases linearly without a threshold is used to establish radiation protection guidelines for radiation workers. However, it is still controversial whether LNT model can clearly explain the biological effect of low-dose radiation. Despite the risks from high-dose radiation, many scientists have suggested LDIR is beneficial to human health or in the case of specified biological conditions. In fact, some showed LDIR increased cellular activities such as DNA repair, anti-oxidant activity, adaptive protection against DNA damage/cell survival, immunopotentiation etc. These results demonstrated that LDIR might exert different cellular effects from those of high-dose radiation (such as DNA damage, cell death, and cancer development). Therefore, many further studies are needed to be conducted for clearly elucidating the biological effects on the levels of low-dose radiation. [Grant No. A22LP05, KHNP]

Keywords

Low-Dose radiation, Biological effect, LNT model, hormesis model, LDIR

Invited Speaker 27

Competencies in Disaster Nursing: Using Keyword Network Analysis

Seunyoung Joe [1], Mijung Lee [1], Seoyoung Baek [1]

1. Korea Armed Forces Nursing Academy, Korea, Republic of

Aims

This study explores key competencies in disaster nursing using keyword network analysis. The research aimed to identify frequently occurring keywords in studies related to disaster nursing competencies and to examine their network characteristics.

Methods

A retrospective, descriptive approach was applied, analyzing 256 articles and 1,318 keywords sourced from CINAHL, Embase, PubMed, and WoS without a time limitation. After standardizing keywords, both word cloud and network analysis were performed using NetMiner.

Results

Findings show a notable increase in publications on disaster nursing since 2020, with the USA, China, and Iran contributing the highest number of studies. Quantitative research constituted 34.0%, while qualitative studies made up 26.6%, with descriptive surveys being the most common method. The most frequent keywords identified were "preparedness," "nurses," and "disaster nursing." In the "Person" category, keywords such as "nurses," "emergency nurses," and "public health nurses" were prominent, whereas in the "Concept" category, terms like "preparedness," "education," "competency," and "management" emerged frequently. For "Context," keywords such as "COVID-19," "MCI," "natural disasters," and "pandemics" were most common.

Conclusions

The results underscore the growth and diversification of research in disaster nursing, emphasizing the need to focus on complex competencies in various contexts, including natural disasters, infectious diseases, and human-made crises. Expanded research on areas such as response and recovery, nursing interventions, health outcomes, ethical considerations, and communication would support a comprehensive scientific foundation for clinical disaster nursing.

Keywords

Disaster Nursing, Preparedness, Competency-Based Education, Public Health Nursing, Emergency Nursing

Invited Speaker 28

Innovations in Helicopter Emergency Medical Services: Enhancing Disaster Response

Tomokazu Motomura [1]

1. Nippon Medical School, Chiba Hokusoh Hospital, Japan

Aims

On New Year's Day 2024, a major earthquake disaster occurred on the Noto Peninsula, a large peninsula in the northern part of the Japanese archipelago. Due to the harsh weather, including continuous snowfall, it was so difficult to transport by land, so more than 700 patients were transported by the Doctor-helicopters and helicopters from the Self-Defense Forces and so on. This was an activity that made use of past experience and system construction.

Methods

Since 1990, Japan has maintained that in the event of a large-scale disaster, disaster victims can be transported by Fire department helicopters already deployed nationwide, and that dedicated medical helicopters are not necessary. However, in 1995, the Great Hanshin-Awaji Earthquake occurred, and more than 6,400 people died. Among the deaths, approximately 500 were preventable deaths. It is believed that early air transport could have saved lives, but on the first day of the disaster, only one person was transported by a Fire department helicopter. This was because the Fire department helicopters were needed to respond to a large-scale fire.

Results

This experience was one of the triggers for the introduction of dedicated medical helicopters in Japan in 2001, and currently 57 helicopters are deployed nationwide. I led the Doctor- helicopters during the Great East Japan Earthquake (2011) and the Kumamoto earthquake (2016), transporting many patients, and developed a chain of command and control, a location information monitoring system (D-NET).

Conclusions

We continue to take on challenges while advancing digital transformation (DX) even in everyday local disasters.

Keywords

HEMS, disaster, earthquake, command, challenge

Invited Speaker 29

The experiences and know-how of Disaster education and training in Taiwan

Yawen Hsiau [1]

1. Taoyuan general Hospital , Taiwan

Aims

Intruction the disaster medical respons in Taiwan. and the 3 levels of taiwan DMAT response.Use the example of Nothern rDMAT to share the experience of Disaster medical training in Taiwan

Invited Speaker 30

Sharing Hospital Response Plans and Training Experiences for Accommodating Patients with Radioactive Contamination

YEONGHWAN KIM [1]

1. Cheju Halla General Hospital, Korea, Republic of

Aims

Since 2004, Jeju Halla Hospital has functioned as a secondary radiation emergency medical institution under an agreement with the National Radiation Emergency Medical Center. The hospital's mission is to establish a national medical response system for radiation disaster prevention and management, aimed at assessing the national radiation emergency medical system's effectiveness.We aim to evaluate whether the hospital’s radiation emergency medical team has developed a rapid response system for radiation incidents and implemented job-specific training and education. Additionally, we seek to determine if appropriate equipment and facilities are in place to enhance local emergency medical infrastructure and if advanced technologies are shared through relevant conferences and training.

Methods

Over 20 years, we assessed the development of specialized personnel training and the enhancement of human and material resources for effective radiation disaster response. This involved examining participant numbers in education and training, personnel changes, and the types and quantities of emergency medical equipment added.

Results

Our efforts in the radiation emergency medical service project established the necessary infrastructure for treating radiation-related patients during disasters. This allowed us to maintain the radiation emergency medical service system and improve emergency response capabilities through expanded medical equipment.

Conclusions

A robust medical response system requires continuous acquisition and management of radiation emergency equipment and ongoing specialized personnel training. Support from government and organizations is crucial for sustaining the system.Reference1. Introduction to Radiation Emergency Care, 5th edition2. On-site radiation emergency clinic behavior manual3. Radioactive Decontamination Procedure Guidelines, 4th Edition4. Radiation Injured Person Classification Guidelines, 3rd Edition

Keywords

Radiation emergency medical system, Hospital Response Plans and Training

Year	Education (New, Supplemental)	Workshops and Symposia	Radiation Disaster Preparedness Training	Overseas Training
2004~ 2005	12	17	3	1
2006~ 2010	23	32	64	6
2011~ 2015	77	31	109	7
2016~ 2020	124	10	129	6
2021~ 2023	79	10	36	0
Total	315	100	341	20

Table 1. This table summarizes training and participation activities in various areas related to radiation emergency preparedness from 2004 to 2023.

Invited Speaker 31

Use of Virtual Reality for Hazardous and Toxic Material Decontamination Training

Yih Yng Ng [1,2], jeannie Lee [3], Teck Jun Tan [3], David Teng [2], Kan Chen [3]

1. Nanyang Technological University, Singapore

2. Tan Tock Seng Hospital, Singapore

3. Singapore Institute of Technology, Singapore

Aims

During a hazardous material incident, large numbers of casualties can arise in a short span of time, requiring a significant increase in capacity of people to help decontaminate affected casualities. The training of such patients can be very time consuming and costly due to the cost to organise the training, the space required, the manpower resources, equipment as well as staff time needed.A proof of concept virtual reality program was conceptualised to significantly reduce the space, equipment cost, training manpower needed to enable staff to undergo such a training to help them understand the requirements when a rare incident like this occurs and to be able to respond appropriately.

Methods

This program was developed as a collaboration between the Tan Tock Seng Hospital Emergency Department (TTSH ED)and the Singapore Institute of Technology Infocomm Technology Cluster. The program was developed through participation in the actual training exercise, consultation with subject matter experts (doctors and nurses) from the TTSH ED who are in charge of organising the exercises.?The key components were then developed such as? the chemical scanning process, prioritisation and casualty dispatch module were then developed based on existing processes and simulating the actual work environment.

Results

13 experienced nurses and 13 new nurses underwent the training. Both groups were able to complete the training, although the experience nurses who had undergo actual exercise scored better.

Conclusions

Although VR has limitations in terms of realism, it can be useful to supplement training for rare situations selectively to reduce costs and overcome space contraints if applied well.

Keywords

virtual reality, hazmat, decontamination, training

Invited Speaker 32

Japan’s Disaster Medical System: Past Developments, Present Capabilities, and Future Preparedness for Large-Scale Disasters

Yoshiki Toyokuni [1], Akinori Wakai [1], Jiro Oba [1], Kayako Chishima [1], Ruki Masudome [1], Satoshi Kotani [1], Yukiko Habano [1], Yuichi Koido [1]

1. National Hospital Organization Headquarters Japan DMAT Secretariat, Japan

Aims

It aims to review Japan's disaster medical system's development and examine how knowledge gained through international dispatch experiences and domestic disaster responses has been applied and strengthened in the national system. Additionally, it considers how the current system should respond to and prepare for anticipated large-scale disasters.

Methods

The development of Japan's disaster medical system was examined based on international and domestic experiences. Key components, including the Disaster Medical Assistance Team (DMAT), Disaster Base Hospitals, Wide-Area Medical Transport (MEDEVAC), and the Emergency Medical Information System (EMIS), were analyzed for their roles and effectiveness. The progress in the standardization of international medical teams was also referenced.

Results

Japan's disaster medical system was initially based on international medical support experiences, beginning with the Cambodian refugee crisis in the 1970s. Following the Great Hanshin-Awaji Earthquake in 1995, the domestic system was further developed by establishing DMAT, Disaster Base Hospitals, Wide-Area Medical Transport, and EMIS infrastructure. This system has facilitated rapid patient transport and standardized information collection, significantly enhancing Japan’s disaster response capabilities. However, given the anticipated challenges posed by future mega-earthquakes, domestic medical resources alone may be insufficient, making international medical team support essential. As the standardization of international medical teams progresses, joint training and knowledge-sharing efforts are necessary to enhance readiness for the reception of international support.

Conclusions

Japan's disaster medical system has dramatically advanced by integrating international medical support experiences and domestic disaster response infrastructure. To prepare for future large-scale disasters, it is urgent to strengthen the national system and ensure the smooth reception of overseas medical teams. Adopting international standards and developing a coordinated support system through training and adjustment are expected to contribute to effective disaster response.

Keywords

Disaster Medical Assistance Team (DMAT), Disaster Base Hospital, MEDEVAC system, Emergency Medical Information System (EMIS), International Emergency Medical Teams

Invited Speaker 33

Community Revitalization and Disaster Risk Reduction in Depopulated Areas in Japan

Yoshiyuki Yama [1]

1. Kwansei Gakuin University, Japan

Aims

Traditionally, recovery efforts in disaster-stricken areas have prioritized a civil engineering approach. However, while this delivers its goal of successful reconstruction according to objective and measurable standards, there seems to be a lack of understanding of what full recovery means for the affected population. Reviving symbols of a community?such as the cultural heritage and traditional festivals?can be an extremely effective way of furthering post-disaster recovery efforts. Additionally, disaster-stricken areas carry collective traumatic memories that can be healed through the revival of those symbols and rituals, which may be conducive to emotional recovery within the community, defined here as “symbolic recovery,” which departs from the conventional civil engineering approach. For the resurgence of symbols to be effective, there is a need to methodically design the “recovery rituals” and effectively implement them. This presentation will examine the case of recovery from disasters in relation to depopulation and analyze the role taken up by symbolic recovery.

Keywords

collective traumatic memories, emotional recovery, symbolic recovery, symbols of a community

Invited Speaker 34

Disaster and Trauma

Youngeun Jung [1]

1. Jeju National University Hospital, Korea, Republic of

Aims

This presentation attempts to define, classify, and discuss disaster management from a mental health perspective.

Methods

It will begin by examining disaster typology and then proceed to examine various disaster outcomes and predictors. This presentation will also critically review potential relevance for post-disaster settings and finally synthesize relevant implications for disaster intervention policy and practice from a mental health perspective.

Results

Since most disasters cannot be prevented, the?responses to them need to continue to be developed and refined. The application of Psychological First Aid (PFA) has received nearly universal acceptance as the ‘intervention of choice’. It seems increasingly valuable in helping to mitigate distress and foster well-being in those affected by the disaster. The goals of mental health intervention for disaster are to minimize exposure to traumatic stressors, educate about normal responses to trauma and disasters, provide consultations to other health care professionals and community leaders, advise people on when to seek professional treatment, assist in the resolution of acute symptomatology; reduce secondary morbidity, and identify those who are at higher risk for the development of psychiatric disorders and to treat those who develop them.

Conclusions

Planning and preparedness for disasters are essential to meeting challenges. Disaster management is a continuous and integrated cyclical process of effectively planning, organizing, coordinating, and implementing measures to prevent and manage disasters.

Keywords

disaster, trauma, mental health

Invited Speaker 35

Japan DMAT Training and Exercise

YUICHI KOIDO [1], YOSHIKI TOYOKUNI [1], AKINORI WAKAI [1], SEIJI MIMURA [1], HISAYOSHI KONDO [1], MASAYUKI ICHIHARA [1]

1. National Hospital Organization Headquater, Japan

Aims

Japan DMAT (Disaster Medical Assistance Team) has been training members since 2005 and currently consists of approximately 1,800 teams and 18,000 personnel. I will explain the training for Japan DMAT.

Methods

The training includes two types: the member training program, which is required to become a team member, and the skill maintenance program, which is aimed at retaining the necessary skills. There are two types of skill maintenance training: one that focuses on classroom-based learning and another that centers on practical training, known as the "live-action block training."

Results

In the member training program, education is conducted based on CSCATTT, with a particular emphasis on CSCA. Each Japan DMAT team consists of 4 to 5 members, which is small, but once they enter a disaster area, they combine and work as a larger, organized unit. For organized activities to be effective, it is essential that the gathered DMAT members share the same mindset. This is why training is conducted. Other training programs include the Leadership DMAT Registration Training for those aiming to become leaders, and the Logistics Training for those who wish to become experts in logistics.

Conclusions

In the lecture, I would like to explain the content of these training programs.

Keywords

Japan DMAT , Training and Exercise

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P-001

Education, Training, & Simulation

The impact of hospital disaster prevention training conducted by the non-government organization TMAT(Tokushukai Medical Assistance Team)

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2. General Incorporated Association Tokushukai, Japan

3. Sapporo higashi Tokushukai Hospital, Japan

Aims

In Japan, disaster base hospitals(DBH) are being established in each region to serve as hubs in the event of large-scale disasters. DBHs prepare supplies and personnel and conduct regular training so that they can respond to disasters. However, the number of DBHs is limited, and many other hospitals are struggling to prepare for disasters and respond when disasters occur. To address those issues, based on past hospital disaster experiences, Non-government organization TMAT created and conducted the 1-day disaster response training course for hospital staff who are not familiar with disaster response. The training will include an introduction to disaster prevention tools and practical exercises such as designing triage areas using blueprints of an actual target hospital. In this presentation, we will report on the effectiveness of the training.

Methods

To evaluate the learning effectiveness of this training, Kirkpatrick's four-level scale was used, levels 1 and 2. At level 1, the trainees' satisfaction was evaluated, and at level 2, a test of equal difficulty was administered before and after the training to evaluate the training.

Results

Participants satisfaction was rated high at 9.73 out of 10. In addition, surveys conducted after the training revealed comments such as, "Progress has been made in revising the manual," and "Many of the participants joined the disaster response committee." The difference in the confirmation test was 4.04 points (p=3.9×10-112), which was a significant difference (by t-Test: Paired Two Sample for Means), demonstrating the effectiveness of the education.

Conclusions

This training enabled the participants to think concretely about what they should do, which is believed to have had an educational effect and raised their awareness of disaster prevention. In the future, we plan to follow up on Kirkpatrick's four-level assessment of levels 3 and 4 and further refine the training.

Keywords

1-day disaster response training course, Training course, Education, Kirkpatrick's four-level scale

P-002

Education, Training, & Simulation

（The Relationship Between Disaster Prevention Awareness and Disaster Self-Efficacy Among Japanese Nursing University Students in Areas Expected to be Affected by the Nankai Trough Earthquake）

Yoko Nakano [1], tomoya yokotani [2], rika nakajima [1]

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2. Faculty of Wakayama Health Care Sciences Department of Nursing, Takarazuka University ofMedical and Health Care, Wakayama, Japan, Japan

Aims

To clarify the relationship between disaster prevention awareness and disaster self-efficacy among Japanese nursing university students in areas expected to be affected by the Nankai Trough earthquake.

Methods

We conducted a web-based self-administered questionnaire survey using Google Forms on 245 undergraduate nursing students, covering 8 items related to basic attributes, 20 items on disaster awareness, and 11 items on disaster self-efficacy. The results were analyzed using descriptive statistics, Spearman's rank correlation coefficient, and the Kruskal-Wallis test. The statistical analysis was conducted using EZR（Easy R）.

Results

There was a correlation between the disaster prevention awareness scale and the disaster self-efficacy scale. In the self-efficacy scale, first-year students showed significantly higher results in the second factor of interpersonal resource utilization compared to fourth-year students.

Conclusions

The correlation between disaster awareness and disaster self-efficacy suggests how education and training might impact these elements. This result serves as a basis for measuring the effectiveness of disaster preparedness and education programs and developing more effective disaster response strategies. However, the finding that first-year students scored significantly higher than fourth-year students on the ability to utilize interpersonal resources in the self-efficacy scale may indicate that overconfidence in personal and surrounding safety measures, or familiarity with the environment, could lead to a diminished sense of crisis. Additionally, frequent small-scale disasters or drills might cause psychological desensitization, so it is important that disaster training includes practical, realistic scenarios. Regular disaster training opportunities should be provided across all grade levels, and educational efforts are needed to further establish and enhance disaster awareness.

Keywords

Disaster Prevention Awareness , Disaster Self-Efficacy , Nursing University Students , Nankai Trough Earthquake, disaster education

P-003

Education, Training, & Simulation

An Attempt to Share Information among Multiple Organizations by Integrating Organizational Charts in a Comprehensive Drill for Aircraft Accident Countermeasures at Osaka International Airport.

YUSUKE ITO [1], Koichi Inukai [1], Juniticho Kato [1], Masataka Fukuda [1], Hirotada Kittaka [1], Yasuyuki Hayashi [1], Hirotaka Sawano [1]

1. Saiseikai Senri Hospital, Japan

Aims

Osaka International Airport has been conducting annual aircraft accident response drills based on the Osaka International Airport Emergency Plan. Although action cards have been introduced and medical equipment and materials have been installed, problems have arisen in the sharing of information between the organizations involved. Especially, information was not shared between the firefighters and medical organizations, and inefficient activities were carried out as each organization collected the same information at neighboring command posts. In this study, we attempted to integrate the organizational charts of firefighters and medical institutions to facilitate efficient information sharing and collaborative activities between the two organizations.

Methods

The method was a retrospective study of post-training questionnaire descriptions. Questionnaire descriptions from the 2016 comprehensive drill before the organizational chart integration and those at the time of the 2018 drill after the integration were compared by text mining.

Results

According to text mining, in FY 2016 survey statements were often described as “information sharing,” “collaborative,” and “difficult,” while in FY 2018 they were often described as “smooth,” “good,” and “commanding.”

Conclusions

By integrating the organization chart, activities naturally took the form of activities in the same command center, and the results of text mining can be interpreted as smooth and good command, indicating that the integration of the organization chart had a certain effect. However, there are many organizations involved in aircraft accidents, and sharing information among them is not easy. In the future, it was considered important to consider integrated information sharing methods that make full use of IT.

Keywords

disaster drill, integrate organization chart, information sharing

P-004

Education, Training, & Simulation

Efforts to enhance a disaster base hospital’s disaster preparedness involving DMAT members ： Using a participatory change approach to departments

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1. Kyoto Yamashiro General Medical Center, Japan

Aims

Aiming to reform the hospital’s organizational disaster preparedness and enhance collaboration during disasters, we implemented a participatory approach based on Kotter's 8-Step Change Model.In Japan, a delay in the initial medical response during the 1995 Great Hanshin-Awaji Earthquake may have resulted in “preventable disaster deaths.” Learning from this challenging disaster medical care experience, disaster base hospitals were established in 1996, and the Disaster Medical Assistance Team (DMAT) system was launched in 2005. During normal times, disaster base hospitals prepare a support system to accept DMAT and prevent disaster-related dysfunction. However, at our disaster base hospital, poor collaboration between the hospital’s disaster prevention committee and DMAT members, caused insufficient disaster preparedness.

Methods

Targeting 13 DMAT members, we implemented six processes based on Kotter's change theory. In FY 2022, we initially focused on fostering a sense of crisis, building a change-promoting team, and creating a vision and strategy. In FY 2023, we disseminated the vision for change, encouraged staff initiatives, and worked on short-term results.

Results

As a result of the two-year initiative based on the change theory, the number of departments that created disaster action cards increased from 12 to 40. Changes brought about by the establishment of department-led action cards included increased crisis awareness among hospital staff and greater willingness of DMAT members to learn about disasters.

Conclusions

Implementing the six processes of the participatory approach based on Kotter's 8-Step Change Model enhanced organizational reform of our hospital’s disaster preparedness. We continue the processes in FY 2024. Existing results are leveraged to further promote change by refining action cards and departmental training, while advancing disaster prevention and mitigation activities based on the regional comprehensive care system, and incorporating these practices in the organizational culture.

Keywords

Disaster base hospital, DMAT, hospital disaster prevention

P-005

Education, Training, & Simulation

The Educational Effectiveness of Virtual Reality in Self-Selected Scenarios for START Triage Training in Emergency Nursing

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1. Nippon medical school tamanagayama hospital, Japan

2. Nippon Sport Science University , Japan

3. Nippon Sport Science University Graduate School, Japan

Aims

When a disaster or accident results in a large number of casualties, the START (Simple Triage and Rapid Treatment) system is employed to prioritize care. Traditionally, triage in such situations has been carried out by doctors and nurses utilizing doctor cars and DMATs (Disaster Medical Assistance Teams). For nurses working in emergency centers, mastering the knowledge and skills necessary for disaster triage is considered critical. In recent years, virtual reality (VR) has gained attention as a powerful educational tool. This study aims to explore the effectiveness of teaching the START triage method through the use of selective VR scenarios for emergency center nurses.

Methods

This study employed a randomized controlled trial design involving emergency center nurses. Prior to the training, participants completed a questionnaire and a written test. They were then randomly assigned to either the VR-based training group or the traditional lecture group. After completing the training, participants were assessed using a practical skills test, a knowledge test, and a follow-up questionnaire to evaluate outcomes.

Results

Both groups demonstrated increased knowledge and confidence after training, with no significant differences in practical skills performance between the groups. The inclusion of experienced nurses in the study may account for the lack of significant differences, as their baseline proficiency levels were already high.

Conclusions

The study concluded that START triage training using VR represents a viable alternative to traditional lecture-based training for emergency nurses. VR offers flexible learning options, making it particularly advantageous for nurses with varying constraints, such as time or accessibility.

Keywords

Virtual reality, Triage, Nurse, Simulation, Training

P-006

Education, Training, & Simulation

Report on collaboration with medical teams in affected countries at the ARCH project 5th Regional Collaboration Dril

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4. Japan International Cooperation Agency, Japan

5. Yodogawa Christian Hospital , Japan

Aims

During the ARCH Project's 5th Regional Cooperation Exercise, the JDR medical team collaborated with the Malaysian Emergency Medical Team (EMT) in the affected country and conducted a simulated medical treatment as an EMT Type 2.The team will verify the readiness of JDR to work with EMT in the affected countries.

Methods

Reviewed the activities of the ARCH Project's 5th Regional Cooperation Exercise, identified issues, and analyzed challenges in working with EMTs in the affected countries.?

Results

Preliminary preparation required translating JDR's organizational chart, footprint, drugs, and triage criteria into English. Team building, including the division of roles, was also effective. The participation of medical personnel from the affected countries in the team enabled smooth communication with the affected people and the Ministry of Health of the affected countries.

Conclusions

English specifications for the operation of JDR medical practices and forms need to be developed for collaboration with EMTs in the affected countries. In addition, consideration should be given to incorporating the operation of forms normally used in the affected countries.It is also important to recognize the differences in medical care in the two countries during team building prior to collaboration.Since Type 2 medical assistance requires invasive procedures such as surgery and childbirth, JDR needs to be prepared to collaborate with EMTs in the affected countries, as collaboration with local medical professionals is important to provide better medical care to patients.It is also presumed that this preparation and experience will be useful when Japan becomes a recipient country in a large-scale disaster.

Keywords

P-007

Education, Training, & Simulation

The Development of Immersive Interactive 3D Learning Materials Using Virtual Reality Technology to Enhance the skills of SIEVE, SORT, and START Triage (VR-SSST) in Mass Casualty Situations

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2. Naval Medical Department, Royal Thai Navy, Thailand

Aims

This study aimed to develop immersive, interactive 3D learning materials using virtual reality technology to enhance the skills of sieve, sort, and start triage (VR-SSST) in mass casualty situations, and to test the feasibility.

Methods

This study employs a research and development design composed of three phases: 1) content development and scenario design, 2) technical development and platform selection, and 3) pilot testing to gather feedback on feasibility. Thirty second-year emergency medical technician students in academic year 2024 from the Naval Operational Medical School, Naval Medical Department, Royal Thai Navy were recruited for testing VR-SSST. Data were collected using a questionnaire. Data analysis included calculating the content validity index, mean, and standard deviation.

Results

The results show that the VR-SSST is a triage program that includes sieve, sort, and start triages, leveraging virtual reality technology to create a highly immersive and engaging learning experience. It involves the use of 3D simulations and environments to facilitate learning, allowing users to interact with and explore triage content. The content validity index was highly acceptable (CVI = 1). The feasibility of VR-SSST was rated at a high level (M = 4.49, SD = 0.88).

Conclusions

The VR-SSST is a valuable tool with good content validity and high feasibility. Trainers can use VR-SSST as a tool for the triage training.

Keywords

immersive interactive 3D learning materials, triage, virtual reality, VR, mass casualty incident

P-008

Education, Training, & Simulation

Support for the Establishment of a Disaster Response System, Including DMAT, in the Republic of Moldova

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2. DMAT Secretariat in National Hospital Organization, Japan

Aims

Upon receiving a request from JICA, following a request from the Republic of Moldova, the International Agency of the DMAT Secretariat provided various forms of support towards the creation of a disaster response system in the country.?

Methods

In collaboration with the Ministry of Health of the Republic of Moldova, we provided support from three main points. Specifically, given that the risk of natural disasters was deemed low from a geographical perspective in Moldova, the focus of the initiative was mainly on "responses to mass casualty incidents.

Results

Rather than imposing Japan's disaster medical system, we focused on understanding and respecting Moldova's healthcare structure. This approach was shaped by multiple local inspections and visits to Japan by Moldovan officials, who observed DMAT activities.DMAT Development:We held discussions in Moldova on how DMAT should function and conducted a Training of Trainers (TOT) session in Japan. Five Moldovan officials participated, resulting in 12 trainers. A DMAT introduction course will be implemented in Moldova.Disaster Base Hospitals:We proposed a system centered on 11 candidate hospitals to handle mass casualty incidents. The importance of a communication hub between DMAT teams and hospitals was emphasized, with CNAMUP designated for this role.Operational Guidelines:A draft of operational guidelines was presented to ensure the sustainability of the DMAT and hospital system, which will be reviewed by the Moldovan Ministry of Health.

Conclusions

Support was provided to the Republic of Moldova for the establishment of a disaster medical response system, including DMAT. Disaster medical systems should always be based on the country's existing healthcare infrastructure, and detailed, well-considered support based on a full understanding of that system is essential.

Keywords

DMAT, Support for the Establishment of a Disaster Response System

P-009

Ethics

Public Perception toward and Interdisciplinary Variations in Disaster Triage: an Ethical, Legal, and Social Issues Study in Japan

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7. Mori Hamada & Matsumoto, Japan
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Aims

A Lawsuit over disaster triage at a hospital during the Great East Japan Earthquake highlighted the need for public consensus, including ethical, legal, and social issue studies on disaster triage. We conducted a literature review to address varying triage concepts in different disciplines and an online survey to describe public attitudes toward triage.

Methods

Literature from 1990-2023 containing the Japanese word “triage” in the Title, Abstract, or Text were collected, and 437 references were reviewed for its use and context.In August 2024, a questionnaire survey was conducted among survey monitors held by Rakuten Insight Inc., aged ≥ 20 years, to collect data on the awareness and acceptance of triage.

Results

The literature review identified seven different typologies from the fields of medicine, law, ethics, and sociology. In medical disciplines, combinations of typologies were linked to specific triage situations; thus, the context is stable. In non-medical disciplines, multiple definitions of triage coexist within the same discussion.Of the 841 eligible respondents, 69.0% showed awareness of triage, with most having seen or heard about it through television dramas (56.7%). Most participants acknowledged the usefulness (95.1%) and necessity (92.4%) of triage; however, emotional reactions, such as worry (87.1%) and disappointment (75.9%), were high. Regarding the allocation criteria, participants preferred the degree of severity (94.2%) and number of individuals who survived (90.3%). The majority (73.3%) agreed that healthcare providers should not be blamed for errors in triage assessment.

Conclusions

The Japanese public recognized the importance of triage. However, varying views in medical and non-medical fields present significant challenges and their complexities underscore the need for an interdisciplinary and coherent framework for effective risk communication with citizens.

Keywords

triage, interdisciplinary research, risk communication, public attitudes, ELSI

P-010

Education, Training, & Simulation

Operating Theater Fire Drill During Robot-Assisted Surgery

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Aims

While fires in the operating theater are uncommon, they can lead to severe consequences. In the United States, approximately 650 cases of operating theater fires are reported annually. Although the number of fire incidents in operating theaters is comparatively lower in Japan, cases such as gown ignitions caused by electrocautery have been reported. Hospital A has performed approximately 1,500 robot-assisted surgeries across four clinical departments. While the risk of fire during robot-assisted surgeries is relatively low, evacuation during these procedures presents unique challenges due to the specific maneuvers required. Failure to respond immediately to a fire could lead to catastrophic outcomes. Therefore, this study reports on the implementation of a fire drill at Hospital A to mitigate such risks.

Methods

The training involved 20 participants, including doctors, nurses, clinical engineers, and personnel from related companies. The training simulated a fire caused by indoor wiring during a robot-assisted surgery. The drill covered procedures such as the initial response, immediate firefighting, emergency disconnection of the robot, and patient evacuation.

Results

The training revealed that emergency robot disconnection using specialized equipment must be performed by both nurses and clinical engineers. Additionally, the drill highlighted the challenges of vertical evacuation using backboards. Moreover, two key issues were identified: first, a lack of awareness of the correct initial actions to take during a fire, and second, inadequate understanding of the procedure for emergency robot disconnection procedure. In response to these findings, an action card for fire emergencies was developed, education on the initial response was provided, and the manuals were updated to include visual aids.

Conclusions

It is essential to conduct training on initial response and evacuation procedures in the event of a fire for various professions, particularly focusing on emergency response methods during robot-assisted surgeries. Furthermore, disaster drills for large-scale earthquakes are being planned for the future.

Keywords

Evacuation drill, Operating Theater Fire, Robot-Assisted Surgery

P-011

Education, Training, & Simulation

Examining the Effects of Comprehensive Disaster Training on Disaster Prevention Consciousness and Disaster Self-Efficacy in Japanese Nursing Students

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2. Takarazuka University of Medical and Health Care, Japan

Aims

The aim of this study is to evaluate how disaster prevention consciousness and disaster self-efficacy change before and after comprehensive disaster training in nursing students. The study investigates whether a single training session significantly impacts participants' consciousness of disaster prevention and their self-efficacy.

Methods

A cross-sectional study was conducted using a self-administered web-based questionnaire. The subjects were 59 first-year nursing students from a university in Japan who participated as mock victims in a prefectural disaster training exercise. Data were collected using Google Forms, and the questionnaire consisted of six basic attributes, a 20-item Disaster Prevention Consciousness Scale, and an 11-item Disaster Self-Efficacy Scale. All items were measured using a 6-point Likert scale. Descriptive statistics, including mean, standard deviation, and 95% confidence intervals, were calculated. A paired t-test was used to analyze differences in disaster prevention consciousness and disaster self-efficacy scores before and after training. Statistical analysis was performed using SPSS Statistics Version 25.

Results

No significant differences were observed before and after training in any of the factors of the Disaster Prevention Consciousness Scale (F1: Imagination of disaster situations, F2: Sense of crisis to current measures against disaster, F3: Other-directedness, F4: Indifference to disaster prevention, F5: Anxiety). Similarly, there were no significant changes in the factors of the Disaster Self-Efficacy Scale (F1: Self-management ability, F2: Interpersonal resource utilization skills).

Conclusions

A single training session did not have a significant impact on participants' disaster prevention consciousness or disaster self-efficacy. The lack of significant differences across all factors suggests that one-time training is insufficient to produce meaningful changes in participants' perceptions or behaviors. Therefore, the introduction of regular training and educational programs, as well as the provision of long-term learning opportunities, is crucial to enhance disaster prevention consciousness and self-efficacy.

Keywords

Disaster Prevention Consciousness, Disaster Self-Efficacy, Comprehensive Disaster Training, Nursing Students

P-012

Education, Training, & Simulation

DMAT Secretariat (JAPAN) trains disaster response personnel in CMTP (Crisis Management Training Program) course

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Aims

As a disaster-prone country, Japan is in need of personnel with all-hazard type crisis response capabilities that encompass natural disasters, infectious diseases, and CBRNE. However, the number of personnel who have ability to respond to health crisis management cases such as disasters from a public health perspective is extremely limited in Japan.The purpose of this program is to train professionals who can contribute to the maintenance and improvement of the medical system in the event of a disaster.

Methods

The DMAT secretariat is a division of the Ministry of Health, Labour and Welfare (MHLW) that trains and operates national DMAT. DMAT Secretariat has initiated a 2-year program to train crisis management specialists as a CMTP course since 2024.This program provides an opportunity to gain experience in the planning and operation of training and practical drills, as well as administrative work and research related to disaster and other health crisis management.

Results

Currently, one doctor (post senior resident) and one paramedic are enrolled in the program as first year trainee in first-term.The students are certified as DMAT members and are acquiring the principles of disaster and other health crisis management.Trainee participate in disaster drills organized by government and local authorities to gain experience in disaster response.They will have training organized by infection crisis management authorities.They are also engaged in learning how to analyze and evaluate data by practicing responses to actual disasters and other health crisis management incidents and using the data obtained from such responses.The program has just started, and the content will be brushed up according to future results.

Conclusions

Trainee takes the program and results are pending on final outcomes.The Secretariat will continue to develop human resources for disaster in the CMTP course.

Keywords

crisis management, human resources development

P-013

Education, Training, & Simulation

Enhancing Disaster Preparedness and Empathy through Volunteer Activities: Insights from Student Involvement in the Reiwa 6 Noto Peninsula Earthquake Response

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2. Nippon Sport Science University, Japan

Aims

This study aimed to evaluate the impact of disaster volunteer activities on students' perceptions, preparedness, and willingness to engage in future relief efforts. Students from Nippon Sport Science University participated in the response to the Reiwa 6 Noto Peninsula earthquake in Japan, a region heavily affected by aging demographics. The volunteer work included cleaning debris and assisting elderly residents with essential services, such as bath assistance, which was crucial due to infrastructure disruptions.

Methods

Pre- and post-surveys were administered to the students to assess changes in their attitudes, preparedness, and confidence in disaster response. The pre-survey gathered information on initial perceptions, while the post-survey measured shifts in knowledge, confidence, and willingness to engage in future activities. The hands-on activities primarily focused on supporting elderly populations who were especially vulnerable in this disaster, providing key services such as bath assistance and household clean-up. Quantitative analysis of survey results was conducted to determine the significance of the changes.

Results

Post-survey data indicated a notable increase in both preparedness and willingness to participate in future disaster relief efforts. Preparedness, specifically the belief that the volunteer work enhanced self-help abilities during disasters, increased by18.75%, while willingness to engage in future efforts rose by 18.75% as well. Students noted that the direct engagement, especially in culturally significant activities like bath assistance, helped build empathy and a sense of accomplishment.

Conclusions

Participating in real-world disaster response activities, such as logistical support and assisting elderly populations, significantly enhanced students' preparedness and confidence. These experiences reinforced theoretical knowledge and provided students with a deeper understanding of the needs of vulnerable populations. This study suggests the importance of integrating practical disaster response training into educational programs, particularly in countries like Japan, where aging populations face heightened risks during disasters.

Keywords

Reiwa 6 Noto Peninsula earthquake, education, Volunteer activities, Elderly care

P-014

Education, Training, & Simulation

Development of Educational contents using XR(eXtended Reality) for Radiation emergency medicine

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Aims

South Korea currently operates 26 nuclear power plants and utilizes radiation in a various fields in healthcare, industry, research, etc. Public concern about radiological disasters and accidents has grown after the Fukushima nuclear accident, and radiation related incidents in South Korea has increased to 149 in the last five years (2019-2023), a 101% increase from the previous five years (74 cases). The role of responders is important to prepare for and respond to radiation emergencies.The National Radiation Emergency Medical Center (NREMC) of the Korea Institute of Radiological & Medical Sciences (KIRAMS) organize medical response to radiation accidents and providing training programs to designated medical personnel and first responders.

Methods

The educational contents related to radiation emergency medicine consist of lectures on radiation human effects, accident cases, laws, etc as well as hands-on training such as radiation measurement and decontamination. KIRAMS developed these educational contents using XR (VR/AR/MR) technology and its educational effectiveness was verified.The contents using XR technology include specific processes such as severity triage considering symptoms due to radiation exposure, measurement using surface contamination detectors, decontamination, decision making etc. The scenarios based on previous accident cases and scientific evidence. Through repeated using the developed contents, trainees can improve their medical response proficiency for responding to radiation accidents.

Results

The XR training course has been in place since 2023 for designated medical response personnel and first responders, and we received positive feedback from this year's Trainee of the Year survey (n=120).

Conclusions

The advantages of education using XR are that time and space constraints are small, repetitive self-learning is easy, and can complement previous education methods. Therefore KIRAMS has the plan to expand curriculums using XR and upgrade contents through accepting feedback from trainees.

Keywords

VR, AR, XR, Training, Radiation

Categories	Name of Content		Categories	Name of Content	
Treatment	1	VR Treatment for Radiological contaminated patient	Equipments utilizing	5	AR/MR Radiation measurement equipment application
	2	VR Triage of combined injured patients with Radiation exposure		6	VR Radiation measurement equipment application
Decision making	3	VR HICS (Decision making for Radiation incidents)	Video archive	7	Multi-angle VR Video (360 degrees)
	4	VR Situation room		8	VR Learning archive

Assessment factors	Survey questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Sense of Reality	I felt like I was in a virtual space					
	I visually felt the content was real					
	I aurally felt the content was real					
Satisfaction	I was satisfied with the education using XR					
	I think this education using XR should be expanded					

P-015

Education, Training, & Simulation

Development of a Curriculum to Train Medical Students for Disaster Response in University Hospitals

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1. Tohoku Medical and Pharmaceutical University, Japan

Aims

Hospitals responding to disasters often face human resources shortages, even when calling off-duty staff. With their basic medical knowledge and clinical training, medical students are possible candidates for additional resources in university hospitals. Supplemental disaster-specific skills make them do their jobs. From the viewpoint of a medical student, this study aimed to develop a curriculum to equip medical students with the necessary skills for disaster response.

Methods

To understand the skills required in the event of a disaster, we analyzed the disaster management manual of a university hospital. We extracted the tasks that appear in the manual and then classified them into four stages with difficulties for average medical students: a) capable, b) capable with simple training, c) capable with advanced training, and d) incapable. The tasks b) and c) were broken down into the component skills. Finally, we designed a curriculum with the component tasks and some basic disaster medicine knowledge and skills.

Results

The number of extracted tasks was 451, including 87 (19%), 182 (40%), 40 (8%), and 142 (31%) for a) to d), respectively. Tasks a) primarily involved mechanical or physical works, while b) involved communication with external parties. The difficulties of skills in c) are the operations of specialized equipment or medical knowledge. Skills in d) require certifications or organizational judgment. The component skills in b) and c) included communication tools setup, information collection, and writing chronologies and tables.?Therefore, we developed a curriculum focusing on the skills and basic knowledge of disaster medicine, such as team building, headquarters activities, and triage. Furthermore, we began to pilot the curriculum with volunteer medical students.

Conclusions

The development of this curriculum can be a significant step toward preparing medical students for disaster response. We will evaluate its effectiveness in future studies.

Keywords

Medical student, Curriculum, Disaster response, Training, University hospital

P-016

Education, Training, & Simulation

Mass Casualty Incident Exercise at the Emergency Department

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2. Sengkang General Hospital , Singapore

Aims

The Emergency Department (ED) will receive a surge in patients during a mass casualty incident (MCI). The aim of this work was to describe the processes involved in the preparation and execution of an MCI exercise held at an ED of a hospital in Singapore.

Methods

This was a narrative description. Information about the preparation and execution phases of an MCI exercise were collected.?

Results

An MCI exercise, involving a bomb explosion with exposure to chemical and radiological agents, was successfully conducted on 18 May 2024. During the preparation phase leading up this exercise, workflows were developed by stakeholders and tested using tabletop exercises which allowed for identification of gaps and revisions of the workflows. Once the workflows were confirmed, the workflows were disseminated and trainings were conducted to familiarise staff with the workflows. Component exercises involving targeted staff were then carried out to assess the practical application of these workflows and allowed for improvement to the workflows. During the execution phase of the exercise which involved the use of simulated patients, the overall response to an MCI at the ED was assessed. This was followed by a feedback session and refinement of the workflows.?

Conclusions

Preparedness is important to improve response to a MCI. Exercises provide opportunities to evaluate the workflows developed and the readiness of ED in the domains of space, staff, stuff and system.

Keywords

Emergency Department , Exercise, Mass Casualty Incident, Training

P-017

Education, Training, & Simulation

Planning for Medical Support in Disasters:Lessons from Preparing for a Big Earthquake in Kiho Town

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1. Kiho town, Japan

Aims

In Japan, large earthquakes happen from time to time, and Kiho Town in Mie Prefecture is getting ready for the Nankai Trough earthquake. Even though the government has set up DMAT to help with medical care in disasters, there are some problems with how quickly DMAT can respond to big earthquakes. Because of this, health workers in each area need to make plans and practice so they can provide good medical care during disasters in their communities.

Methods

On August 8, 2024, an earthquake occured off the coast of Hyuganada, and the government issued a temporary warning about the Nankai Trough earthquake. Kiho Town also set up a disaster response center to prepare for a big earthquake and asked us, as medical workers, to get ready. This time, we didn't know when the next big earthquake would happen, but we followed the plan and set up a first-aid station. We then checked the results and reviewed the plan.

Results

We set up a first-aid station, but we found some problems after a few days. We realized that we need a plan that can keep medical staff safe, with things like air conditioning, toilets, and food, even when the basic services like electricity or water are not working.

Conclusions

When a big disaster happens, medical help needs to be planned with the town's crisis management team, not just by medical workers alone. We need to make a plan that can work well over time.

Keywords

Japan, earthquake, first-aid station, Nankai Trough, community

P-018

Education, Training, & Simulation

Enhancing Hospital Disaster Preparedness Through Collaboration with DMAT: A Case Study from Two Hospitals in Japan

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1. Tohoku Medical and Pharmaceutical University, Japan

Aims

Disaster Medical Assistance Teams (DMAT) play a critical role in disaster response in Japan. Every year, DMAT holds large-scale drills. We, members of DMAT, were their controllers and assisted in the first disaster drills in two general hospitals participating. This study demonstrates the effectiveness of DMAT in conducting the hospitals' disaster drills.

Methods

In 2023, Hospital A in Kagawa participated in a drill organized by the Cabinet Office, and Hospital B in Aomori participated in a drill of the Tohoku area DMAT. In preparing for the drills, we identified challenges by consulting hospital representatives and collaboratively refined the training procedures for both hospitals. DMAT, in action during their drills, participated in the hospitals' drills on the day.?

Results

The staff of Hospital A needed to figure out precisely what the disaster headquarters needed to do. We structured the drill to gradually establish the headquarters location, organization, and issue identification. A DMAT participated in the drill as a hospital support team and led their problem identification.The organizer fell ill in Hospital B one week before the scheduled drill. The plan's details had yet to be communicated to anyone, and preparations for the drill could not proceed. We reconstructed the drill from the fragmentary information. On the drill day, four DMAT teams supported the disaster headquarters and clinical activities, effectively functioning as drill facilitators.?In both cases, the controllers and DMATs played a crucial role in making the drills effective.?

Conclusions

The involvement of DMAT in hospital disaster drills significantly improved the quality and may enhance hospitals' preparedness and operational effectiveness. It highlights the potential for DMAT to serve as training leaders in hospital-based disaster drills.

Keywords

DMAT, hospital, drill

P-019

Education, Training, & Simulation

Digitalization of Information Management in Japan DMAT Headquarters Operations

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1. DMAT Secretariat,Headquarters National hospital Organization, Japan

Aims

During disaster response, Japan DMAT headquarters operations focus on collecting, consolidating, evaluating, and analyzing information to make decisions on DMAT operation and action plans. Examined the effectiveness of using digitalized information in headquarters operations to enhance information collection and analysis compared to traditional methods.

Methods

In September 2023, a large-scale earthquake exercise was conducted by the Japan DMAT nationally, during which Google Drive was used to allow multiple devices simultaneous access, viewing, and editing of data utilized in headquarters operations.Large monitors were used to project necessary information, and materials were displayed during meetings. Evaluated digitized information management comparing the past disaster or exercise operational methods.

Results

Digitalizing information made it easier to trace past information and facilitated better information organization. This approach enhanced searchability and enabled smoother information sharing, yielding various benefits.

Conclusions

Digitalizing information enables DMAT members to quickly compare past and current information allows for swift trend identification and enables the rapid formulation of future strategies.

Keywords

Japan DMAT, Digitalization

P-020

Education, Training, & Simulation

Nursing Students' Recognition of Assessment and Intervention in Metaverse Simulation for Shelter Management

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2. Department of Nursing, Yonsei University Wonju College of Nursing, Korea, Republic of

Aims

This study aims to identify how nursing students assess displaced individuals in temporary shelter settings following a disaster and to understand the types of interventions they recognize as necessary.

Methods

The 42 nursing students' perceptions were examined during a disaster nursing simulation designed to enhance competencies in the disaster recovery phase, using a metaverse platform. The virtual environment included a large wildfire scenario, necessitating the operation of a temporary shelter. 21 students assumed the role of displaced individuals, each provided with a scenario detailing major symptoms, while the remaining 21 students acted as community nurses. Nurses were tasked with assessing displaced individuals' needs and providing interventions, including psychological first aid, with the support of an interactive online bulletin and 12 designated intervention icons. Following the simulation, displaced individuals completed checklists on received and expected interventions. Students alternated roles and performed 10-minute simulations twice.

Results

Of the 42 displaced individuals, 27 (64.3%) were made entries on the online bulletin. All entries included the individual's name and primary concern, 7(16.7%) included records of interventions, and 5(11.9%) included triage results. A total of 36 displaced individuals completed checklists. Community nurses introduced themselves in 17(47.2%) cases and assessed 27(75.0%) residents, each receiving at least one intervention within 10 minutes of simulation running time. Common interventions included deep breathing (14, 51.9%), information provision (13. 48.1%), referrals to other services (7, 40.0%), butterfly hug (3, 11.1%), temperature maintenance (3, 11.1%), bag-valve-mask (BVM) ventilation (2, 7.4%), medication administration (1, 3.7%), and splinting (1, 3.7%).

Conclusions

Nursing students demonstrated competence in conducting assessments and providing interventions. However, considering the specific challenges posed by a wildfire disaster and the limitations inherent to a temporary shelter environment, further development of specialized competencies tailored to these conditions is recommended.

Keywords

Metaverse Simulation Training, Disaster Nursing, Recovery Phase, Shelter Management, Clinical Competence

P-021

Medical Assistance Teams/Emergency Medical Teams

Response of Tottori Prefecture's Medical Team to the Noto Peninsula Earthquake

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1. Tottori university hospital, Japan

Aims

To verify the response of Tottori medical team for Noto Peninsula Earthquake

Methods

On January 1st, 2024, the magnitude 7.6 earthquake struck Ishikawa Prefecture’s Noto On the 7th day after the earthquake, two Disaster Medical Assistance Team (DMAT) teams were dispatched from Tottori Prefecture about 700 km away and they treated to the disaster for 10 days. On the 17th day, by the request of the Tottori Medical Association? dispatched the Japan Medical Association Team (JMAT) ?was dispatched in January and February, providing support for about two months. The teams were 54 members of 11 teams for 3 months. In addition, 11 members from Tottori medical association were dispatched to Ishikawa JMAT Coordination Headquarter for 2months.

Results

The Tottori DMAT teams provided hospital support to 2 ?Hospitals in Okunoto, and carried out the mission of transferring patients to other hospitals. The other hand, Tottori JMAT was mainly responsible for assessing medical needs and coordinating with public health nurses at evacuation centers in Kanazawa City and surrounding areas that were secondarily evacuated from Okunoto. The evacuation centers under our jurisdiction did not suffer any disaster-related deaths. One problem with this dispatch was that DMAT was dispatched at the request of the prefectural government, while JMAT was dispatched at the request of Japan medical association. That make difficult to provide continuous dispatches. In addition, JMAT cannot be dispatched for a long period of time because it is difficult to coordinate patient care at the clinic.

Conclusions

Tottori medical teams (Tottori DMAT and JMAT) were dispatched to the Noto Peninsula Earthquake and assisted Tottori medical teams sustainably.

Keywords

tottori, DMAT, JMAT, Noto Peninsula Earthquake

P-022

Medical Assistance Teams/Emergency Medical Teams

Evaluating Headquarters Operations and Coordination in Medical Support during the Noto Peninsula Earthquake 2024

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Aims

In large-scale disasters, numerous organizations are involved in providing support, including medical teams like DMAT, the Japanese Red Cross, Japan Medical Association (JMAT), and several NGOs. While deployment coordination is conducted by each organization, there was limited discussion on the headquarters' role in this coordination, particularly at level close to the site, outside of DMAT.Our hospital provided medical support as JMAT during the Noto Peninsula Earthquake 2024 and participated in headquarters operations related to deployment coordination at the disaster site for one month. It is crucial for the headquarters to function effectively due to disaster-specific management and operations. This report reflects on our activities and evaluates whether proper headquarters operations were conducted.

Methods

We reviewed our work based on the CSCA framework from MIMMS and materials used in DMAT training.

Results

JMAT established a Northern Noto Coordination Branch for four municipalities. However, JMAT could not assign liaisons to the health, medical, and welfare coordination headquarters in each municipality. Therefore, JMAT had to coordinate the dispatch without counterparts present. To address this, a leader team was designated to liaise with municipal headquarters. There were no major safety issues. Communication was maintained via mobile phones, social media, and online meetings. However, the assessment process was initially mix-up due to multiple tools.

Conclusions

Although JMAT could not assign headquarters personnel, collaboration with health, medical, and welfare coordination headquarters is vital. Ensuring robust collaboration with these headquarters is essential for effective deployment coordination, even without dedicated personnel.

Keywords

disaster medicine, headquarter, EMT, coordination, counterpart

P-023

Medical Assistance Teams/Emergency Medical Teams

Disaster Medical Response to the Earthquake-Affected District in the Republic of Turkey ：A Case Study of the JDR Medical Team Deployment

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2. Japan Disaster Relief Team / JICA, Japan

Aims

In response to the request by the Turkish Government, Japanese Government decided to mobilize JDR (Japan Disaster Relief) Medical Team on February 10, 2023. The disaster necessitated urgent medical aid due to the evacuation of residents from affected areas, resulting in an overwhelming population influx in Oguzeli. The Oguzeli National Hospital faced immense challenges and limited capacity.

Methods

The JDR Medical Team, classified as an EMT Type 2 by the WHO, was equipped with a comprehensive array of medical and household equipment, including ultrasounds, X-ray machines, surgical operation tables, and hemodialyzers. The team set up a field hospital with specialized tents, outpatient clinics, treatment rooms, resuscitation facilities, X-ray and laboratory services, and an operating and delivery room.

Results

During the 24-day activity period, the JDR Medical Team provided medical care to 1,946 patients, conducting various examinations, X-rays, surgical procedures, and hospitalizations. Notably, 15% of cases were trauma-related, while 25% were infectious diseases, including COVID-19 and influenza. Effective coordination with the local Oguzeli National Hospital, facilitated by regular meetings and information sharing, ensured seamless integration of medical procedures.Through the careful triaging of patients by AFAD and/or Oguzeli National Hospital, we ensured the efficient use of resources and timely referrals. Despite the challenges, we admitted 33 patients and referred 58 others to nearby hospitals.As the acute medical needs stage subsided, the Japanese Government decided to end the medical activity on March 11th and demobilize the JDR Medical Team on March 15th, 2023.

Conclusions

The presentation will highlight the efficacy of the JDR Medical Team's response, the coordination with local authorities, and the importance of disaster medicine preparedness and cooperation in mitigating the impact of natural disasters on healthcare facilities.

Keywords

JDR (Japan Disaster Relief) Medical Team, EMT (Emergency Medical Team) Type 2, Turkey earthquake

P-024

Medical Assistance Teams/Emergency Medical Teams

A Report of Our Activities at the Aso Disaster Recovery Organization(ADRO) Secretariat in 2016 Kumamoto Earthquakes.

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2. Center for Disaster Medicine and Education, Niigata University, Japan

Aims

In Japan, the importance of health activities during disaster medical assistance had been pointed out, but at that time there were no model cases of collaborative systems yet. During the Kumamoto earthquake in April 2016, I was dispatched to the Aso area as a DMAT logistic team to participate in the “ADRO: Aso Disaster Recovery Organization”. Reflecting on our experience at the ADRO secretariat, we will discuss a system to achieve smooth coordination between health and medical care in case of disaster.

Methods

While coordinating the dispatch of medical assistance teams, the ADRO secretariat examined the establishment of a system for the subacute phase together with local medical and health administration officials. We had set up an activity policy so that multi-organizational medical and health assistance teams can be organized. Regular meetings were held to share information with local medical and health administration officials and the medical and health assistance teams. We also aimed to organize activities in a three-tiered structure of “prefecture - health center area - municipality”.

Results

The system in the Aso area encouraged organized activities of the assistance team and contributed to smooth coordination between health and medical services in the Aso area. The national notification letter issued in 2017 adopts a similar approach to the coordination structure of the Aso area.

Conclusions

In the Aso area, a meeting body was established to share information between the local people and the assistance teams, including the medical and health sectors, and the assistance teams conducted systematic activities in a three-tiered structure of “prefecture - health center area - municipality”. This cooperative system in the Aso area was considered to be a model case for achieving smooth coordination between health and medical services in case of disaster.

Keywords

Kumamoto earthquakes, Health and Medical care, ADRO

P-025

Medical Assistance Teams/Emergency Medical Teams

Medical Follow-Up Requirement during Disaster in JAPAN: Analysis of Data Collected by Emergency Medical Teams

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2. Victor Chang Cardiac Research Institute, Australia

3. National Hospital Organization Headquarters DMAT Secretariat MHLW Japan, Japan

Aims

Recognizing the crucial role of effective medical follow-up in ensuring the well-being of survivors of disasters, managing emerging health issues, and facilitating long-term recovery after disaster, this study aimed to explore and analyze the medical follow-up requirements of emergency medical team (EMTs) deployments during two natural disasters in Japan: Typhoon 19 in October 2019 and the Kumamoto Heavy Rain in July 2020.

Methods

Data was collected using the "Japan-Surveillance in Post-Extreme Emergencies and Disasters" (J-SPEED) tool, capturing information on medical follow-up requirements. The study analyzed medical follow-up needs by age, sex, and disaster response period. Trends were examined using moving averages and regression models, with Firth logistic regression applied to assess associations between studied variables and follow-up requirements.

Results

The proportion of consultations requiring medical follow-up was 16% for Typhoon 19 and 21.6% for the Kumamoto heavy rain. A higher proportion of older individuals required follow-up. The daily trend analysis showed fluctuations, whereas the phase trend analysis indicated a significant increase in the follow-up requirements for both Typhoon 19 (p=0.006) and the Kumamoto heavy rain (p

Conclusions

The findings highlight the complex nature of medical needs in post-disaster settings and suggest several areas for policy improvement. These include the development of enhanced data management systems for efficient patient transfer, strengthened cooperation between emergency medical and specialized mental health teams, and strategies to address medication needs at the initial point of contact. Implementation of these policies aims to enhance disaster response capabilities, improve patient outcomes, and promote more comprehensive care during and after disasters.

Keywords

P-026

Medical Assistance Teams/Emergency Medical Teams

Assessing and coordinating the deployment of large, highly functional field hospitals to disaster-stricken areas overseas

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Aims

In the Turkey-Syria earthquake of February 2023, the Japan Disaster Relief Team (JDR) deployed an Emergency Medical Team Type 2 Field Hospital (EMT Type 2 FH).To share the assessment and coordination required for the deployment of the EMT Type2 FH.

Methods

The author, as the first member of the first JDR team, coordinated with the Emergency Medical Team Coordination Cell (EMTCC) for two days until the arrival of the second team.

Results

Based on the needs assessment in Gaziantep proposed by the EMTCC, the author selected a site for activities and coordinated with the government (Prefectural Health Office, Mayor, Police) and medical personnel in the affected area. Sites were selected based on the following criteria: (1) safety (few hazards such as collapsed buildings and landslides, and easily avoidable man-made hazards), (2) size (60m x 30m or more), and (3) medical need (at least 100 patients/day, most of them injured or sick with moderate or severe illnesses). In coordination with relevant stakeholders, we obtained approval from the prefectural health department and the mayor to provide medical care, asked the police to secure the site and accommodation, and coordinated with medical staff to confirm the level of medical care and coordinate higher-level transport.

Conclusions

The rapid deployment of assessment and coordination teams to deploy EMT Type 2 FH will result in efficient and effective operations.

Keywords

EMT, EMTCC, assessment

P-027

Medical Assistance Teams/Emergency Medical Teams

Activities and future roles of judo therapists dispatched as a member of JDR medical team during the Turkey-Syria Earthquake (2023)

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2. Roster of Japan Disaster Relief Medical Team , Japan

3. Disaster Management Office of the Japan Judo Therapist Association, Japan

Aims

In response to the Turkey?Syria earthquake of February 2023, the Japan Disaster Relief (JDR) Medical Team was dispatched as a Type-2 EMT, accompanied by two judo therapists?a medical profession unique to Japan?serving as logisticians. The deployed judo therapists had experience working in a rehabilitation department, in addition to their roles as logisticians. This report is intended to provide case studies on the experiences of the two judo therapists and information on possible uses of judo therapists in future natural disasters.

Methods

The number of patients who used the JDR's rehabilitation department were extracted from data provided by JICA, and the number of patients who were cared for by the judo therapists was counted by themselves. Treatment methods were examined based on interviews with judo therapists. In terms of ethical considerations, the study adhered to the Declaration of Helsinki.

Results

During the treatment period of February 16 to March 11, 2023, 1,946 patients visited the disaster relief site in Gaziantep, and 273 patients (including 21 returning patients) used the rehabilitation department. JDR dispatched three batches throughout the period, and the first and second batches included the judo therapist. During the deployment of the first and second JDR teams, 198 patients (72.5% of all rehabilitation department users for the treatment period) used the rehabilitation department. Of these, 79 were treated by judo therapists, accounting for 28.9% of all rehabilitation department users.

Conclusions

Judo therapists, a nationally certified occupation that is unique to Japan, treat acute injuries, such as fractures and dislocations. However, doctors and other medical professionals do not fully understand the injuries that can be treated by this occupation. This disaster relief experience highlights the potentially valuable role of judo therapists at sites where disasters have occurred and evacuation centers in the event of large-scale global disasters.

Keywords

Japan Disaster Relief, Type-2 EMT, Judo therapist

P-028

Mass Gathering Medicine

Avoiding Preventable Deaths in Mass Gathering Disasters and Mass Casualty Incidents: Our Efforts and Successes in Hyogo, Japan

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Aims

Mass gathering disasters (MGDs) and mass casualty incidents (MCIs) remain a reality around the world. What countermeasures should be taken to avoid preventable deaths in MGDs/MCIs?

Methods

(1) Retrospective analysis of one MGD at Akashi City Fireworks Festival in 2001. (2) Retrospective analysis of MCIs (including MGDs) between 2004 and 2024 in which the alert function of EMISHP (Emergency Medical Information System in Hyogo Prefecture) was activated. Number of casualties, duration from emergency call to activation of alert function (activation time), duration from emergency call to clearance of alert function (S/R time), and number of destination hospitals were evaluated.

Results

(1) More than 200 people were injured and 11 people died in a crowd crush in the Akashi Fireworks. The main cause of this MGD was lack of gateway control and one-way flow control. (2) In the past 20 years, the alert function of EMISHP has been activated for 330 MCIs (no MGDs). Casualty count ranged from 0 to 662 (median value=5). Activation time ranged from 1 to 417 minutes (median value=15). S/R time ranged from 13 to 2,556 minutes (median value=73). Number of destination hospitals ranged from 0 to 54 (median value=3). In all cases, information was shared between fire departments and hospitals, while Hyogo Emergency Medical Center (the principal hub hospital for disasters in Hyogo) oversaw and coordinated the medical response, e.g. securing hospital capacity, dispatching doctor-attending cars/helicopters to the scene.

Conclusions

Prevention of MGDs requires taking proactive measures for crowd control, such as gateway restriction and one-way flow without bottlenecks. To avoid preventable deaths in MGDs/MCIs, smooth patient transport to hospitals is key. Securing time and medical resources becomes possible when information is shared between fire departments and hospitals in a timely, digestible way; EMISHP's alert function has been maximally effective to this end.

Keywords

mass gathering disaster, mass casualty incident, preventable death, information system, hub hospital for disaster

P-029

Medical Assistance Teams/Emergency Medical Teams

Report on Health Management Activities for Japan Disaster Relief (JDR) Medical Teams

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2. Hiroshima University, Japan

3. Tokyo Dental and Medical Uniersity, Japan

4. Saitama Medical Center , Japan

Aims

The JDR medical team was dispatched as a Type 2 Emergency Medical Team (EMT) in response to the major earthquake that occurred in Turkey on February 6, 2023. During the JDR operation, a team health manager was assigned by the Medical Coordinator. In previous operations, a team health manager usually served in dual roles as Public Health Module member or chief nurse, but this time, a dedicated team health manager was assigned. In this report, we discuss what we expect to be the role and activities of the team health manager in the future.

Methods

Examine the role of the team health manager and their activities based on activity records.

Results

The team health manager collected the JDR team members' daily health monitoring sheets and managed their health information. The team health manager also checked the symptoms of those who were not feeling well, conducted necessary rapid tests, administered medication as necessary under the Medical Coordinator’s order, and infection control to prevent the spread of infection in the team. The information collected was summarized and shared as a general health reminder in the morning general meetings.?Some members having concerns with their working environment were interviewed, and this information was shared with deputy team leaders, the chief nurse, and other related individuals.

Conclusions

The assignment of a full-time team health manager was effective in preventing the spread of infectious diseases within the medical team. It is essential for Type 2 EMT, with a large number of team members to create a safe and healthy environment for team members, and the assigning a team health manager will help in this regard.In the future, it is necessary to consider professional personnel assignment based on job descriptions.

Keywords

EMT, Health management, Type2 EMT, team health manager

P-030

Medical Assistance Teams/Emergency Medical Teams

Insights from the Japan Disaster Relief Team's Experience in Turkey Earthquake 2023 : Orthopaedic Challenges in Earthquake Affected Areas

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4. Hyogo Prefectural Harima-Himeji General Medical Center, Medical team of Japan Disaster Relief, Japan

5. Seirei Mikatahara General Hospital, Medical team of Japan Disaster Relief, Japan

Aims

Introduction:In response to the devastating earthquake in the Republic of Turkey in February 2023, the Japan Disaster Relief (JDR) team deployed for the first time with an EMT Type 2 setup capable of performing surgeries on-site. This mission aimed to provide international medical assistance in the affected region.Objective:This study seeks to identify the challenges faced in providing orthopaedic care in earthquake-affected areas based on our recent experiences.

Methods

A retrospective analysis was conducted on orthopedic cases treated by the JDR team during the mission. Data were collected from medical records and reports, focusing on the types of orthopaedic conditions encountered and the treatments administered.

Results

In 24 days, a total of 1,946 patients were treated. Among them, 15% were trauma patients, with 97% presenting with minor injuries. There were 49 cases requiring procedures such as splint fixation for fractures, sprains, and dislocation reductions. Two surgeries were performed on pediatric finger and toe fractures. Chronic conditions accounted for 52% of the total patient population, with a significant portion suffering from orthopaedic issues like knee and lower back pain. The need for therapeutic massage was high, and these services were well-received by the patients.

Conclusions

The medical area was located slightly away from the earthquake’s epicenter, and operations began on the ninth day post-disaster, by which time the acute phase had subsided. This resulted in a higher prevalence of minor injuries and chronic orthopaedic conditions. The demand for rehabilitation was particularly high during this phase. The mission highlighted the need to balance the available resources with the local medical environment when managing chronic orthopaedic conditions. The experience underscored the importance of having well-trained trauma orthopaedic surgeons and comprehensive team training, especially in the Asia-Pacific region, where earthquake disasters are frequent and the initial acute phase requires swift and effective medical intervention.

Keywords

Japan Disaster Relief Team, Turkey Earthquake 2023, international medical assistance, orthopaedic care

P-031

Medical Assistance Teams/Emergency Medical Teams

Report on Grief Care : Dispatch of the Japan Disaster Relief Medical Team in Response to the Earthquake Damage in the Republic of Turkey

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6. Aichi Medical University Hospital, Japan
7. Family hospice Inc,, Japan
8. Fukuoka University Hospital, Japan
9. Tokyo Women's Medical University Adachi Medical Center, Japan

Aims

The Japan Disaster Relief (JDR) medical team conducted its first Type 2 EMT clinic during deployment to an earthquake-affected area in Turkey. At the field hospital, three outpatient deaths occurred because of the inability to resuscitate. This report details our experience with grief care during an international emergency activity in which we shared mutual respect and worked as a team with the local staff, patients, and their families.

Methods

We review the response to three outpatient deaths that occurred during dispatch and examine the relationship with the local staff to clarify future issues.

Results

In all three outpatient deaths, resuscitation was carried out at a temporary clinic in cooperation with local doctors and nurses. After resuscitation was ceased, the patients were treated in accordance with local practices. In dealing with bereaved families, the JDR staff respected the requests of the local doctors and temporarily left the room from the time of death until the patient was moved out of the resuscitation room. The JDR nurses provided a place for the bereaved family to visit the patient and made other arrangements, but did not provide direct care. When pronouncing the death of a family member during international relief activities, it is necessary to be familiar with the culture, religion, and customs of the affected country. The JDR team was able to interact with the bereaved families appropriately and in accordance with local customs.

Conclusions

In family care, including grief care, the staff providing assistance and those from the affected countries may recognize each other as members of the same disaster relief team. We found that differences in the method of confirming death, postmortem treatment, and arrangements for family care, including grief care, need to be confirmed in advance with the local medical staff before setting up outpatient services.

Keywords

Grief Care, Team Medical Care, the Earthquake Damage in the Republic of Turkey, EMT, JDR

P-032

Medical Assistance Teams/Emergency Medical Teams

The ~ Tulip Airway : Man and Manikin ; The first comparison of identical protocol Randomized Controlled Trials results in both Human and Manikin Studies

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Aims

This is the first study to compare identical protocols in Man and Manikins.?Questions;1) Is it even worth training on Manikins?2) Why are the Guedel and Facemask still used when failure rates are so high?

Methods

Two randomized, controlled, cross-over trials (RCTs) using Basic Life Support (BLS) airway providers, defined as Inexperienced Users (IU's), with annually trained Guedel airway and Facemask skills, compared ventilation using either the ~Tulip airway, or a Guedel airway with Facemask in 60 subjects, first in Manikins and then in Humans after the induction of anaesthesia, using identical protocols but within the limitations of equipment that prevented the estimation of end expiratory CO2 in Manikins.Both studies have been peer reviewed and published in "Anaesthesia" (UK) previously.

Results

The manikin study showed that the ~Tulip airway increased ventilation by 9.1% (p 0.0423) in the Manikin study but by 76.6% (p 0.0002) in the Human study. In both Man and Manikin 100% of IU's were able to ventilate with a ~Tulip airway on their first ever encounter with the device, with 0% requiring assistance in Man, and 0% requiring assistance in Manikins.20% of IU's using a Guedel airway and Facemask required assistance in the Manikin study (p

Conclusions

The Guedel and Facemask technique should now be replaced with a ~ Tulip Airway.

Keywords

Tulip Airway, Manikin Training, Airway Management, Oropharyngeal Airway, Basic Life Support

IU ~Tulip vs. Guedel/Facemask	MAN	MANIKIN
Tulip Insertion First time	96.7%	93.3%
Guedel Insertion First time	78.3%	98.3%
p-value	p < 0.001	p < 0.001
Tulip Success Rate	100%	100%
Guedel Success Rate	58.3%	80%
p-value	p < 0.001	p < 0.001
Tulip Inadequate Vent.	5%	0%
Guedel Inadequate. Vent.	41.7%	20%
Tulip Assistance Required	0%	0%
Guedel Assistance Required	25%	20%
p-value	p < 0.0001	p < 0.0003
Tulip Average Tidal Volume	501mls	397mls
Guedel Average Tidal Volume	284mls	364mls
Increase by Tulip Ventilation	+76.6%	+9.1%
p-value	p < 1x10-9	p < 0.0423

IU ~Tulip vs. Guedel/Facemask	MAN (No Manikin)
Tulip Average Vent. Pressure	17.5cmH2O
Guedel Average Vent. Pressure	13.4cmH2O
Increase in Vent. Pressure	+ 30.6%
p-value	p < 1x10-5
Tulip pCO2	4.89kPa
Guedel pCO2	2.36kPa
Increase in pCO2 with Tulip	+ 107.8%
p-value	p < 1x10-15

P-033

Medical Assistance Teams/Emergency Medical Teams

Fatigue assessment of EMT members during 2024 Noto Peninsula Earthquake in Japan

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1. Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

Aims

During disasters, victim support is the primary focus, and Emergency Medical Teams (EMTs) play a key role in delivering medical care. However, the health and well-being of EMT members and other disaster responders, such as logisticians and support staff, often receive less attention. Therefore, we aimed to study the fatigue levels among disaster responders including EMT members, and explore the factors contributing to their fatigue.

Methods

Japan introduced the J-SPEED (Japanese Surveillance in Post Extreme Emergencies and Disasters) Health Checkup tool, adapted from the original J-SPEED system used for collecting real-time health data from disaster victims. The J-SPEED Health Checkup tool was used for the first time during the Noto Peninsula Earthquake in January 2024. It recorded responders' fatigue levels on a 0 to 10 scale, where higher scores indicated higher fatigue levels. Data on working environment, activity type, and job role were also collected. Multivariable regression analysis was conducted to explore the relationship between fatigue and these factors.

Results

Between January 1 and March 31, 2024, a total of 20,551 individual records were collected. Logisticians reported significantly higher fatigue levels than other job roles, with an average increase of 0.23 points. Additionally, responders working in headquarters had fatigue scores 0.19 points higher than those involved in other activities. Perceived issues such as "unclear tasks," "unsafe working environments," and "lack of meals and rest breaks" were also associated with a significant increase in fatigue levels.

Conclusions

The study highlights significant fatigue levels among disaster responders, particularly logisticians and those working in headquarters. Factors such as unclear tasks, unsafe environments, and insufficient rest were associated with an increase fatigue. Addressing these issues is crucial to improving the well-being of EMTs and support staff, ultimately enhancing the efficiency and success of disaster response operations.

Keywords

Emergency Medical Team(EMT), Fatigue assessment, Health monitoring, Noto Peninsula Earthquake 2024

Table: Relationship of studied factors on fatigue of disaster responders

	Coefficient	95% CI	p value
Period [1] (first half)	0.33	(0.27 - 0.38)	<0.001
Job type [2] (logistician)	0.23	(0.18 - 0.28)	<0.001
Activity type [3] (working in headquarters)	0.19	(0.14 - 0.25)	<0.001
Unclear task and command	0.81	(0.56 - 1.06)	<0.001
Unsafe working environment	0.48	(0.00 - 0.96)	0.049
Inability to take meals and breaks	1.80	(1.55 - 2.05)	<0.001
Insecure communication	0.29	(-0.12 - 0.70)	0.172
Lack of personal protection equipment	-0.39	(-1.07 - 0.29)	0.26
Others	0.24	(-0.08 - 0.55)	0.141

Multiple regression model was adjusted for the presence of any symptoms, including cold symptoms, smell and taste disorder, gastrointestinal symptoms, sleeping disorder, irritability, and inability to communicate.

[1] The second half was used as a reference period.

[2] The job type 'other than logistician' was used as the reference category.

[3] The activity type 'other than those working in headquarters' was used as the reference category.

P-034

Medical Assistance Teams/Emergency Medical Teams

Medical and Welfare Facility Support Following the 2024 Noto Peninsula Earthquake

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1. DMAT Secretariat, Japan

Aims

The 2024 Noto Peninsula Earthquake, which occurred on January 1, 2024, prompted evacuations in several hospitals and welfare facilities. Evacuations were necessary due to the risk of building collapse and disruptions in lifelines such as electricity and water supply. This report provides an overview of the support activities conducted in the Noto Chubu and Noto Uchiura regions, where I was responsible for supporting evacuated hospitals and facilities.

Methods

The investigation included reviewing reports, activity records, and conducting interviews during site visits to assess the damage, challenges during recovery, and barriers to rebuilding.

Results

?Hospitals that had evacuated expressed a strong desire to resume outpatient services as soon as possible. The reasons include contributing to the local community, requests from disaster victims, and supporting the livelihood of hospital staff. In welfare facilities, the reasons given included requests from users, maintaining the livelihood of facility staff, and maintaining staff employment. The headquarters provided support for acute evacuation and transportation, lifeline support, and staff support. Efforts focused on supporting the facilities and their organizations, such as offering temporary medical facilities (prefabricated structures, medical containers), supporting clinical and on-call duties, and acting as intermediaries with service providers. In the post-acute phase, direct visits to facilities were conducted to gather information on ongoing issues and progress. Even when direct support could not be provided, personal interactions proved valuable in supporting these facilities.?

Conclusions

Supporting hospitals and welfare facilities is crucial in disaster response efforts. Assisting in the recovery of these institutions can significantly contribute to the overall recovery of the community and the region.?

Keywords

the 2024 Noto Peninsula Earthquake, Medical and Welfare Facility Support

P-035

Medical Assistance Teams/Emergency Medical Teams

The Role of the Disaster Medical Center Support Team in the 2024 Noto Peninsula Earthquake

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Aims

Our hospital, one of two designated disaster base hospitals in Tokyo, is committed to providing comprehensive support during large-scale emergencies. In response to the 2024 Noto Peninsula Earthquake, we deployed 13 teams (37 personnel) to the affected areas, with 3 teams focused on medical support and 10 on logistics. To manage this large-scale deployment, a hospital-wide support team was established. This study evaluates the organizational structure, logistics management, and effectiveness of information sharing by the support team, identifying areas for improvement in future disaster responses.

Methods

A comprehensive support team was organized to procure equipment, vehicles, and funds, using Google Drive and social media for real-time information sharing to enhance communication and coordination. Data were collected to evaluate these processes and analyze the support team’s impact on the disaster relief efforts.

Results

The support team’s efforts, backed by hospital resources, ensured that the 13 deployed teams were well-equipped and informed, enabling effective operations. Google Drive facilitated efficient information sharing, improving team communication. Social media platforms were also used for regular health monitoring. The preparation of meeting materials and visualization of team activities enhanced transparency and accountability, contributing to the success of the hospital’s disaster response.

Conclusions

This study highlights the critical role of a hospital-wide support team in disaster response. Effective information management and logistical coordination are essential for successful team deployment. Future responses would benefit from refined communication tools and stronger interdepartmental collaboration.

Keywords

Emergency Medical Team, Earthquake

P-036

Medical Assistance Teams/Emergency Medical Teams

Establishment and mobilization of National Public Health Rapid Response Teams in Japan

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Aims

The Great East Japan Earthquake in 2011 led to the recognition of the need for a national public health rapid response team. To this end, Disaster Health Emergency Assistance Teams (DHEAT) was established in Japan. The aim is to share experiences of DHEAT in Japan.

Methods

The report is based on the literatures and the authors' experiences.

Results

After discussion by the Disaster Assistance Public Health Forum and the Association of Prefectural Health Directors from 2011, the DHEAT Activity Guidelines were issued by the Ministry of Health, Labor and Welfare of the Japanese government in 2018. DHEAT was first officially deployed in the July 2018 torrential rainstorm in western Japan, followed by the Saga 2019 torrential rainstorm. For the 2024 Noto Peninsula Earthquake, 104 DHEATs were active.DHEATs are composed of public health doctors, public health nurses, clerical staff, and other personnel belonging to public health centers, etc. DHEAT activities are to support the health and medical administration by the public health centers and local governments of the affected prefectures. About 3,000 persons have attended DHEAT basic training and about 300 persons have attended advanced/standard training by FY2023.In the Noto Peninsula Earthquake, DHEAT made a significant contribution to disaster response activities. However, there were some cases in which teams were not always in line with the same policies, and insufficient collaboration with municipal officials.

Conclusions

Based on the experience of the activities, it is necessary to enhance training and drills to improve activities for disaster.

Keywords

Public Health Rapid Response Teams

P-037

Mass Gathering Medicine

Bystander Cardiopulmonary Resuscitation and Outcomes of Mass Cardiac Arrests Caused by A Crowd Crush in Seoul

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Aims

A crowd crush can cause respiration pause and result in mass cardiac arrests (MCAs) who may be categorized as a disaster triage (Black Tag). Recently, most laypersons have been trained with compression-only cardiopulmonary resuscitation (CPR) without ventilation support. This study aims to describe the characteristics of bystander CPR and the outcomes of Itaewon crowd crush MCAs.

Methods

An observational study on CPR characteristics during the 2022 Halloween Festival analyzed data from two sources: the Korea out-of-hospital cardiac arrest registry (KOHCAR) and social media posts (Instagram and YouTube). Video clips longer than 10 seconds with clear bystander CPR were included. Data from KOHCAR included demographics, bystander CPR, EMS CPR, and outcomes, while social media provided information on CPR type (hands-only or with rescue breathing). The demographics and CPR types from both databases were analyzed.

Results

Of the 218 patients treated by EMS, 119 MCAs were recorded in the KOHCARs. The mean age was 24.5 years, and 8.4% were non-Korean. The median transport response time for ambulance transport was 59 minutes. Among the victims, 22 (18.5%) received CPR, with 19 provided by bystanders, 2 by first responders, and 1 by the DMAT, which was followed by EMS resuscitation. Seven victims (5.9%) received initial CPR by EMS, while 90 (75.6%) were pronounced deceased at the scene. Three victims (2.5%) achieved field ROSC, and one (0.8%) survived to discharge. Social media analysis identified 26 CPR video clips, with 228 bystander CPR cases. Compression-only CPR was observed in 95.2% of cases, with 4.8% including rescue breathing.

Conclusions

Most MCAs were declared as deceased due to probably classified Black Tag or delayed response time. A few cases (4.8%) received bystander CPR with rescue breathing. Optimal MCA resuscitation protocol by crowd crush should be developed.

Keywords

Mass Casualty Incident, Mass Cardiac Arrest, Compressive Asphyxia, Crowd Crush, Human Stampede

Table 1. Demographics of Cardiac Arrests Cases Attended by EMS in Itaewon Disaster

	All		EMS treated		EMS non-treated		P-value
	N	%	N	%	N	%	
All	119	100.0	29	24.4	90	75.6	
Gender							<.0001
Male	10	8.4	9	31.0	1	1.1	
Female	18	15.1	18	62.1	0	0.0	
Unknown	91	76.5	2	6.9	89	98.9	
Age							<.0001
0 - 25	14	11.8	14	48.3	0	0.0	
25 - 40	14	11.8	13	44.8	1	1.1	
Unknown	91	76.5	2	6.9	89	98.9	
Median (IQR)	24.5 (20-28)		24 (20-28)		N/A		N/A
Nationality							0.0596
Korean	109	91.6	26	89.7	83	92.2	
Non-Korean	10	8.4	3	10.3	7	7.8	
First ambulance Response time interval Median (IQR)	17 (17-30.5)		17 (17-24)		N/A		N/A
Transport ambulance Response time interval Median (IQR)	59 (45.5-75)		51 (51-51)		N/A		N/A
Scene time interval Median (IQR)	13 (7.5-22)		13 (7-22)		N/A		N/A
Transport time interval Median (IQR)	17 (12.5-22.5)		17 (13-23)		N/A		N/A
Received bystander CPR							N/A
Compression only	19	16.0	19	65.5	N/A	N/A	
Compression with rescue breathing	0	0.0	0	0.0	N/A	N/A	
Received first responder CPR							N/A
Compression only	3	2.5	3	10.3	N/A	N/A	
Compression with rescue breathing	0	0.0	0	0.0	N/A	N/A	
Received DMAT CPR							N/A
Compression only	1	0.8	1	3.4	N/A	N/A	
Compression with rescue breathing	0	0.0	0	0.0	N/A	N/A	
EMS procedure							
O2 supply	28	23.5	27	93.1	1	1.1	<.0001
Airway							0.0344
BVM	11	9.2	10	34.5	1	1.1	
Intubation	1	0.8	1	3.4	0	0.0	
SGA	16	13.4	16	55.2	0	0.0	
Unknown	91	76.5	2	6.9	89	98.9	
IV line	8	6.7	8	27.6	0	0.0	<.0001
Epinephrine	3	2.5	3	10.3	0	0.0	<.0001
Mechanical CPR device	2	1.7	2	6.9	0	0.0	<.0001
AED applying	1	0.8	1	3.4	0	0.0	<.0001
Initial ECG							<.0001
VF/pVT	1	0.8	1	3.4	0	0.0	
PEA	1	0.8	1	3.4	0	0.0	
Asystole	25	21.0	24	82.8	1	1.1	
Unknown	92	77.3	3	10.3	89	98.9	
Defibrillation	2	1.7	2	6.9	0	0.0	<.0001
Field Outcome							<.0001
Field ROSC	3	2.5	3	10.3	0	0.0	
Transport with CPR	26	21.8	26	89.7	0	0.0	
Death	90	75.6	0	0.0	90	100.0	
EMS ED transport	29	24.4	29	100.0	0	0.0	<.0001
Final Outcome							
Survival to discharge	1	0.8	1	3.4	0	0.0	
Good neurologic outcome (CPC 1, 2)	0	0.0	0	0.0	0	0.0	

Table 2. Results of video clips used in the analysis

Results	Total	Instagram	YouTube
Number of videos found related to keywords	438	251	187
CPR videos related to Itaewon disaster	99	30	69
Recognizable videos	96	30	66
Non-duplicate videos	27	14	13
Final number of analyzed bystander CPR videos	26	14	12
Total video playback time (sec)	753	530	223
Average playback time per video (sec)	28.9	37.9	18.6
Number of Patients, CPR without rescue breathing (n)	217	136	81
Number of Patients, CPR with rescue breathing (n)	11	5	6

P-038

Medical Assistance Teams/Emergency Medical Teams

General orthopaedics and DMAT in JAPAN

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Aims

The disaster medical system in Japan has significantly developed since the 1995 Great Hanshin-Awaji Earthquake. I am a general orthopaedic surgeon at a regional hospital and also serve as a coordinator for the DMAT. In addition to my hospital duties, I have been involved in several disaster medical operations.Based on my experience, except for the Fukuchiyama Line derailment accident, my primary roles at disaster sites have focused on general medical care and management.

Methods

In Japan, there is no system in place to deal with orthopaedic trauma that may occur in the early stages of urban disasters.From 2019, Japanese Orthopaedic Association formed a Disaster Response Committee. As a major policy, rather than dispatching orthopaedic surgeons to disaster sites, a transport system should be established, and a system for receiving patients outside of the disaster zone should be set up, where orthopaedic specialists can fully utilize their expertise.

Results

The reason for this approach is likely due to the fact that many orthopaedic surgeons who are not affiliated with an emergency and critical care center, tend to be poor at overall patient management.Another factor is thought to be the small number of orthopaedic surgeons serving as DMAT members in Japan.This is purely my personal opinion, there are few medical personnel during the acute phase of a disaster. Not necessarily required to perform life-saving emergency procedures or on-site special orthopaedic interventions, I think it is important for general orthopaedic surgeons to go to the disaster site, not only to provide logistical support.

Conclusions

To that end, I hope to see an increase in orthopaedic surgeons who can play an active role in various stages of disasters, including DMAT. As one of the few orthopedic surgeons in DMAT, I myself would like to contribute to collaboration with on-site and logistics support hospitals.

Keywords

general orthopaedic, DMAT, Japan

P-039

Medical Assistance Teams/Emergency Medical Teams

Advancing Rapid Bio-dosimetry in Radiation Accidents; γ-H2AX Analysis based on Image Flow Cytometry.

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Aims

In radiation accidents, rapid dosimetry is important for effective medical interventions. While traditional bio-dosimetry methods are reliable, they are too slow for large-scale scenarios. The phosphorylation of histone H2AX (γ-H2AX) at DNA double-strand break sites has become a key biomarker for assessing radiation-induced DNA damage. Recently, imaging flow cytometry (IFC) has been developed as faster and more accurate high-throughput method that combines the speed of flow cytometry with the imaging capabilities of microscopy to analyze γ-H2AX in lymphocytes. This study focused on using IFC to evaluate γ-H2AX responses in lymphocyte, aiming to enhance the speed and precise of bio-dosimetry for radiation accidents.

Methods

Blood from healthy donors was irradiated at various doses with γ rays using a 137Cs source and analyzed using an ImageStream®X Mk II imaging flow cytometer. The γ-H2AX response, marked by Alexa Fluor® 488-conjugated anti-H2AX antibody, was measured in lymphocytes.

Results

At 0.5 hours post-exposure, γ-H2AX fluorescence intensity and foci showed a linear increase with radiation dose. The analysis requires minimal blood volume and short processing time, offering a practical solution for rapid dosimetry in emergencies.

Conclusions

The technique requires only small volumes of blood and can process these quickly, making it suitable for rapid screening of multiple individuals in large-scale radiation exposure incidents. The findings suggest γ-H2AX analysis using IFC in lymphocyte could be useful for estimating radiation doses effectively in mass casualty situations.

Keywords

γ-H2AX, Imaging Flow cytometry, Radition exposure, Lymphocyte, Bio-dosimetry

P-040

Medical Assistance Teams/Emergency Medical Teams

A Consideration for the Safe Conduct of Surgery by First-Time Dispatched Operating Room Nurses

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2. Institute of Science Tokyo Hospital , Japan

3. Hiroshima University, Japan

4. Saitama Medical Center, Japan

Aims

Japan Disaster Relief Team deployed EMT（Emergency Medical Team） Type 2 to the earthquake in Turkey for the first time after its certification by WHO. EMT Type 2 has outpatient, surgical, and inpatient functions.

Methods

To review the actions taken by operating room nurses to perform safe surgery during the EMT Type 2 deployment.

Results

Operating room nurses planned and conducted a simulation from preparation for surgery to entering the ward after surgery with the staff involved in the surgery. No incidents or accidents were reported during the activities. In addition, the operating room nurses consciously and proactively communicated with all the professions and played a coordinating role in the multidisciplinary collaboration. As a first-time dispatched nurse, I was particularly conscious of this point.

Conclusions

In order to facilitate smooth surgical procedures, it is important for team members to deepen their understanding of each other. In addition, the unfamiliarity of the environment and the first-time collaboration of the team members made it essential to build teamwork and interdepartmental collaboration at an early stage. The operating room nurses' role as coordinators of multidisciplinary cooperation and relationship building contributed to safe surgery.Operating room nurses should be especially proactive and conscious in their communication in order to perform safe surgeries in the field, and to play a coordinating role in cooperation with other professions, which will help to provide safe surgeries.

Keywords

Japan Disaster Relief Team, EMT, EMT Type 2, safe surgery, operating room nurses

P-041

Medical Assistance Teams/Emergency Medical Teams

Collaborative Efforts of the Korea Biological Dosimetry Network (K-BioDos) in Responding to Mass Radiation Incidents in South Korea.

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Aims

The Korea Biological Dosimetry Network (K-BioDos) aims to enhance South Korea's capability to respond to large-scale radiation incidents through collaborative biological dosimetry efforts. The network seeks to provide rapid and accurate radiation dose assessments for affected populations by establishing standardized protocols, harmonizing laboratory practices, and fostering inter-institutional cooperation.

Methods

K-BioDos utilizes several cytogenetic analysis methods, including Dicentric Chromosome Assay (DCA), Translocation assay, and Cytokinesis-Block Micronucleus (CBMN) assay, which are critical for estimating the absorbed radiation dose. To improve response times, the network has implemented inter-laboratory comparison exercises, created an image bank for chromosomal abnormalities, and developed standardized scoring and testing methods. Regular training programs and technical workshops are conducted to ensure consistency across member institutions.

Results

The K-BioDos network has successfully standardized scoring criteria and harmonized testing methods across its member institutions, allowing for consistent dose assessment results. The establishment of the K-BioDos image bank facilitates image-sharing and analysis standardization, while inter-laboratory exercises have improved the proficiency of analysts. The network has also enhanced its weekly triage analysis capability, processing up to 425 samples using the QuickScan method.

Conclusions

K-BioDos has significantly strengthened South Korea's readiness for radiation emergencies by unifying assessment protocols and fostering collaboration among key institutions. The network's long-term plans focus on further standardizing biological dosimetry techniques, including dose-response calibration, to ensure accurate, large-scale dose estimations. Continued support, including international collaboration and funding, is essential for expanding the network’s capabilities and integrating advanced automation technologies.

Keywords

Biological Dosimetry, large scale incidents, Dicentric chromosome assay

Harmonization of scoring criteria

- Interlaboratory comparison exercise using metaphase images
- Construction of image depository
- Harmonization of scoring criteria
- Agreement of recording method for chromosomal aberrations

Harmonization of image production

- Harmonization of cell culture methods
- Harmonization of slide preparation
- Comparison of equipment performance for image production
- Adjusting equipment's manipulation

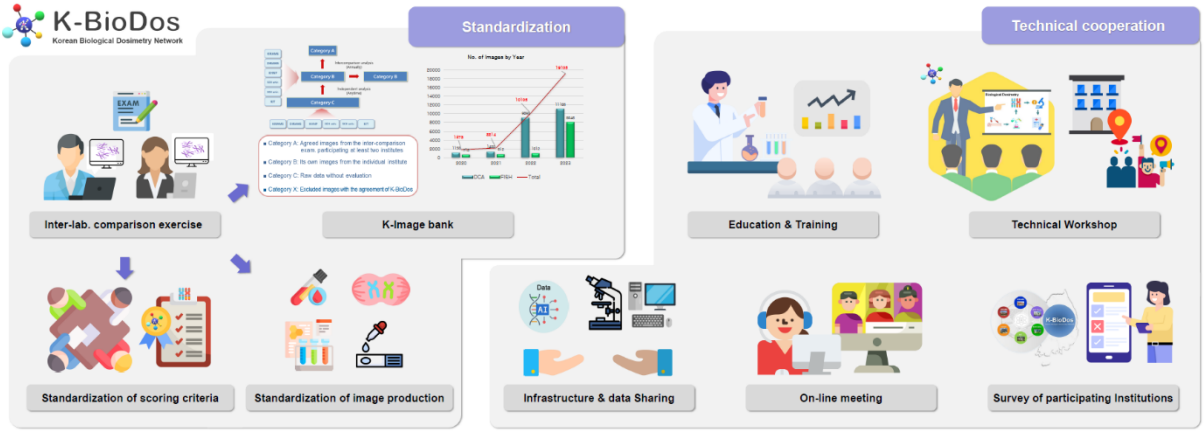
Calibration curve the joint response

- Collaborative analysis of chromosomal aberrations in the network
- Construction of calibration curve
- Evaluation and periodic update

Standardization scoring system for biological dosimetry

Standardization image acquisition for biological dosimetry

Collaborative biological dosimetry for radiation emergency



P-042

Natural Hazards & Disaster Risk Reduction

Research on park design methods that enable the establishment of emergency medical aid stations immediately after a large-scale disaster

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Aims

In Tokyo, Japan, it has been agreed that immediately after a large-scale disaster, each municipality will take the initiative in setting up an emergency medical aid station in the vicinity of a hospital. While there are examples of parks and other facilities being used when space cannot be secured on hospital grounds, there is little discussion about such options. Thus, taking parks as our model, we explored designs that would function sufficiently as a park under normal circumstances and that would also be useful in times of disaster.

Methods

Architecture students were given an assignment to devise a design for a park adjacent to a hospital, which could also be used as a medical aid station in the event of a disaster. The proposals in the students' designs were categorized by type and characterized. The results show the possibility of designing parks that can also be useful during disasters.

Results

Several designs proposed installing eaves which could be used both for normal use, such as watching sports events and children playing, and in the event of a disaster, for example for triage and medical treatment for casualties. There were also examples of creating ponds that could provide water during a disaster and could be used for viewing during normal times. Further examples suggested incorporating equipment that would allow benches to be used as beds or cooking spaces and allow playground equipment to be used as tent frameworks.

Conclusions

Several methods for park design that consider the setting up of medical aid stations in the event of a disaster were identified. The results obtained show that it is necessary to collect the opinions of local authorities and determine what elements are necessary to create desirable design approaches in the future.

Keywords

emergency medical aid station, triage, park design

P-043

Natural Hazards & Disaster Risk Reduction

Matrix of Detailed Activities for the Plan of Action to Implement the ASEAN Leader's Declaration on Disaster Health Management, 2019-2025

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Aims

The ASEAN Leaders' Declaration on Disaster Health Management (ALD on DHM), emphasizes the urgent need to fortify disaster health management systems at both national and regional levels. It aims to improve health outcomes during emergencies, minimize health hazards and vulnerabilities, ensure healthcare access, and maintain functional health services, thereby enhancing health resilience across the ASEAN region. The primary objective is to evaluate and monitor the progress of the Matrix of Detailed Activities (MDA) under the ALD on DHM.

Methods

The ALD on DHM was operationalized through the Plan of Action, 2019-2025. This includes a MDA addressing five priority areas to ensure practical coordination among ASEAN Member States. The Regional Coordination Committee on Disaster Health Management and ASEAN Secretariats regularly evaluate these activities to track progression.

Results

The evaluation of the MDA reveals the following distribution of activities: 1) ?Strengthening and enhancing regional collaborative frameworks on disaster health management: develop and update SOPs for EMTs and conduct Regional Collaboration Drills. 2) Enhancing multi-sectoral participation in disaster health management: engage with relevant ASEAN sectors and external partners for joint exercises. 3) Promoting the integration of disaster health management frameworks into national and sub-national legal and regulatory frameworks: conduct regional reviews and studies on national policies and strategies, develop monitoring and evaluation frameworks. 4) Promoting investments to develop and improve critical health facilities and infrastructure at the national level: conduct regional consultations on public and private investments and joint research. 5)Enhancing knowledge management on disaster health management: conduct regional academic conferences and establish the ASEAN Institute for Disaster Health Management.

Conclusions

The MDA has strengthened disaster health management in ASEAN. The collaborative efforts and comprehensive frameworks established have proven effective. Ongoing evaluation and monitoring of the MDA ensure progress is tracked and adjustments are made to optimize outcomes, contributing to a more resilient ASEAN community.

Keywords

Disaster Health Management, Matrix of Detailed Activities, ASEAN, ASEAN Leaders' Declaration on Disaster Health Management

P-044

CBRNE/HAZMAT

Paradigm shift in personal protective equipments for chemical terrorism

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Aims

Identifying the limitations of current personal protective equipments and aiming for more practical use. Until now, chemical terrorism response personnel have operated under the full protection of chemical protective equipments. However, this lacked immediacy, and only a very limited number of trained and specialized personnel are able to operate. In addition, it is costly, and especially during the summer, the heat limits the time that personnel can wear the equipment. Thus, they are not suitable for standby condition.

Methods

In response to this dilemma, the U.S. Army SBCCOM initiated a study on how well non-specialized rescue teams can respond to chemical terrorism with self-contained breathing apparatuses and regular fire suits, and published the results. On the other hand, in Japan, for example, the police guard dignitaries in plain clothes, and the NBC response team of doctors for the VIPs such as the G8 summit meeting stand by in ordinary suits, which poses a problem for immediate response and safety once a terror occurs. So we considered a more practical solution.

Results

The use of activated carbon masks, water and oil repellent suits, and body suits made of the activated carbon material as underwear will allow for immediate response after a terror strikes, and will allow for rapid and safe evacuation and guidance of people to be protected, thereby reducing damage.

Conclusions

A paradigm shift in personal protection against chemical agents is needed, and not only complete protection but also lighter equipment should be used in combination depending on the situation.

Keywords

chemical terrorism, personal protective equipmen

P-045

Special Needs & Vulnerable Populations

Enhancing Evacuation Support for Children with Medical Complexity During Disasters: A Case Study from Tottori Prefecture

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Aims

In Japan, with a population of approximately 120 million, it is estimated that there are approximately 20,000 Children with medical complexity (CMC) who require daily medical care (such as artificial respiration management and sputum suctioning). Of course, they are disasters vulnerable.In Japan, which is also a country with major natural disasters such as earthquakes, the current situation is that from 2021, the government has called for the preparation of individual evacuation plans for vulnerable people at local government level, but this has not progressed.In collaboration with the government, we conducted our research with the aim of identifying evacuation issues and reflecting them in policy measures.

Methods

In cooperation with Tottori Prefecture, we used model dolls to simulate the establishment and operation of evacuation and shelter centres, and lobbied the administration to secure space in shelters for vulnerable people.

Results

In Tottori Prefecture, the Regional Disaster Management Plan was revised in 2023 and a section on CMC was added to the manual. At the local level, manuals for shelters were revised/recreated, specifically to ensure power supply and to recognise the need for professionals (e.g. public health nurses).

Conclusions

very few local goverment in Japan (137 organisations, 7.9%) have individual evacuation plans for persons in need. While focusing on the individual is an important perspective, we believe that there are also measures to first create a universal part and then focus on the individual.

Keywords

Children with medical complexity (CMC) , evacuation, shelters for vulnerable people

P-046

Infectious Diseases

Analysis of Severe Risk Factors in COVID-19 (Omicron Variant)

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2. Division of International Health (Public Health), Niigata University, Japan

3. Department of Active Ageing, Niigata University, Japan

Aims

Establishing effective pre-hospital triage criteria is critical to safeguarding the healthcare system during the COVID-19 pandemic. The emergence of the sixth wave, characterized by the highly transmissible SARS-CoV-2 Omicron variant, underscores the need for an urgent evaluation of factors associated with severe outcomes. Consequently, we performed a retrospective analysis of large-scale patient database from COVID-19 cases of SARS-CoV-2 Omicron variant in Niigata Prefecture, Japan, to assess critical risk factors for severe COVID-19 outcomes.

Methods

We categorized 52,862 cases from the sixth wave in Niigata Prefecture into those with moderate illness I or less (not requiring oxygen) and moderate illness II or more (requiring oxygen), based on the Ministry of Health, Labour and Welfare's "Classification of COVID-19 Severity." Multivariate logistic regression analysis was employed to estimate the odds ratio of severe COVID-19 outcomes, considering variables such as patient demographics and underlying health conditions.

Results

The study identified advanced age, male sex, and obesity (BMI ≥ 25) as significant risk factors for severe COVID-19 outcomes. Vaccination showed a protective effect, reducing the risk of severe COVID-19 outcomes. Underlying conditions, including respiratory diseases, non-insulin-using diabetes, chemotherapy or immunosuppressant use, chronic kidney disease, and chronic heart failure, were also found to significantly increase the risk of severe COVID-19 outcomes.

Conclusions

These findings can be utilized in accurate pre-hospital triage, which can prevent healthcare system collapse and help lower the mortality rate associated with COVID-19 infection.

Keywords

COVID-19, Sever Risk Factors, Pre-hospital, Triage

P-047

Infectious Diseases

Activities of the COVID-19 Cluster Facility Support Team in the 8th wave of COVID-19 in Yamaguchi Prefecture, Japan.

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6. Support Center for Rural Medicine (SCRUM), Yamaguchi Prefectural Grand Medical Center, Japan

Aims

We report on the activities of the COVID-19 cluster support team during the 8th wave of COVID-19 in Yamaguchi Prefecture, Japan.

Methods

Due to the rapid spread of COVID-19 during the 8th wave in Japan, clusters frequently occurred in elderly care facilities and other similar establishments in Yamaguchi Prefecture. In response to lessons learned from activities during the 7th wave, we established COVID-19 Cluster Support Team Headquarters in each secondary healthcare region. These teams were formed and operated, centered around disaster medical assistance team (DMAT) and certified infection control nurses.

Results

From December 16, 2022, to February 6, 2023, we set up COVID-19 Cluster Support Headquarters in five regions and a coordinating headquarters at the prefectural government office. A total of 276 members (60 doctors, 106 nurses, and 110 logisticians) gathered and worked in these regions. The COVID-19 Cluster Support Headquarters were established within the public health centers of each region. Information sharing within and between regions was conducted using Microsoft Teams®. The teams visited a total of 104 facilities, including 9 hospitals, 84 elderly care facilities, and 11 facilities for people with disabilities. The infection situation varied by region, leading to a heavier burden on support teams in some areas. The establishment of Cluster Support Headquarters in each region enabled better coordination with local medical and pharmaceutical associations.

Conclusions

Support for cluster facilities was successfully provided in each region. We were able to establish a system in each region with an awareness of coordination headquarters for health, medical care, and welfare in the subacute phase of disasters.

Keywords

COVID-19, cluster , disaster medical assistance team

P-048

Natural Hazards & Disaster Risk Reduction

Building Flood-Resistant Hospital: Flood Damage Countermeasures for Disaster Base Hospital Located in High-Risk Flood Areas

MEGUMI IWASAKI [1], TAKESHI YOKOYAMA [1], AKITA KATO [1], YUZURU MOCHIDA [1], RAIRA NAKAMOTO [1], HIROAKI OGAWA [1], KYUHEI MIYAGAWA [1], KAZUHIDE YOSHIKAWA [1], TOMOHISA SHOKO [1]

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Aims

In our medical region, which has several large rivers, flooding is a major hazard comparable to earthquakes. Therefore, our hospital has engaged in serious flood preparedness efforts such as the 2018 flood drill.

Methods

To evaluate the effectiveness of flood damage control measures taken at our hospital.

Results

A hospital flood damage timeline was developed and manuals created for evacuation preparation actions and headquarters decision-making items prior to the occurrence of possible flooding. During a direct hit by a major typhoon in 2019, the timeline was actually followed and headquarters activities were carried out. These efforts were also applied to the planned relocation of the hospital a few years later, resulting in the hospital having the capability to protect patients and staff in the event of flooding. The new hospital has (1) seismic isolation retaining walls to prevent flooding as well as newly installed seawalls, (2) a significant enhancement of emergency power supply facilities and installations on the upper floors, (3) an emergency department, an intensive care unit (ICU), and diagnostic imaging equipment on the second floor, (4) an emergency deck accessible by boat even during flooding, (5) a new heliport on the roof, (6) amphibious vehicles for personnel rotation and supply procurement during a siege, and (7) elevators that can operate above the second floor even in the event of flooding. After the relocation, drills for transporting patients and supplies by helicopter, amphibious vehicle operation, and headquarters desk training have been conducted.

Conclusions

Our hospital’s efforts to prevent flood damage functioned effectively during an actual direct hit by a large typhoon as well as during the development of the new hospital’s facilities, thereby ensuring the safety of patients and staff. Ongoing training and facility upgrades are expected to ensure even greater safety in the future.

Keywords

Flood Disaster, Flooding, timeline, Disaster Base Hospital, Flood-Resistant Hospital

P-049

Natural Hazards & Disaster Risk Reduction

Effective Disaster Response: The Role of DMAT in Maintaining Healthcare and Welfare Systems during the 2024 Ishikawa Earthquake

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Aims

The earthquake that struck Ishikawa Prefecture in Japan on January 1, 2024, severely impacted areas with a high elderly population. In response, the Ishikawa Prefecture Health, Medical, and Welfare Coordination Headquarters and the Japan Disaster Medical Assistance Team (DMAT) Coordination Headquarters led efforts to protect residents, medical welfare functions and support community recovery. These efforts provide a critical reference for assessing the effectiveness of disaster-related medical and welfare services.

Methods

This study examines the activities carried out by the DMAT and the Health, Medical, and Welfare Coordination Headquarters during the disaster in Ishikawa Prefecture. The analysis covers the actions of 1,139 DMAT teams over 3,623 team-days, including requests for DMAT teams from across the country, logistics operations, medical access, evacuations, and support provided to social welfare facilities.

Results

The DMAT and the Coordination Headquarters played a vital role in maintaining medical services and ensuring the emergency evacuation of affected individuals. A key component was the implementation of minimum environmental maintenance (supply), which involved the rapid provision of essential supplies like water, food, and heating. This effort was crucial in securing living conditions in shelters and hospitals. Additionally, personnel and logistical support were provided to social welfare facilities to maintain their operations. These actions ensured that evacuation was completed by January 18, and evacuees' medical needs were effectively met.

Conclusions

The swift and effective response by the DMAT and Coordination Headquarters significantly contributed to maintaining medical and welfare systems, facilitating regional recovery. The implementation of minimum environmental maintenance (supply) was essential to the rapid response. Support for social welfare facilities also proved crucial in sustaining community welfare functions. Strengthening DMAT operations and enhancing collaboration with social welfare facilities will be vital in preparing for future large-scale disasters.

Keywords

DMAT, Noto peninsula earthquake, Aging society, Logistics

P-050

Infectious Diseases

About Information Collection System for COVID-19 Patients Using a Smartphone App

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Aims

The spread of COVID-19 had made it extremely important for health centers to quickly identify high-risk patients based on the background of positive patients. However, when 27,000 positive patients occurred in Niigata Prefecture in one week, there was a limit to the number of telephone interviews that could be conducted with each of them, and there was concern that some patients were already showing severe symptoms when the call was made.

Methods

Niigata Prefecture has developed its own smartphone application (SUTAPA), which allows people who have undergone antigen and PCR testing to use the application to register their personal information regarding COVID-19 risk factors.When a positive test result was confirmed, the pre-registered information was used to score the risk of severe disease, and triage was conducted by telephone interviewing patients in order of their risk scores.

Results

The number of cases requiring public health center interviews was significantly reduced, and tasks that previously extended into the late hours were mostly completed within regular hours. No one in Niigata Prefecture died while waiting for hospitalization, and the mortality rate of positive patients was the lowest among the 47 prefectures.

Conclusions

The collection of personal information related to risk factors at the time of testing using a smartphone app contributed to improving the efficiency of public health center operations. The exact extent to which SUTAPA contributed to the reduction in mortality is unclear, as many factors are involved, but it is possible that it contributed to the result of no deaths while waiting for hospitalization. Although it is assumed that the input rate may have been lower in older adults who are at higher risk, digitization is important to avoid spending medical resources on younger people who are less likely to need treatment.

Keywords

COVID-19, Smartphone App, triage

P-051

Infectious Diseases

The Effectiveness of Pre-admission Triage for COVID-19 :The Niigata Prefecture Initiative

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Aims

The spread of COVID-19 and the increase in the number of patients have led to a strain on hospital beds worldwide, resulting in numerous cases where it became difficult to admit patients to hospitals, including for routine emergency care. Niigata Prefecture has one of the lowest levels in Japan in terms of both the physician maldistribution index and the number of ICU beds, leading to a chronic shortage of medical resources. Therefore, it was deemed essential to take preemptive measures to prepare for the spread of infections.

Methods

Niigata Prefecture approached the COVID-19 pandemic as "disaster medicine" and implemented a uniform pre-admission triage system across the entire prefecture, aiming for the appropriate use of limited medical resources. A Patient Coordination Center (PCC) was established to facilitate this process. The PCC not only selected hospitals for patient admission but also independently assessed whether "hospitalization was necessary" based on unique criteria. These criteria were developed by calculating risk factors for severe cases from data on all patients in Niigata Prefecture and assigning scores accordingly. Additionally, an app was developed to digitize and aggregate information related to these risk factors, thereby reducing human and time resources through efficient information processing.

Results

Niigata Prefecture achieved the lowest mortality rate per capita and the lowest mortality rate among confirmed cases out of Japan’s 47 prefectures. There were also zero deaths while waiting for hospitalization.

Conclusions

In responding to COVID-19, Niigata Prefecture likely achieved favorable outcomes by applying disaster medicine know-how to optimize the allocation of limited medical resources. The decision to implement pre-admission triage for all patients may have contributed to these results. Emerging infectious diseases often lack established treatments and diagnostic methods, indicating that not only clinical and basic medical knowledge but also social medicine, particularly disaster medicine expertise, play a crucial role.

Keywords

COVID-19, Pre-admission Triage, Risk Factor, Digital Transformation

P-052

Natural Hazards & Disaster Risk Reduction

A study on the effectiveness of mesh networks to extend multiple satellite lines at the time of a disaster

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2. SKY Perfect JSAT Holdings Inc., Japan

Aims

In disaster areas where the communication environment has been destroyed, wired communication may become impossible, and only communication services via satellite links or other means may be available, resulting in congestion. Information sharing is essential for DMAT activities in disaster areas, and using multiple satellite links is useful for building a stable communication environment. On the other hand, it is also important to build a communication environment quickly and easily when a disaster occurs.In this paper, we consider the usefulness of a network that extends multiple satellite links using a wireless mesh network.

Methods

At the activity base headquarters for the large-scale earthquake medical activity training conducted on September 30, 2023, two satellite lines provided by SKY Perfect JSAT and STARLINK were extended from the outdoor satellite base station to the DMAT activity base headquarters via a wireless mesh network, creating an environment in which users could select the satellite line depending on the type of communication data.

Results

Training activities were carried out smoothly by having DMAT members use the appropriate channels: SKY Perfect JSAT geostationary satellite links for voice communications and input to EMIS, and Starlink low-orbit links for communications requiring bandwidth.As for wireless mesh networks, it was found that when using the 5 GHz band, there is no benefit in preventing radio wave attenuation within 40 m. Furthermore, the 2.4 GHz band is susceptible to interference and communication is unstable, and it was discovered that the 5 GHz band should be used.

Conclusions

The use of multiple satellite links is useful in DMAT activities.It is necessary to clarify the threshold at which the decrease in throughput caused by an increase in the number of hops in the wireless mesh network does not become a bottleneck for the entire communication.

Keywords

multiple satellite links, wireless mesh network, DMAT

P-053

Special Needs & Vulnerable Populations

Support for Obstetrics and Gynecology Demartment in the Noto Peninsula Earthquake Disaster

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2. HuMA, Japan

Aims

We at HuMA (Humanitarian Medical Assistance) supported the obstetrics and gynecology department of a hospital that was damaged by the Noto Peninsula earthquake occurred on January 1, 2024. Keiju Medical Center was affected by the earthquake, making it difficult to provide medical care in the original ward. In accordance with their BCP, they set up a temporary OBGYN ward in the endoscopy center. They called on pregnant women who were affected by the disaster and could not live safely to evacuate to the hospital and accepted several pregnant women who survived the damage due to the earthquake. For example, pregnant women with GDM and pregnant women whose delivery time was approaching. They contacted pregnant women who had difficulty coming to the hospital by phone and SNS, and provided them consultations. During that time, they also provided delivery support for pregnant women who came to the hospital in labor, and performed prenatal checkups and gynecological examinations in the outpatient department. In addition to the staff shortage existed even during peacetime, some staff could not work, and many staff continued to stay at the hospital for more than a week after the disaster, causing physical and mental fatigue to build up. Additionally, the inability to use the original wards was a major burden.

Methods

The Japanese medical NPO, HuMA utilized its network of medical staff to dispatch four obstetricians and eight midwives.

Results

In terms of medical treatment, we worked with hospital staff to perform surgery for critical obstetric bleeding, assist with childbirth, and provide care for pregnant and postpartum women.

Conclusions

During the period of our support, the hospital staff were able to get some rest, which helped them to rebuild their lives, continue medical treatment in the long term, and contribute to the protection of pregnant women affected by the disaster.

Keywords

OBGYN, Noto Peninsula Earthquake

P-054

Natural Hazards & Disaster Risk Reduction

Medical Perspective on the Systemic Challenges Involving Indirect Disaster-Related Deaths in Japan

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Aims

Preventing indirect disaster-related deaths is a significant public health issue that deteriorates social resilience. To reduce these deaths, it is crucial to identify the medically accurate causes of death through diagnosis and documentation, thereby producing high-quality disaster mortality statistics. This study aimed to investigate the extent to which official medical certificates documenting disaster relevance were included in the municipal documents for indirect disaster-related deaths.

Methods

This study conducted a retrospective cross-sectional analysis using anonymized data obtained from municipalities through information disclosure (approval no: 2023-1-489). The study assessed 755 certified indirect disaster-related deaths after the 2011 Great East Japan Earthquake in the Miyagi Prefecture, Japan, to determine whether the medical certification in the municipal documents referred to disaster relevance.

Results

Of the 755 cases, 74 (9.8%) death certificates and 145 (19.2%) medical documents mentioned disaster relevance. In 536 (71.0%) cases, the disaster relevance was only mentioned in the self-reported documents submitted by bereaved families. The median [interquartile range] time from the disaster onset to disaster-related death was 21 days [7?52 days]. The mean age of the deceased was 79.7 years, and 346 (46.7%) were female. The predominant etiologies of these deaths included circulatory (32.7%) and respiratory (27.7%) diseases. The time from the disaster onset to death differed among the municipalities where the review committees were held (P= 0.046).

Conclusions

Surveillance of medical diagnostic documentation revealed the minimal recording of disaster relevance on death certificates. Moreover, the lack of standardized review principles and medical perspectives of indirect disaster-related deaths suggests the need for a unified approach. Establishing a medical and social consensus for indirect disaster-related deaths and recording them on death certificates is crucial for accurate disaster death data and social resilience.

Keywords

indirect disaster-related deaths, indirect disaster-related mortalities, Great East Japan Earthquake, death certificate, social resilience

P-055

Special Needs & Vulnerable Populations

Individual evacuation planning and disaster medical assistance for older people

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Aims

Older people are more likely to be seriously affected by disasters, resulting in direct and indirect disaster-related deaths.?In 2021, the Japanese government requested municipalities establish an ‘individual evacuation plan’ with various stakeholders, such as welfare and medical professionals, to secure the lives of people who need support. This study aims to investigate the potential challenges regarding disaster medical assistance in individual evacuation planning and seek alternative solutions.

Methods

This study reviewed government documents concerning individual evacuation planning and disaster medical assistance and related news articles to understand how the media has portrayed the challenges associated with these plans.

Results

As of June 2024, approximately 90 % of municipalities have initiated individual evacuation planning to aid older people, but the effectiveness of the planning is still under-proven in real life. The government documents do not address the specific strategy for disaster medical assistance well. Most review news articles focused on the number of planning rates in specific areas and underweighted the importance of disaster medical assistance. At this moment, identified challenges covering all individual plans include the shortage of welfare and medical experts to cover all people who need support, managing personal information, securing suitable welfare evacuation shelters that could provide necessary medical services, and considering the individual willingness to evacuate.

Conclusions

The findings are that individual evacuation planning is still in the early stages and needs to be demonstrated for effectiveness. Older people should be included in the process of individual evacuation planning, and the older people's actual capacity and needs and the availability of relevant stakeholders must be evaluated. The plans need to include a specific medical assistance strategy according to individual needs, including the decision-making to evacuate or stay at home on regular days. Moreover,?potential complications and probable solutions in different types of emergency shelters should be discussed.

Keywords

Disaster, older people, individual evacuation plan, disaster medical assistance

P-056

Natural Hazards & Disaster Risk Reduction

Impact of Community-Level Social Capital on Increased Participation among Older People in Emergency Drills: A Three Year Longitudinal Multilevel Study Based on the Japan Gerontological Evaluation Study

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Aims

Emergency drills contribute to reducing disaster risk. However, no longitudinal studies have examined the relationship between community-level social capital (SC) and participation in emergency drills. This study examined whether community-level SC influenced increased participation in emergency drills three years later among older people.

Methods

We analysed three-year panel data from the Japan Gerontological Evaluation Study from 2019 to 2022. The participants comprised 7,763 physically and cognitively independent individuals older than 65 years from 804 communities in 47 municipalities in Japan. We excluded emergency drill participants from the baseline survey in 2019. The outcome variable was participation or non-participation in emergency drills three years later, in 2022. Individual-level SC was assessed in 2019 for civic participation, social cohesion, and reciprocity (five, three, and three indicators, respectively). Individual-level SC indicators were aggregated as community-level explanatory variables. Multilevel modified Poisson regression analysis was used to calculate the prevalence ratios (PRs) and 95% confidence intervals (CIs) in municipalities affected by disasters between 1970 to 2021 (yes: 26, no: 21). Model 1 covariates were age and sex. Family structure, education, income, current employment, residential years, walking time and population density were added in Model 2.

Results

A total of 2,214 participants (28.5%) participated in emergency drills in 2022. In municipalities that did not experience disasters, a higher prevalence of community-level SC was statistically significantly associated with a higher likelihood of participating in emergency drills (civic participation: PR, 1.06 [95% CI, 1.02?1.09); social cohesion: PR, 1.07 [95% CI, 1.02?1.13); reciprocity: PR, 1.16 [95% CI, 1.06?1.27), estimated by 10% of high SC) after adjusting for individual-level SC indicators and covariates.

Conclusions

We found a contextual positive relationship between community-level SC and participation in emergency drills among older adults in communities with no experience of disasters. Therefore, strengthening SC in communities may positively impact participation in emergencydrills.

Keywords

Disaster drills, Older people, Vulnerable population, JAGES

P-057

Natural Hazards & Disaster Risk Reduction

Interdisciplinary Research about the Flood Risk of Hospitals in Japan and Hospital Business Continuity Plan (BCP)

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Aims

To analyze past heavy rain and flood damage for hospitals in Japan from the geographic information system (GIS) viewpoint and to consider countermeasures that will contribute to future business continuity plans (BCPs) for domestic hospitals and regional medical services.

Methods

(1) We analyzed the Japanese government's hospital information and digital land data using GIS software (ArcGIS system, ESRI Japan) and mapped the hospitals on a map. (2) We investigated hospitals that experienced flood damage in the past from news articles and academic papers. (3) Based on the Guidelines for Countermeasures against Flooding of Electrical Equipment in Buildings provided by MLIT and so on, we extracted the elements to be included in a hospital BCP that takes floods and landslides into consideration from the perspective of architectural engineers and BCP experts.

Results

(1) 221 hospitals out of 765 disaster base hospitals (DBHs, 28.9%) and 2044 out of 7406 non-DBHs (27.6%) were in flood inundation assumption areas. (2) Most hospitals that experienced flood damage were in the assumed flood inundation area. (3) We extracted the items to be included in the hospital BCP for flood damage by existing/newly established hospitals and assumed inundation depth on the hazard map and as a timeline.

Conclusions

The number of hospitals included in the assumed flood inundation area may increase because only some class B river data and inland flood data are included in the digital national land information data. Still, even with all possible measures like this research, preventing all flood disaster damage might be impossible. However, it is possible to reduce the number of hospitals affected, the degree of damage, the time and funds required for recovery, and the impact on affected residents and aim to make more effective use of public support.

Keywords

Business Continuity Plan, Business Continuity Management, Flood, Hospital BCP, Hospital BCM

P-058

CBRNE/HAZMAT

Hands-On Training course for CBRNE Incidents in Fukushima,Japan

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Aims

Japan is a rare country that has experienced all aspects of CBRNE.However, CBRNE training opportunities are few and far between.In recent years, with the increase in natural disasters, complex disasters are occurring, and CBRNE has become a familiar presence.Fukushima Prefecture has been conducting its own CBRNE training since the "R" disaster at the Fukushima Daiichi Nuclear Power Plant caused by the Great East Japan Earthquake.

Methods

The target audience is doctors, nurses, and other medical professionals.Starting this year, in order to promote mutual understanding, we have invited fire and police personnel to participate in the training.

Results

The contents are updated every year, and the contents are shown here.The previous course was held over three days, but from 2022, the lectures will be taken online as preliminary learning.The two-day course will focus on practical training and desk training related to CBRNE.① Review of prior learning② On-site activities③ Acceptance at the hospital④ The essence of CBRNE disasters from the perspective of COVID19⑤ Safety management⑥ Medical training⑦ Radiation measurement⑧ Personal protective equipment⑨ Toward the comprehensive exerciseApproximately one-fourth of the total was learning "R"Finally, practical training will be held as a comprehensive exercise, and the course will conclude with talks about disaster activities by the fire department, police, and administration.

Conclusions

Once a complex disaster or CBRNE terrorist attack occurs, it is clear that not only nearby medical institutions but also all medical institutions in the region will be required to respond, so we believe that educational opportunities are necessary.

Keywords

CBRNE, HAZMAT, Training

P-059

CBRNE/HAZMAT

Agents required in the event of a chemical terrorism outbreak that can be made into running stocks in Japan.

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1. DMAT Secretariat, Japan

Aims

While national stockpiles of medicines are highly necessary in the event of a terrorist incident, many drugs are disposed of unused. Therefore, by identifying drugs that are used to a certain extent in medical institutions even in normal times, drugs that can be converted to running stocks are extracted, specific methods for converting them to running stocks are examined and, to the extent possible, the budget required for purchasing, collecting and disposing of running stocks is reduced or the costs can be reduced. The objective is to estimate the cost of reducing or compressing the budget required for purchase, collection and disposal by running stock to the extent possible.

Methods

A questionnaire survey will be conducted among the 765 disaster base hospitals nationwide and the approximately 300 pharmaceutical wholesalers responsible for supplying pharmaceuticals to these hospitals. As a result, the stockpiling and use of drugs required in the event of chemical terrorism at medical institutions will be ascertained.

Results

The five conditions under which running stocking was considered possible were first organised within the research group. The responses from 386 hospitals and 39 suppliers were then analysed, and two drugs that could be converted to running stock as a medical institution and five drugs as a pharmaceutical wholesaler were extracted.

Conclusions

Five drugs were organised as possible running stocks. However, it is important to continuously conduct surveys and evaluations similar to those in this study at regular intervals and to take appropriate action.

Keywords

CBRNE, terrorism, stockpile, running stocks

P-060

Special Needs & Vulnerable Populations

Addressing Vulnerabilities in Home-Based Care During Disasters: Focusing on Disabled Individuals, Elderly, and Ventilator-Supported Children

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Aims

Home-based care provides a critical framework for delivering health services to individuals in their residences. However, during disasters, these patients often face significant vulnerabilities, particularly the elderly, children, and individuals with disabilities. Their mobility limitations and sensory impairments heighten their risk and necessitate tailored disaster response strategies. This study aims to identify the challenges and risk factors that these vulnerable groups encounter in disaster scenarios and to propose strategies for disaster preparedness and training for home-based care providers.

Methods

A comprehensive literature review was performed using keywords such as “Home-based Care,” “Disaster,” “Emergency Preparedness,” and “Vulnerable Populations” within PubMed and Scopus. This review evaluated existing literature to understand the risks faced by home-based patients during disasters, with a focus on healthcare worker education, patient evacuation processes, and access to essential medical equipment.

Results

Our findings indicate that vulnerable populations experience significant barriers to emergency evacuation stemming from mobility constraints, cognitive challenges including individuals with dementia and other cognitive impairments, and reliance on continuous medical equipment, such as ventilators. Case studies highlighted limited access to power sources and inadequate emergency evacuation plans tailored for these vulnerable populations. Additionally, insufficient education for healthcare providers and inadequate support for patients during crises were found to exacerbate their risks. The readiness and understanding of patients’ families and caregivers regarding evacuation procedures were particularly deficient among low-income households.

Conclusions

To enhance the preparedness of vulnerable populations receiving home-based care during disasters, it is imperative to implement targeted educational initiatives for healthcare providers and foster collaborations with national disaster management authorities. Future efforts should focus on developing customized disaster response protocols and emergency supply kits for home-based care patients, which could significantly enhance health outcomes for these vulnerable populations in disaster situations.

Keywords

Home-Based Care, Disaster, Vulnerable Populations, Emergency Preparedness, Health Equity

P-061

CBRNE/HAZMAT

Development and Validation Study of Off-site Measurement for Alpha-emitting radionuclides using Nasal Smear Samples

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1. Korea Cancer Center Hospital, Korea, Republic of

Aims

Measurement of nasal smear samples from radiation-exposed patients provides essential evidence for identifying contamination sources when incident details are limited and aids in determining medical interventions for severe internal contamination. Both international and domestic radiation emergency protocols recommend nasal smears or nose-blow samples for assessing internal contamination before decontamination. In cases involving alpha-emitting radionuclides, rapid assessment of initial inhalation and radionuclide identification enables timely dose assessment and medical intervention.In Korea's radiation emergency response training, nasal smear sampling using swabs is conducted immediately upon patient arrival at the emergency room. Collected samples are measured on-site, allowing immediate medical intervention if internal contamination is suspected. For beta/gamma-emitting radionuclides, surface contamination measurement devices enable efficient on-site sample analysis for quick treatment decisions. However, measuring internal contamination from alpha-emitting radionuclides is challenging due to the low penetrating power of alpha particles and directional sensitivity of detectors.

Methods

This study developed and validated an analytical procedure to be used in an off-site radiological monitoring room. The Korea Institute of Radiological and Medical Sciences (KIRAMS) operates a mobile radiobioassay laboratory (MRL) to facilitate prompt response by rapidly assessing alpha-emitting radionuclides. Validation indicators included performance of portable radiation measurement equipment, linearity/range, accuracy/precision, environmental stability, and blind test data.

Results

The full-width at half-maximum (FWHM) for calibration radionuclides was within 10% of the 30 keV criterion, with a high linearity range (R^2 of 0.99). Accuracy and precision were high, with RMSE at 8.1%. The MRL's internal air conditioning system supports environmental stability, with a mean relative standard deviation of 8.7% under temperature variations from -2.5 to 6.6°C. Blind tests on 11 simulated samples showed an average recovery rate of 54.6%, and intercomparison analysis for Am-241 identification showed a 4% bias, with an En score of 0.3 and a Z-score of 0.2, confirming validity.

Conclusions

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Keywords

Nasal smear test, Radiation emergency, alpha-emitting radionuclides

P-062

Infectious Diseases

Early Response to COVID-19 by Public Health Centers in Japan

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2. Hirakata City Public Health Center, Japan

3. Oita Prefectural Government, Japan

Aims

The first COVID-19 case in Japan was reported on January 16, 2020. Public Health Centers (PHCs) subsequently established Returnee and Close Contacts Consultation Centers. This report aims to document the early response of PHCs in Japan as a reference for managing future pandemics.

Methods

An email survey was sent to all PHCs in Japan on March 25, 2020, requesting responses by March 31. The survey was conducted in collaboration with the Japanese Association of Public Health Center Directors and the research group on the required roles of PHCs.

Results

The response rate was 54.9% (257 out of 468 centers). Among the responding PHCs, 66.1% operated consultation centers 24/7, with 62.9% of these functioning independently, without support from other departments. Key staff at these centers included public health nurses (80.5%), medical doctors (17.5%), veterinarians/pharmacists (8.9%), administrative personnel (6.2%), and others (10.1%). Major tasks involved coordinating outpatient consultations (98.1%), specimen transportation (97.7%), coordinating healthcare systems (94.6%), and arranging PCR tests (91.4%). In areas where COVID-19 cases were present, primary tasks included contact tracing (95.9%), health monitoring (90.1%), hospital transportation (67.8%), and specimen collection (52.1%).

Conclusions

PHCs worked tirelessly against COVID-19 with minimal external support. In addition to public health nurses and doctors, veterinarians/pharmacists and administrative staff played significant roles in some PHCs.

Keywords

COVID-19, public health centers

P-063

Psychosocial & Mental Health

Temporal Trends in Acute Mental Health Problems during the Emergency Medical Team Response to Cyclone Idai 2019 in Mozambique: Findings from the WHO Emergency Medical Team Minimum Data Set

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2. National Hospital Organization Headquarters DMAT Secretariat MHLW, Japan

3. World Health Organization Centre for Health Development (WHO Kobe Centre), Japan

Aims

In 2017, the World Health Organization introduced an international standardized medical data collection system for disasters, known as the Emergency Medical Team (EMT) Minimum Data Set (MDS). The EMT MDS was activated for the first time in 2019 in response to Cyclone Idai in Mozambique. The present study aimed to examine the daily and phase trends in acute mental health consultations identified by 13 international EMTs during their response to Cyclone Idai, and reported using the EMT MDS.

Methods

Joinpoint regression analysis was used to examine daily trends in acute mental health consultations. Trends were also examined by phase, which were identified using joinpoints. The Cochran-Armitage test for trends was used to determine the significance of the trends across the identified phases.

Results

During the 90-day EMT response period following Cyclone Idai in Mozambique, 17,101 health-related consultations were reported, including 94 acute mental health consultations. The daily trend analysis showed a significant increase in the daily number and percentage of acute mental health consultations from response onset until day 13, followed by a gradual decline (p

Conclusions

This study provides valuable insights into the temporal trends in acute mental health problems identified by EMTs during their response to Cyclone Idai in Mozambique in 2019, highlighting the critical importance of prompt and sustained mental health support in the immediate aftermath of natural disasters.

Keywords

Mental Health, Emergency Medical Team, Cyclonic Storms, Mimimum Data Set, Mozambique

P-064

Nursing

Human Resource Development for Nurses in the Japan Disaster Relief Team Medical Team

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5. Aichi Medical University Hospital, Japan

6. Disaster Medical Center, Japan

Aims

The Japan Disaster Relief Team (JDR) Medical Team responded to the February 2023 earthquake in the Republic of Turkey as an EMT-Type 2. Issues will be clarified from the nursing practice at the time of dispatch, and it will be used as an indicator for human resource development and system development fir future nurses.

Methods

We extracted nursing practices from the descriptions of nursing in activity reports and analyzed the behavioral characteristics required using "Core Competencies in Disaster Nursing Version 2.0" and other sources. [Ethical considertaions] The data was approved by the JDR Secretariat to ensure that individuals were not identified.

Results

Nurses who have been active are classified as Level Ⅱ or higher. The report mainly described areas such as "communication", "crisis management system", "safety and security", and "assessment".

Conclusions

As an EMT Type 2, it is considered that specialized nursing practice and judgment skills in each field that meet the needs of the disaster victims and the affected communities are required. On the other hand, nurses at Level Ⅱ or higher are also required to have management skills, but there is no training aimed at improving indicators and skills. There is an urgent need to improve practical nursing skills and systematize the development of human resources who will play a central role in the team.

Keywords

P-065

Trauma

Report from the Special Committee on Crush Syndrome of the Japan Association for Disaster Medicine (JADM)

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2. The Special Committee on Crush Syndrome of the Japan Association for Disaster Medicine (JADM), Japan

Aims

In order to preserve the lessons learned from the Hanshin-Awaji Earthquake and prepare for future disasters, it is essential that rescue and medical activities on-site, transport, and multidisciplinary treatment in hospitals are conducted appropriately from the onset of a disaster to save more lives affected by CS. Additionally, it is crucial that multiple agencies, including citizens, healthcare professionals (including DMAT), fire departments, police, self-defense forces, coast guards, NGOs, and international support organizations, work with a shared understanding and coordinated efforts in the same direction.

Methods

Under the research team led by Koido of DMAT, we conducted a multifaceted analysis of the occurrence of CS, the appropriate on-site response, and the standardization of treatments, including dialysis. A committee within academic societies was also established to accumulate cases and data, inherit lessons from past cases, understand and share international standards, disseminate new findings, educate relevant agencies and the public, and continually review and update the practices.

Results

We identified several issues related to CS, including the need for severity classification, revision of wide-area transport criteria, the pros and cons of the Crush Injury Cocktail, the applicability of CAT, the usefulness of fasciotomy/amputation, and the efficacy of early initiation of blood purification therapy. Knowledge related to the diagnosis and treatment of CS was reviewed based on papers, basic experiments, data from the Kumamoto Earthquake, international data, and existing databases. We proposed wide-area transport criteria considering surgical intervention in addition to intensive care and dialysis. Knowledge related to CS was shared with a wider audience through participation in various academic societies, publications, and international working groups.

Conclusions

We plan to strengthen collaboration across multiple professions and organizations, including international partnerships, and engage in proactive academic and educational activities. We will continue to conduct comprehensive surveys on CS cases from the Noto and Kumamoto Earthquakes.

Keywords

Crush Syndrome, Japan Association for Disaster Medicine (JADM), Collaboration across multiple professions and organizations

P-066

Psychosocial & Mental Health

Estimating Number of DPATs in the Nankai Trough Earthquake from data of 'cocoro-no-care' in the Great East Japan Earthquake

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5. DPAT Secretariat, Japan

6. Department of Disaster and Community Psychiatry, Division of Clinical Medicine, Institute of Medicine, University of Tsukuba, Japan

Aims

Estimates of mental health needs and the number of DPATs required for a major earthquake have not been made.We estimated the scale of mental health support in the Nankai Trough Earthquake as part of the Ministry of Health, Labour and Welfare's scientific research ‘Research for strengthening functions in DPAT activities and considering responses to severe disasters’, using data on mental health care team activity records in the Great East Japan Earthquake.

Methods

Using the number of consultants and mental health care teams nationwide at the time of the Great East Japan Earthquake ÷ the number of dead and missing in tsunami-hit Miyagi Prefecture × the predicted number of dead and missing in the 2015 Nankai Trough Earthquake, it was estimated that there would be 317,600 mental health consultants and 35, 000 DPAT staff required in the Nankai Trough Earthquake. 935 and the total number of teams required would be 8,990.

Results

It was found that there would be 317,600 mental health consultants in the Nankai Trough earthquake, 35,935 required DPAT staff, and 8,990 total required teams.

Conclusions

Although the mental health care teams in East Japan and the current DPAT system are different, and there are limitations in interpretation, there is an urgent need to increase the number of DPATs nationwide in preparation for the Nankai Trough earthquake.

Keywords

DPAT, Mental Health, Japan, Disaster Psychiatry, Nankai Trough Earthquake

P-067

Pediatrics

Responding to students on a school trip from Aichi Prefecture who were unable to return home by heavy rain

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Aims

We will report a case that was handled by the emergency department as a disaster response to a large number of sick minor patients.

Methods

In June 2023, junior high school students who came to Tokyo from Aichi Prefecture on a school trip was unable to return home because the Shinkansen was suspended due to heavy rain. Dozens of people from the two schools complained of feeling unwell while waiting on the bus and were taken to the hospital by ambulance. In response to the news of "a large number of heat strokes", we switched the reception to disaster preparedness and waited, and four people came to our hospital. On medical examination, it was judged to be a mild illness due to a kind of group panic, but even if it was returned, there was a possibility of recurrence depending on the environment, so it was difficult for the chaperone teacher to decide whether to allow hospitalization. There was information that the hotel had been accepted into the hospital, so we decided not to follow up at the hospital and sent home.

Results

There was information that about 40 people were accepted at a nearby hospital, and it was questionable whether the appropriate dispersed transport was carried out at the site. Another two nearby hospitals had accepted no patients. However, it may be difficult to disperse transportation for the group of minors led by a few teachers in the absence of their guardians. It was also difficult to decide whether to be hospitalized or go home. On the other hand, hyperventilation patients were easy to classified to “ red “ under START Triage algorithm even they had been caused by mental stress only.?

Conclusions

Disaster response for mentally injured and/or minors may not go the normal way.

Keywords

minor, START TRIAGE

P-068

Pharmacy

The Japan Pharmaceutical Association's response to the Noto Peninsula earthquake of 2024

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2. Fukuoka University, Japan

3. Hyogo Medical University, Japan

Aims

The magnitude of 7.6 Noto Peninsula Earthquake that occurred on January 1 was the largest earthquake in the Noto region since records were kept in 1885. In Ishikawa Prefecture, 197 evacuation centers were established, and 2,288 people were displaced. The response of the Disaster Committee of the Japan Pharmaceutical Association to the Noto Peninsula Earthquake was reviewed.

Methods

When a disaster occurred, the Japan Pharmaceutical Association established Disaster Response Headquarters to gather information. Members of the Disaster Response Committee not only coordinated the dispatch of disaster relief pharmacists to the affected areas who would attend the Ishikawa Pharmaceutical Association, but also coordinated the dispatch of Mobile Pharmacy (Fig. 1 & Fig. 2). Disaster relief pharmacists provided dispensing services at mobile pharmacies and temporary pharmacies. Public health activities were also conducted by disaster relief pharmacists at evacuation centers. Moreover, health counseling was provided to disaster victims onboard a ship (providing bathing services for disaster victims).

Results

The good points of the Japan Pharmaceutical Association's response were as following: 1) The team of disaster relief pharmacists was able to manage a team of disaster relief pharmacists amidst the confusion of the affected prefectural pharmacists' associations, 2) The mobile pharmacy was able to manage the fleet by having a manager accompany the mobile pharmacy, and 3) Disaster relief pharmacists engaged in disaster relief in cooperation with the medical relief team. On the other hand, the points for improvement were as follows: 1) Guidelines needed to be developed for mobile pharmacy operations and 2) the supply of OTC drugs needed to be adjusted to take into account the phases of the disaster.

Conclusions

These activities were able to embody the strengthening of headquarters functions by the Japan Pharmaceutical Association in the event of a large-scale disaster.

Keywords

Pharmaceutical care, Coordination, Mobile Pharmacy, Public health

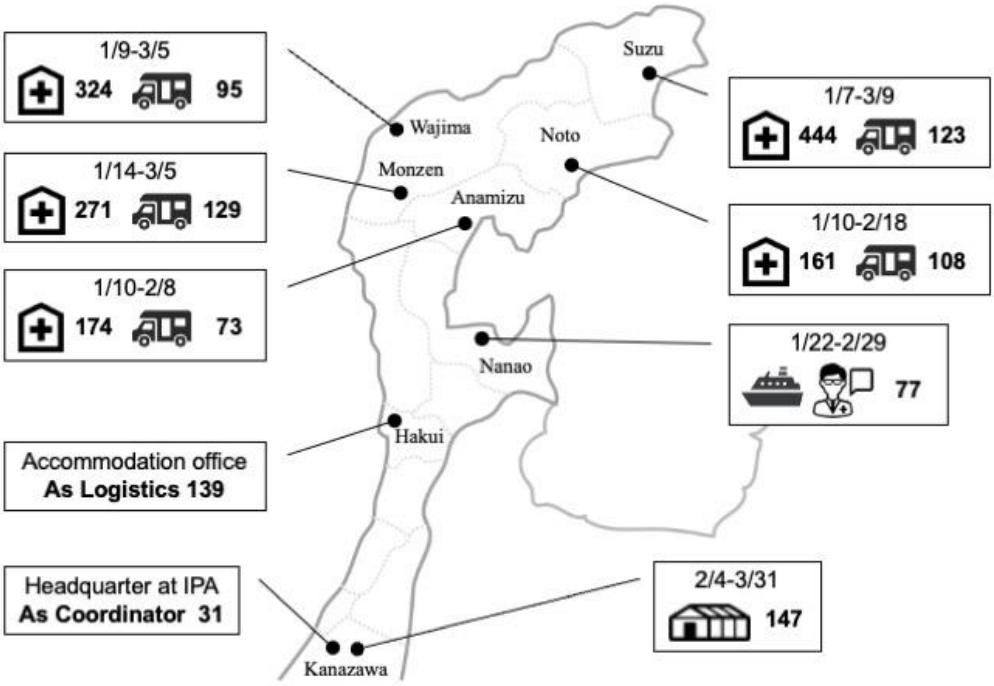

Fig. 1. Total number of disaster relief pharmacist dispatched

Fig. 2. Mobile Pharmacy

P-069

Psychosocial & Mental Health

Are You Burn-Out? Tool for Assessing Work-Related Stress in Rescue Workers During Traumatic Mass-Casualty Events

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Aims

The study addresses the critical need to assess work-related stress in rescue workers exposed to traumatic events during mass-casualty disasters. The primary objective was to develop and validate the Work-Related Stress Scale (WRSS), designed specifically to measure stress in this high-risk population to prevent severe psychological outcomes like PTSD and depression.

Methods

An exploratory sequential mixed methods approach was used. The qualitative phase involved interviews with 7 experienced rescue workers who had responded to significant disasters, such as the 2018 Hualien earthquake. These interviews informed the development of the WRSS items. A modified Delphi method was used for item selection and consensus. In the quantitative phase, 293 rescue workers who responded to the 2018 Hualien earthquake or the 2021 Hualien train derailment completed the WRSS, and confirmatory factor analysis was conducted to validate its structure.

Results

The WRSS was finalized with 16 items across four subscales: Physical Demands, Psychological Response, Environmental Interruption, and Leadership. The scale showed strong internal consistency, with Cronbach's alpha values ranging from 0.74 to 0.88. The confirmatory factor analysis supported the four-factor structure, confirming the tool's validity in measuring stress among rescue workers.

Conclusions

The WRSS is a reliable and valid instrument for assessing work-related stress in rescue workers following traumatic mass-casualty events. This tool highlights the specific stressors faced by rescue workers, providing a critical resource for developing targeted interventions to mitigate the adverse effects of such stress. Further research should focus on diverse populations and prospective studies on stress impact.

Keywords

work-related stress, disaster rescue workers, mass-casualty incidents

Table 1. Demographics of the rescue workers and differences in their WRSS scores (n = 293).

			Work-Related Stress		
	n	**%**	**M**	**SD**	***p*** [a]
Age					0.82
≤30	79	27.0	43.22	8.77	
31–40	175	59.7	43.26	8.29	
>40	39	13.3	42.20	13.32	
Gender					0.15
Female	10	3.4	38.78	10.24	
Male	283	96.6	43.26	9.09	
Marital status					0.31
Single	102	34.8	43.87	8.77	
Married	191	65.2	42.71	9.35	
Firefighting service (years)					0.14
≤5	200	68.3	43.29	7.86	
>5	93	31.7	43.70	10.95	
SAR service (years)					0.77
≤5	236	80.5	43.30	8.72	
>5	57	19.5	42.40	10.92	

Note. [a] from independent t test or ANOVA; SAR: search and rescue.

Table 2. Summary of confirmatory factor analysis and reliability of Work-Related Stress Scale (n = 293).

Construct/Item	**Factor Loading (*T* Value)**	**Cronbach's Alpha**	**AVE**	**Composite Reliability**	**Bootstrap 95% CI**
PHY		0.85	0.66	0.85	
01 Hard to fall asleep because of poor sleep environment	0.84 (32.46)				1.00–1.00
02 Intermittent sleep	0.89 (38.25)				0.90–1.12
04 Enduring sleeplessness	0.70 (19.83)				0.71–0.98
PSY		0.78	0.43	0.79	
10 The victims are my relatives [a]	0.56 (11.44)	Deleted			
11 Seeing my team members get injured at work	0.61 (13.95)				1.00–1.00
13 Expressing my condolences to the victims and not allowing myself to be affected by negative emotions	0.70 (18.22)				0.78–1.26
14 Seeing bodily mutilation or severed body parts	0.69 (17.46)				0.95–1.62
16 Touching the dead body unexpectedly	0.73 (19.73)				0.91–1.47
18 Media interview requests	0.53 (10.88)				0.73–1.15
ENV		0.88	0.65	0.88	
21 No one can be searched and rescued [a]	0.69 (19.31)	Deleted			
22 Finding all the victims or remains [a]	0.71 (20.94)	Deleted			
24 Insufficient manpower	0.75 (24.33)				1.00–1.00
25 Safety of the SAR process not confirmed	0.84 (35.41)				0.97–1.22
26 Worry about the spread of infectious disease at the disaster site	0.83 (33.37)				0.89–1.15
27 Worry about potential harm to rescue workers during disaster rescue	0.80 (30.88)				1.02–1.32
LEAD		0.74	0.54	0.82	
30 Confusing commands or unclear dispatches from the commander	0.46 (8.93)				1.00–1.00
31 Forced to change the SAR route	0.72 (21.04)				0.71–0.96

P-070

Psychosocial & Mental Health

The Progress of DPAT and Future Challenges in Japan

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Aims

The Disaster Psychiatric Assistance Team (DPAT) was established in response to the Great East Japan Earthquake and has now been in operation for ten years. Since then, it has been dispatced to various disasters, responding to the mental health care needs in affected areas. In this presentation, we would like to share the history of DPAT since its inception and discuss the challenges it faces moving forward.

Methods

We have summarized the results of the DPAT's organizational status and activities during disasters, as investigated by the DPAT Secretariat, and identified the challenges.

Results

Although the organizational structure of DPAT has been steadily improving, it remains insufficient when considering the potential occurrence of major disasters such as the anticipated Nankai Trough earthquake.

Conclusions

We will continue to work together with the government to strengthen the organizational structure of DPAT.

Keywords

DPAT, psychiatry, mentalhealth

P-071

Health Systems & Hospital Overcrowding

Global Trends in Research on High-Utilizing Alcohol Misuse Patients in Emergency Departments: A Scoping Review

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3. Singapore General Hospital, Singapore

4. Duke-NUS Medical School, Singapore

5. Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Aims

Frequent attenders (FAs) with alcohol-related issues place a significant burden on emergency departments (EDs) due to complex medical and social needs. This scoping review aimed to synthesize research on FAs with alcohol substance use disorder (SUD) and alcohol-related frequent attenders (ARFAs) to understand their characteristics and identify research gaps.

Methods

Following PRISMA-ScR guidelines, this review included studies on frequent ED users with alcohol dependence or related issues, with no restrictions on demographics, study type, or design. Searches were conducted across PubMed, ProQuest, APA PsycINFO, and CINAHL Complete, with additional searches on Google Scholar and reference lists. Non-ED settings, non-English studies, and opinion papers were excluded. Data were extracted and synthesized into summary tables using Covidence.

Results

The search identified 15,536 records, with 49 studies meeting the criteria from 1981 to 2021, primarily from high-income countries. Most studies employed observational methodologies with diverse sample sizes. FAs (SUD) and ARFAs were predominantly middle-aged males with significant socioeconomic challenges such as unemployment, low income, and homelessness. Common comorbidities included mental illness and substance abuse, with ARFA prevalence varying widely from 1% to 87.5%. Qualitative analyses highlighted themes of socioeconomic instability, dysfunctional family dynamics, and barriers to care.

Conclusions

The review reveals the complex challenges faced by FAs (SUD) and ARFAs in EDs, emphasizing the need for integrated care models addressing both health and social needs. The variability in ARFA prevalence and lack of standardized definitions complicate the development of effective interventions. Future research should focus on establishing standardized definitions and targeted intervention strategies, particularly in underrepresented regions, to improve ED management and policy.

Keywords

Alcohol-related frequent attenders (ARFAs), Emergency departments (EDs), Substance use disorder (SUD), Integrated care models, Scoping review

P-072

Prehospital Care & Transport

Feasibility and safety of targeted temperature management during interhospital transport of post-cardiac arrest patients

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Aims

Early initiation of targeted temperature management (TTM) is crucial for post-resuscitation care. TTM initiated in the hospital has been administered during interhospital transport (IHT), but its feasibility and safety for cardiac arrest patients have not been thoroughly assessed. This study aims to evaluate the feasibility and safety of interhospital TTM for post-resuscitation patients.

Methods

A retrospective analysis of post-cardiac arrest patients transported by a dedicated critical care transport team between January 2016 and April 2023 was conducted. Adult patients resuscitated from cardiac arrest without mental recovery were enrolled. The study population was divided into those who received TTM during IHT (IHT-TTM group) and those who did not (non-IHT-TTM group). The primary outcome was body temperature drop during transport, with hypotension, or desaturation during transport considered as secondary outcomes. Multivariable conditional logistic regression analysis was performed after frequency matching.

Results

Among 593 post-cardiac arrest patients, 332 were included in the analysis after exclusions. Of these, 44 (13.3%) received TTM during IHT. Conditional logistic regression analysis showed significantly higher likelihood for a drop in body temperature during IHT for the IHT-TTM group, with an odds ratio (OR) of 12.91 (95% CI: 5.28?31.53). No significant association was found for hypotension (OR (95% CI): 0.72 (0.13?3.97)), or desaturation during IHT (0.65 (0.15?2.82)).

Conclusions

TTM during IHT for post-cardiac arrest patients appears to be feasible and safe. These findings support the implementation of dedicated critical care transport systems capable of providing TTM during IHT for post-cardiac arrest patients.

Keywords

Cardiac arrest, Hypothermia therapy, Interfacility transfer, Patient safety, Feasibility study

P-073

Prehospital Care & Transport

Interhospital transport of patient on extracorporeal membranous oxygenation: experience from a dedicated critical care transport unit

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Aims

Dedicated extracorporeal membranous oxygenation (ECMO) team, mostly consisted of intensivitists in cannulation team, has been known to transport ECMO-applied patients safely. Further exploration of process during transport and adverse event during interhospital transport (IHT) has not been evaluated. This study aims to evaluate physiologic deterioration of ECMO-applied patients and adverse event during interhospital transport by dedicated critical care transport (CCT) team.

Methods

A retrospective analysis of patients transported by a dedicated CCT team between January 2016 and April 2024 was conducted. The study population was divided according to Venoarterial (VA) ECMO or Veno-venous (VV) ECMO. The primary outcome was physiologic deterioration before and after IHT ? Hypotension (mean arterial pressure below 65mmHg), Tachycardia (heart rate over 120 beats per min) or bradycardia (heart rate below 50 beats per min), and hypoxia (pulse oximetry below 90%).

Results

Among 156 ECMO-applied patients, 100 (64.1%) were VA-ECMO group and 56 (35.9%) were VV-ECMO group. VA-ECMO group demonstrated 29 (29.0%) for adverse event (ECMO turn-off, insertion site bleeding, unmeasurable monitoring, vasopressor dose increase, and ventilator or airway management), and 12 (21.4%) for VV-ECMO group. Compare the physiologic deterioration of patients between start and end point of IHT, There was no significant increase ? hypotension 18 vs. 16, tachycardia 31 vs. 20, bradycardia 1 vs. 1, hypoxia 5 vs. 7.

Conclusions

IHT for ECMO-applied patients by dedicated CCT team appears to be safe. These findings should be considered to implementation of protocol for transport ECMO-applied patients.

Keywords

Interfacility transport, Extracorporeal membrane oxygenation, Patient safety, Critical care

P-074

Prehospital Care & Transport

The Influence of Epinephrine Administration Timing on Neurological and Survival Outcomes in Out-of-hospital Cardiac Arrest Victims

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Aims

Although there are numerous studies on out-of-hospital cardiac arrest (OHCA), patient survival and neurologically favorable outcomes remain relatively poor. Among patients who present to emergency care with cardiac arrest, the only interventions shown to improve survival are early defibrillation and reduced interruption of chest compressions. The effectiveness of both interventions is widely considered to be time-dependent, with early initiation leading to better survival rates.The value of pharmacological interventions, particularly epinephrine has not been clearly defined, although animal models have shown favorable survival outcomes. This study evaluates the correlation between the timing of epinephrine administration and outcomes in adult patients with out-of-hospital cardiac arrest (OHCA).

Methods

We conducted a retrospective cohort study analyzing data from the Taoyuan Fire Department (TYFD) covering the period from 2016 to 2022. Patients were categorized based on the time they received epinephrine, with groups defined as follows: ≤5 minutes, 6-10 minutes, 11-15 minutes, 16-20 minutes, and >20 minutes.The primary outcome measured was the survival rate to hospital discharge, while secondary outcomes included the return of spontaneous circulation (ROSC) in the prehospital setting, sustained ROSC, and a favorable cerebral performance category (CPC1).To evaluate the relationship between the timing of epinephrine administration and patient outcomes, we employed multivariable logistic regression and restricted cubic spline analyses based on data extracted from electronic health records. Our analysis aimed to elucidate the correlation between the timing of epinephrine administration and the associated clinical outcomes.

Results

The study involved 2995 cases, highlighting the significance of timely epinephrine administration. Figure 2? restricted cubic spline analysis revealed nonlinear benefits in survival to discharge and linear associations with prehospital ROSC for epinephrine given within 12 minutes. Beyond 20 minutes, its effectiveness diminished. No significant correlation was found between epinephrine timing and sustained ROSC or CPC1-2 scores, underscoring the complexity of its impact.

Conclusions

Delayed epinephrine administration was associated with lower survival and neurological outcomes Epinephrine should be given as soon as possible, preferably within 12 minutes of cardiac arrest further research is needed to confirm the causal effect and the optimal strategy of epinephrine administration

Keywords

out-of-hospital, epinephrine administration

Table 2. Primary and Secondary Outcomes

Characteristics	All patients	Time to epinephrine					p-value
		≤5 min	6-10 min	11-15 min	16-20 min	>20 min	
Number of cases	2995	107	619	1021	743	505	–
Outcomes (n (%))							
Survival to discharge	167 (5.58)	16 (15.0)	34 (5.5)	49 (4.80)	45 (6.06)	23 (4.55)	<0.05*
Prehospital ROSC	289 (9.65)	20 (18.7)	88 (14.2)	99 (9.70)	45 (6.06)	37 (7.33)	<0.05*
Sustained ROSC	599 (20.00)	25 (23.4)	135 (21.8)	209 (20.5)	141 (19.0)	89 (17.6)	0.35
CPC1-2	65 (2.17)	7 (6.54)	14 (2.26)	21 (2.06)	17 (2.29)	6 (1.19)	<0.05*
epinephrine dosage (1mg, 2mg, 3mg)	2(2-3)	3(2-4)	3(2-4)	3(2-4)	2(1-3)	2(1-3)	<0.05*

Abbreviations: ROSC=return of spontaneous circulation, CPC1-2= cerebral performance category 1-2.

P-075

Prehospital Care & Transport

Impact of COVID-19 Pandemic on the Mortality of Emergency Medical Services Transported Traumatic Brain Injury

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2. University of Arizona College of Medicine, Tucson, Arizona, United States

Aims

The COVID-19 pandemic resulted in healthcare resource shortage and impacted accessibilityof patient care. The purpose of this study was to investigate the effects of the COVID-19 pandemic on the mortality of traumatic brain injury (TBI) patients transported by emergency medical services (EMS).

Methods

Adult TBI patients who were assessed and transported by EMS between January 2018 and December 2021were analyzed. The main exposure was the COVID-19 pandemic period at the timing of event. The primary outcome was in-hospital mortality, and the secondary outcome was disability measured using the Glasgow Outcome Scale (GOS) one to three. Multivariable logistic regression analyses were conducted to calculate adjusted odds ratio (aOR) with 95% confidence intervals (95% CIs).

Results

A total of 18,988 patients were enrolled for analysis. In-hospital mortality in COVID era group was 1,812(20.9%) and non-COVID era group was 2,040 (19.8%). Multivariable logistic regression analysis demonstrated a significantly higher probability of in-hospital mortality in COVID era group: aOR (95% CIs) 1.11 (1.03-1.20) for COVID era group. There is no significant difference in disability: aOR (95% CIs) 1.01(0.95-1.08) for COVID era group.

Conclusions

For the TBI patients assess and transported by EMS in South Korea, subjecttransported in the COVID-19 era was more likely to have higher in-hospital mortality compared to non-COVID-19 era. It should be considered when planning and implementing EMS protocols and community healthcare strategies during pandemics.

Keywords

Traumatic brain injury, Pandemic, Emergency medical services, Hospital mortality

P-076

Psychosocial & Mental Health

Mental Support of Disaster Victims' Families in Japan: Unique Approach of Japan DMORT (Disaster Mortuary Operational Response Team) Association

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8. Shitennoji University, Japan

9. Kyowakai Medical Corporation, Japan

Aims

In 2006, Japanese Research Society for DMORT was established by physicians, nurses, forensic pathologists, social workers and a journalist, inspired by a major train crush with 107 victims in the prior year, in which their families were not paid attention by medical community. At beginning, we were advised to learn from DMORT in U.S.A., which was specialized in disaster victim identification and victim's family support. But in Japan victims' care was duty of police, which had high barrier against outsiders. So we focused on supporting family members of disaster victims.

Methods

We approached police for collaboration. Since 2009, we have developed relationship with police in our own Hyogo prefecture, because they and we shared the experience of the train crush. In several disasters in early 2010's, we approached police and administrations in other prefectures but were rejected. Also 'research society' status confused disaster affected people. But on the 2016 Kumamoto Earthquake, by the support of Hyogo police department, the affected prefecture's police accepted and allowed us to provide relief work on families of 17 victims. This activity made the police recognize their limited care without medical knowledge, also made us recognize the necessity of legal qualification.In 2017, we reorganized the Japan DMORT Association as a general incorporated society.

Results

After the reorganization, we made official agreements with nine prefectural police and became official member of crime/disaster victims support liaison councils in several prefectures. In Atami mudflow disaster in 2021, we conducted 10 days operation caring three families through police.In Noto Peninsula Earthquake in 2024, we conducted 11 days operation caring126 families through police.

Conclusions

Our duty is mental support of disaster victims' families. Our counterpart is police. And our future goal is to cultivate DMORT mindset among all disaster responders.

Keywords

mental support, disaster victims' family, police

Year	Event	Result
2005	Major Train Crush in Hyogo	107 victims and 526 Casualties
2006	DMORT Established	As research society
2009	Drill with Hyogo Prefectural Police	First collaboration with police
2013	Izu-Oshima Island Mudflow	Rejected by local police
2016	Kumamoto Earthquake	Accepted through inter-prefectual police negociation, Supported 17 Victims' Families
2017	Reorganaization of DMORT	As general incorporated association
2018	Agreement with Hyogo Pref. Police	
2019	Agreement with Aich Pref. Police	
2020	Agreement with Fukui Pref. Police	
2021	Agreements with 2 Pref. Polices	
2021	Atami Mudflow	Supported 3 Victims' Families
2022	Agreement with Nara Pref. Police	
2023	Agreements with 2 Pref. Polices	
2024	Noto Peninsula Earthquake	Supported 126 Victims' Families
2024	Agreements with 2 Pref. Polices	

Japan DMORT Chronology

P-077

Health Systems & Hospital Overcrowding

Comparative Analysis of Patient Movement Patterns for Pediatric Severe Emergency Patients

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1. NEMC, Korea, Republic of

Aims

In situations with limited access to medical care, pediatric severe emergency patients may need to seek medical services outside their residential area, resulting in patient outflow to other regions. This outflow process can ultimately increase the risk to patients. Therefore, this study aims to examine the local utilization rates of emergency medical centers for pediatric severe emergency patients and their transfer routes.

Methods

This study used data from the National Emergency Department Information System, focusing on pediatric patients (aged 0-18 years) who visited regional or local emergency medical centers between January 1, 2016, and December 31, 2022. A total of 362,265 casesinvolving severe pediatric emergency conditions were analyzed. The patients were categorized into three age groups: 0-1 years, 2-11 years, and 12-18 years. For regional classification, Sejong was grouped with Daejeon, resulting in 16 regions for analysis.

Results

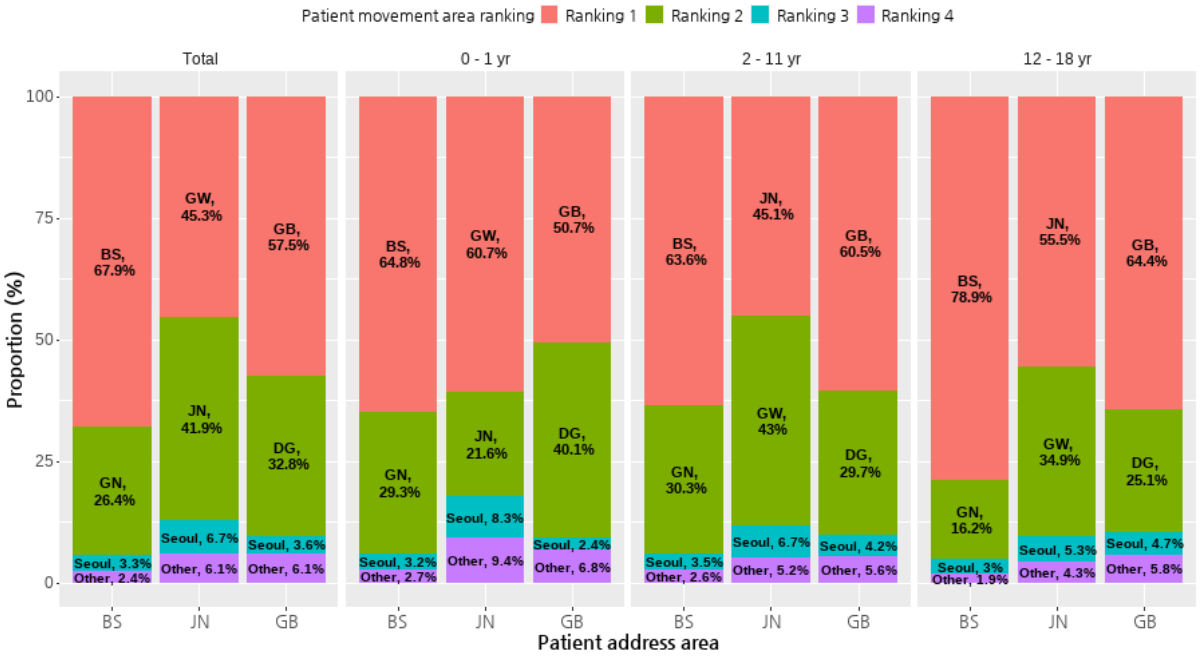
This study focused on the regional utilization patterns of emergency medical services among pediatric patients from Busan, Jeonnam, and Gyeongbuk, regions with relatively low emergency medical service utilization rates compared to other regions. The analysis revealed that over 21% of pediatric emergency patients from Busan visited at emergency facilities in Gyeongnam. In Jeonnam, more than 45% of pediatric emergency patients visited at facilities in Gwangju, with a 60.7% utilization rate among those aged 0-1 years. For Gyeongbuk, over 25% of pediatric emergency patients used emergency medical services in Daegu, with 40.1% utilization rate among the 0-1 year age group (see Fig. 1).

Conclusions

To receive adequate medical care, patients often need to move to facilities in adjacent regions, which can significantly impact healthcare access depending on the characteristics of their home region. This disparity in access can ultimately affect patient health outcomes and mortality rates. Therefore, an emergency medical system approach that addresses regional disparities in medical resources is essential.

Keywords

Pediatric severe emergency patients, emergency medical system, Patient Movement Patterns


Patient movement area ranking
Ranking 1
Ranking 2
Ranking 3
Ranking 4
Total
0 - 1 yr
2 - 11 yr
12 - 18 yr
Proportion (%)
100
75
50
25
0
BS, 67.9%
GN, 26.4%
Seoul, 3.3%
Other, 2.4%
GW, 45.3%
JN, 41.9%
Seoul, 6.7%
Other, 6.1%
GB, 57.5%
DG, 32.8%
Seoul, 3.6%
Other, 6.1%
BS, 64.8%
GN, 29.3%
Seoul, 3.2%
Other, 2.7%
GW, 60.7%
JN, 21.6%
Seoul, 8.3%
Other, 9.4%
GB, 50.7%
DG, 40.1%
Seoul, 2.4%
Other, 6.8%
BS, 63.6%
GN, 30.3%
Seoul, 3.5%
Other, 2.6%
JN, 45.1%
GW, 43%
Seoul, 6.7%
Other, 5.2%
GB, 60.5%
DG, 29.7%
Seoul, 4.2%
Other, 5.6%
BS, 78.9%
GN, 16.2%
Seoul, 3%
Other, 1.9%
JN, 55.5%
GW, 34.9%
Seoul, 5.3%
Other, 4.3%
GB, 64.4%
DG, 25.1%
Seoul, 4.7%
Other, 5.8%
BS
JN
GB
Patient address area

P-078

Health Systems & Hospital Overcrowding

A Strategy for Hospital Surge Capacity Focusing on the Stratified Patients in Times of the COVID-19 Pandemic in Tokyo

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2. Social Medical Cooperation Seishikai, Japan

Aims

Surge capacity preparedness is a critical issue for providing medical care in times of disaster or pandemic situation. The difficulty of the capacity preparedness might recently become more serious in the area of urban growth and aging population. A temporary hospital is one of the strategies for surge capacity. The characteristics of the hospitals are supposed to be so various in terms of how many beds, what kind of criteria of the patients, or when opening at the phase of outbreak. The adequate setting of the hospital is therefore required for strengthen surge capacity.

Methods

We raised temporary hospitals for surge of COVID-19 patients in Tokyo, specifically focused on the elder patients with comorbidities such as dementia, cardiovascular diseases, and chronic respiratory disorders. Because the group was relatively dominant in proportion of hospital-isolation, and was needed a plenty of time and staff for bed side care and medical management, it strained on running operations of permanent hospitals.

Results

The alternate hospitals set up at around peak of outbreak at nine sites in the city area of Tokyo with a capacity of 842 beds. Patients were selected in criteria based on the age, no need of ventilator, comorbidities of the patients and 10 days of hospital stay, resulted in admitting over ten thousand patients in the period of two years. Rehabilitation during the hospital stay made a noticeable difference in health status of the elder patients.

Conclusions

The temporary hospitals targeted to the stratified patients might give a unique model of strategy for surge capacity in disaster medicine.

Keywords

surge capacity, COVID-19, aging population

P-079

Nursing

Experiences of Mothers With Children Forced to Evacuate due to the Fukushima Daiichi Nuclear Power Plant Accident: Focusing on 5 to 12 Years After the Disaster

Mie Naiki [1], Minako Morita [1]

1. Japanese Red Cross College of Nursing , Japan

Aims

This study aims to clarify the experiences of mothers with children who were forcibly evacuated from the Fukushima Daiichi Nuclear Power Plant accident after the 2011 Great East Japan Earthquake and Tsunami disaster, focusing on their experiences of raising their children and living in the areas to which they were relocated, particularly from approximately five years after the disaster until the present day.

Methods

This study is a qualitative descriptive study with a narrative approach. There were three research participants. The subjects were mothers who had been forced to evacuate from a wide area due to the nuclear disaster and who were caregivers of infants and young children at the time of the disaster. Ethical considerations included the consent of the Research Ethics Review Committee of the Japanese Red Cross College of Nursing(2023-081).

Results

The children were now junior or senior high school students. Around the time of entering primary school, the mothers told their children not to tell that they had evacuated from the nuclear disaster-affected area, fearing discrimination and harassment since they had received compensation for the nuclear disaster. The mothers themselves did not tell that they were victims of the nuclear disaster at parent-teacher meetings. At school gatherings, when she heard the parents talking about how much the nuclear disaster victims received as compensations was, she felt as if it was directed at her.

Conclusions

Although more than 10 years have passed since the disaster, both she and her children lived in secrecy about being evacuees from the nuclear disaster area for fear of discrimination and other harm.

Keywords

Nuclear power plant accident , Mothers with children, Forced evacuation, Post-disaster mid- to long-term, Narrative

P-080

Health Systems & Hospital Overcrowding

Characteristics and Risk Factors of Alcohol-Related Frequent Emergency Department Admitters in Singapore: A 10-year Descriptive Study at Singapore General Hospital

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2. Khoo Teck Puat Hospital, Singapore

3. Yong Loo Lin School of Medicine, National University of Singapore, Singapore

4. Singapore General Hospital, Singapore

5. Duke-NUS Medical School, Singapore

Aims

Alcohol-related hospital admissions have been rising globally, and Singapore is no exception, with a notable increase in alcohol consumption and its associated health burdens. Frequent hospital admissions due to alcohol misuse place significant strain on healthcare systems. This study aims to characterize alcohol-related frequent hospital admitters patients with at least three admissions in the past year, two or more of which are alcohol-related and identify the key demographic and clinical risk factors contributing to these recurrent admissions.

Methods

This retrospective cohort study was conducted at Singapore General Hospital (SGH), the largest public tertiary hospital in Singapore, from January 2008 to October 2017. Data were extracted from SGH's electronic records, including demographic details, clinical history, and admission characteristics. Patients aged 18 and above with at least three admissions, two or more being alcohol-related, were included. Alcohol-related admissions were identified using Systematized Nomenclature of Medicine (SNOMED) codes. Descriptive statistics and logistic regression analyses were employed to identify predictors of frequent alcohol-related admissions.

Results

A total of 86 patients met the criteria for alcohol-related frequent admissions, contributing to an average of 18.74 admissions per year. The median age was 52 years, with 97.67% male and 50% of Indian ethnicity. Compared to non-alcohol-related frequent admitters, these patients had higher rates of liver disease and longer median hospital stays (3.3 days). Significant predictors of frequent admissions included age below 65, male gender, Indian ethnicity, and Singaporean nationality. Mortality rates at 30 days and 1 year were notably higher in this group compared to other patient groups.

Conclusions

Alcohol-related frequent hospital admitters are a distinct patient group with unique demographic and clinical characteristics that heavily impact hospital resources. The elevated mortality rates and

recurrent admissions highlight the need for targeted preventive strategies and interventions to reduce hospital burden and improve patient outcomes.

Keywords

Alcohol-related frequent admitters , Emergency department (ED), Hospital admissions, Risk factors, Liver disease

P-081

Prehospital Care & Transport

The On-Site Operations and Multi-Facility Collaboration in the Acute Carbon Monoxide Poisoning Incident in a Tunnel in Yamaguchi Prefecture, Japan

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1. Yamaguchi University Hospital, Japan

Aims

In a mass casualty incident with victims requiring limited therapeutic equipment resources, it is important to transport the patients to the appropriate facilities in a timely manner. We describe a mass casualty case of CO poisoning organized by dispatched physicians collaborating with paramedics in Yamaguchi, Japan.

Methods

An emergency call was received reporting that several workers had experienced dyspnea and deconditioning while working in a construction tunnel. Upon arrival, paramedics found two individuals sitting outside the tunnel and were informed that seven more immobile victims remained stranded inside. The initial paramedics on scene called for additional rescue teams, and two physician-staffed emergency medical helicopters were dispatched to the site.

Results

Carbon monoxide (CO) poisoning was suspected based on reports that several generators had been in use. Rescue operations were carried out by rescue teams equipped for CO gas exposure. A total of seven patients, aged 19 to 58, were rescued, all of whom were unable to walk and exhibited mild consciousness impairment. Of the four patients whose percutaneous carboxyhemoglobin levels could be measured, concentrations were approximately 30%. The on-site physicians decided to transport the victims to four regional medical facilities that were equipped with hyperbaric oxygen therapy (HBOT). The emergency medical system (EMS), local hospitals, and dispatched physicians collaborated to ensure appropriate and timely transport using both helicopters and ambulances.

Conclusions

This report highlights the importance of collaboration between dispatched physicians, paramedics, and medical staff in improving the EMS system. Their coordinated efforts enabled effective patient distribution and optimized the use of medical resources. (The content is reported in Japanese in the Journal of Japanese Society for Emergency Medicine 2023; 26: 552-6.)

Keywords

hyperbaric oxygenation, carbon monoxide poisoning, air ambulances, mass casualty incidents

P-082

Nursing

Disaster prevention and education programmes for community residents utilising gaming: A mapping review

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1. Chiba University, Japan

2. Universitas Gadjah Mada, Indonesia

Aims

Recent disaster prevention and preparedness education programmes have incorporated games into their learning methods. Compared with traditional methods, games are considered to increase motivation, interest, and active involvement among the target phenomena. The aim of this study was to present an overview of disaster prevention and education programmes for community residents utilising gaming and identify future research directions.

Methods

A mapping review was conducted using seven databases for studies published in English between 2013 and 2023. Inclusion criteria were studies describing programmes using games for disaster prevention/preparedness education for community residents. Exclusion criteria were games designed for those working in specific occupations (e.g., military personnel, medical professionals/students), games developed only for governors/stakeholders, and games focused on supporting specific groups, such as people with disabilities.

Results

Twenty-four articles describing 24 games were analysed. Of these, 19 focused on specific disasters, such as floods, earthquakes, and volcanic hazards. Fifteen games included students/pupils as the target population and were implemented in classes, while others were carried out with the general population living in disaster-prone or disaster-affected areas. Most games were aimed at raising awareness and interest in disasters and educating people on how to respond effectively during a disaster. Some games were designed to strengthen the involvement of local communities in disaster prevention and build disaster-resistant communities by providing a simulated experience of challenging situations and decision-making. Various game types have been adopted, including board, video, immersive VR, and immersive street games. Some games have been developed based on traditional games familiar to many generations of the local communities.

Conclusions

This review shows that various disaster education programmes using gaming are being conducted in disaster-prone or disaster-affected areas. These games have the potential for use in disaster prevention education in regions that have experienced few or no disasters.

Keywords

gaming, disaster prevention, preparedness, disaster education , community

P-083

Prehospital Care & Transport

Outcome of Point-of-care Testing (POCT) Blood Gas for Specific Treatment in Out-of-hospital Cardiac Arrest (OHCA); A Single Center Retrospective and Prospective Cohort study

Welawat Tienpratarn [1], Chaiyaporn Yuksen [1], Lunlita Chukaew [1], Chetsadakon Jenpanitpong [1], Chavin Triganajananun [2]

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2. Chakri Naruebodindra Medical Institute, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand

Aims

Metabolic and electrolyte imbalances are reversible causes of cardiac arrest and can be identified in the pre-hospital setting using point-of-care testing (POCT) blood gas analysis. The primary objective of this study is to compare the outcomes of POCT blood gas for specific treatment of acidosis and hyperkalemia in out-of-hospital cardiac arrest (OHCA) patients between those receiving POCT and a control group without POCT. The secondary objective is to compare the rate of sustained return of spontaneous circulation (ROSC over 20 minutes) between the POCT and control groups.

Methods

This retrospective (2020-2022) and prospective (2023) observational cohort study was conducted within the Comprehensive Life Support Team at Ramathibodi Emergency Operation Unit (RAMA EMO). Patients with out-of-hospital cardiac arrest (OHCA) were divided into POCT blood gas and No POCT blood gas groups. Data analyzed included demographics, arrest characteristics, response time, initial rhythm, specific treatment, and resuscitation outcomes in univariable and multivariable logistic regression.

Results

Among 217 OHCA patients, 148 received POCT Blood Gas analysis, and 69 did not. Response time was longer in the POCT group (median 16 vs. 11 minutes, p 0.001). Patients in the POCT group received more sodium bicarbonate and calcium gluconate than those without POCT (p 0.001 for both). Sustained ROSC was achieved in 25% of the POCT group compared to 11.6% in the No POCT group (p = 0.030). POCT blood gas was an independent predictor of sustained ROSC (adjusted OR 4.60, 95% CI 1.35-15.69, p = 0.015).

Conclusions

Prehospital POCT blood gas analysis significantly improves sustained ROSC rates in OHCA patients by enabling rapid, specific treatment of metabolic imbalances, especially acidosis and hyperkalemia. These findings show that POCT enhances prehospital cardiac arrest care and may help refine resuscitation protocols to improve outcomes.

Keywords

Out-of-hospital cardiac arrest (OHCA), Point-of-care testing (POCT), Blood gas analysis, Sustained ROSC, Prehospital care

P-084

Nursing

Necessary information for disaster nurse dispatch coordination

KAYAKO CHISHIMA [1], Yukiko Habano [1], Yoshiki Toyokuni [1], Jiro Oba [1], Ruki Masudome [1], Akinori Wakai [1], Hisayoshi Kondo [1], Yuichi koido [1]

1. MHLW Japan DMAT Secretariat, Japan

Aims

[Study objective] Emergency medical assistance by nurses in domestic disasters in Japan is not limited to working in teams with doctors and pharmacists, but there are also various organizations such as nursing associations and NPOs. Minimum Data Set can be used to evaluate the activities of medical teams, but not for nursing medical assistance. Coordinating the dispatch of nurses is often conducted by the disaster affected prefectural government, and there is currently no standard operation procedure for coordination. Therefore, this study considers the current situation and the future adjustment of Japanese nurse dispatch.?

Methods

?[methods]In response to the Noto Peninsula Earthquake in January 2024 and during large-scale earthquake medical activity training, coordination was conducted between the administrative organizations of affected prefectures and nursing professional associations to dispatch nurses. The process and methods of this coordination are under review.

Results

[results] A large-scale earthquake that affects the most of coastline of the Pacific Ocean due to tsunami was assumed for this exercise. Affected prefectures coordinated with their own prefectural medical assistance team and nursing association to support medical operation. Due to shortage of medical assistance resources and multiple requests from the fields, affected prefectural government asked nursing association to dispatch nursing assistance from all over Japan. However, it was not possible to present clear information during the exercise regarding the required number of nursing assistance, operation period, and dispatching location since necessary information collection took long time and prefectural government could not coordinate both demands and required resources from the collected information

Conclusions

[conclusions] In the event of a large-scale Earthquake, it is thought that it will be possible to quickly request for dispatch nursing assistance by the affected prefectural government. However, since information management especially for the nursing assistance were not organized and due to lack of adjustments by the prefectural government decision making process, the coordination process would vary depending on the personnel coordinating. Since administrative of the prefectural government staff in Japan are subject to change every two to three years, it is necessary to have standard operation procedures for the nursing assistance dispatch.

Keywords

Need for nurses, coordination

P-085

One Health, Veterinary Medicine, & Animal Welfare

Survey on Awareness of Rescue for Animals during Large-scale Disasters

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1. Tajimi City Hospital, Japan

Aims

How to protect animals during a large-scale disaster occurs is a very important issue for our society. Because as globalization progresses, in order to maintain human health it is necessary to maintain the health of not only humans, but also animals and the environment. Nevertheless, healthcare providers do not establish an adequate plan and/or have an appropriate knowledge and skills to rescue and provide relief for companion and working animals. We conducted a survey what physicians in Japan think about protecting animals during disasters.

Methods

A questionnaire survey was conducted among physicians on the largest medical portal site in Japan. The questionnaires are: A. Thoughts on providing relief to animals during large-scale disasters, B. Understanding of normal vital sings in companion animals, C. Learning experiences for Basic Life Support on animals, D. Learning experiences for minor procedures in trauma on animals, E. Understanding of decontamination methods for companion animals. Participants were asked to give anonymous responses.

Results

A total of 1508 physicians participated in this survey. A. Of the 1508 participants, 169 physicians (11.2%) answered that active relief should be provided, B. Just 75 physicians (5.0%) understood, C. and D. Number of physicians who learned BLS and minor surgical procedures was 107 and 111, respectively, and E. Only 89 physicians (5.9%) understood. There are an unusually small number of physicians in Japan who are proactive in rescuing animals during disasters, and have the appropriate knowledge and skills to rescue animals. It turns out that there is a lack of understanding that saving animals also benefits humans.

Conclusions

It is necessary to raise awareness that physicians understand providing proper protection for animals during disasters also brings great benefits to humans.

Keywords

One Health, Animal Rights

P-086

New Technologies

Challenges of Mobile Medical Container Transport in the Noto Peninsula Earthquake

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2. Kobe Gakuin University, Japan

3. General Incorporated Association Mobile Medical Container Promotion Council, Japan

Aims

On January 1, 2024, a magnitude 7.6 earthquake occurred on the Noto Peninsula in Ishikawa, Japan. There was extensive damage, including collapsed houses and damaged roads, mainly in the Okunoto area. In response, the government, through relevant organizations, set up Mobile Medical Containers.To explore how Mobile Medical Containers were prepared and transported in the absence of a Mobile Medical Container transportation system, and to clarify the problems and issues involved.

Methods

Organize activity reports from General Incorporated Association Mobile Medical Container Promotion Council (MMCPC), interview those in charge of transportation, and examine them.

Results

(1) It took time to match trailers.(2) It took time to equip and inspect the containers.(3) A guided vehicle was necessary when entering the affected area.(4) In some cases, the Mobile Medical Container could not reach its destination due to poor road conditions, and had to wait for a certain period of time.(5) Due to the flexible response of each person in charge, we were able to set up the Mobile Medical Containers in 11 locations.

Conclusions

(1) It is urgently necessary to establish an operational system for Mobile Medical Containers and conduct training.(2) The equipment of containers must be inspected and maintained on a daily basis.(3) In the operation system, it is necessary to match the trailer head, Mobile Medical Container, and guided vehicle.(4) If the roads are narrow, as in the case of the Noto Peninsula, large trailers will not be able to pass through. Small mobile medical vehicles are needed to cover the acute medical blank period.(5) Manuals for each role are needed.

Keywords

Mobile Medical Container, Noto Peninsula Earthquake, Transport, Operational system, Training

P-087

Public Health & Environmental Health

Energy and nutrient composition of meals one month after the Kumamoto earthquake and comparison results by region

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2. Junior College of Kagawa Nutrition University Department of Food and Nutrition, Japan

3. Nishikyushu University Faculity of Health and Nutrition Science, Japan

Aims

The Kumamoto earthquake, which occurred in April 2016, registered a magnitude of 7 on the Japanese seismic intensity scale. When a disaster occurs, the shutdown of lifelines forces residents to relocate to evacuation centers and other locations. In Japan, emergency relief efforts include providing drinking water and food to disaster victims. However, previous reports have indicated that the food provided often lacks adequate nutritional value. Therefore, we calculated the energy and nutritional content of meals served one month after the Kumamoto earthquake and examined nutritional deficiencies.

Methods

Energy and nutrient contents were calculated for meals served for one day at 37 evacuation centers in Kumamoto Prefecture in May 2016, one month after the Kumamoto earthquake. The dietary survey was based on the records kept by dietitians, including names of the ingredients, approximate portions, and photographic records of the meals. The shelters were categorized into different areas to facilitate the comparison of energy and nutritional components.

Results

?Significant differences were observed in the median values of saturated fatty acid,dietary fiber, sodium, potassium, calcium, vitamins A and B2, and other nutrients between the two regions. Based on the Dietary Reference Intakes for the Japanese (2020), nutritional deficiencies were identified. We found that calcium, magnesium, and vitamin B1 and C levels were below the estimated average requirements in all shelters. Regional comparisons revealed differences in nutritional deficiencies in the two areas.

Conclusions

Meals served after the disaster were deficient in certain nutrients. Differences in nutritional deficiencies were observed between the two areas. Addressing these nutritional deficiencies is crucial, especially in the event of prolonged evacuation.

Keywords

disaster nutrition, Meals at evacuation centers, Kumamoto earthquake, Dietary Survey Results

P-088

Counter-Terrorism Medicine

Investigation of Respiratory Stimulants as Therapeutic Agents in the Hyperacute Phase of Blast Injuries

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3. Graduate School of Emergency Medical System, Kokushikan University, Japan

4. Department of Dentistry, Self-Defense forces Central Hospital, Japan

Aims

We installed an air-driven shock wave generator, called a blast tube, in 2017 and implemented basic research on blast injury using medium-sized animals(pigs). Our experimental results so far suggest that the most likely cause of death in the hyperacute phase of blast injury is respiratory arrest associated with temporary brainstem dysfunction.?We hypothesized that immediate resumption of respiration after blast exposure could significantly increase the chances of survival. We administered a central respiratory stimulant, dimorph olamine (Theraptique®), immediately after shock wave exposure. We then investigated its potential to save lives and its efficacy in the hyperacute phase of blast injury.

Methods

Under general anesthesia, the pig was fixed on its right side, lying on the table in the measurement room of the blast tube so that its back was located in front of the exit aperture as well as the pig's posterior neck and chest area were directly exposed to the shock wave generated by an instant release of the compressed air at a pressure up to 3.0 MPa. The survival rates of the group intravenously injected with 90 mg of dimorpholamine immediately after shock wave exposure and the group injected with the same volume of saline (6 ml) were similarly compared.

Results

Five of 5, namely all the pigs of the dimorpholamine-administered group, survived, and three of 4 pigs of the control group died, indicating a significant improvement in survival for the dimorpholamine group. (P=0.048)

Conclusions

Dimorpholamine administration was suggested to be effective in treating respiratory arrest, which is a significant cause of death in the hyperacute phase of blast injury. It can also be administered intramuscularly and is expected to be used effectively in cases of mass casualty incidents due to explosions in terrorism and combat.

Keywords

blast injury, respiratory arrest, brainstem, respiratory stimulant, dimorpholamine

P-089

New Technologies

Future Challenges of Mobile Medical Containers from the Noto Peninsula Earthquake Case

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1. Kobe Gakuin University, Japan

Aims

On January 1, 2024, at 4:10 pm, a 7.6 magnitude earthquake occurred 16 km underground in the Noto region of Ishikawa Prefecture in Japan. The Japanese seismic intensity scale was 7 in Wajima City and Shiga Town, and upper 6 in Nanao City, Suzu City, Anamizu Town, and Noto Town, causing extensive damage in each area. The government dispatched medical teams such as DMAT and requested the Koido Research Team of the Ministry of Health, Labor and Welfare to arrange mobile medical containers as urgent assistance.This report reviews the use of mobile medical containers in the 2024 Noto Peninsula Earthquake and discuss future challenges.

Methods

The study reviews and examines the reports of the Koido Research Team and the Mobile Medical Container Promotion Council (MMCPC).

Results

The government dispatched two persons, including the author, to the affected areas from January 12 to 19 and 25 to 31 as surveyors and coordinators from Koido Research Team?. As a result, arrangements were made to install the mobile medical containers at 11 locations. Of these, four were set up as medical and healthcare facilities at the evacuation centers, two as alternative medical facilities, four as auxiliary medical facilities, and one as an SCU.

Conclusions

Looking back on the series of activities, the following issues about mobile medical containers need to be addressed in the future: (1) Guidelines for installation (needs assessment, transportation, conditions for possible installation, installation, operation, removal, etc.), (2) Guidelines and advance training for medical personnel, (3) Guidelines and advance training for mobile medical containers suppliers?, (4) Coordinators allocation from mobile medical container organizations to the respective coordination headquarters, (5) Preliminary discussions for legal issues, and (6) Publicity and awareness activities.

Keywords

Mobile medical containers, Earthquake, Noto region of Ishikawa Prefecture

P-090

Others

Warm Fresh Whole Blood transfusion in Remote Island, Japan

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1. Okinawa Prefectual Yaeyama Hospital, Japan

Aims

Yaeyama hospital is the westest hospital in Japan, which lies in Ishigaki island. We are in charge of the medical care for 56,000 residents and 10,000 travelers in Yaeyama islands. Blood stock for transfusion in Yaeyama hospital is limited, and in case of massive bleeding we are suffered from lack of blood. Emergency blood transport protocol is prescribed, but 3 to 4 hours is necessary for blood transfusion. ?Because the distance from blood center in Naha to Yaeyama hospital is more than 410 km, it takes 2 hours to travel by Japan self-defense force's helicopter. In order to fix that, we have Warm Fresh Whole Blood (WFWB) transfusion protocol for massive bleeding cases. We established this study to clearify the safety and efficacy of warm freshwhole blood tansfusion.?

Methods

?From January 2016 to December 2023, we had 15 WFWB transfusion cases.

Results

Mean transfusion volume was 12.3 Units. Causes for bleeding were 6 for trauma, 4 for gastrointestinal bleeding, 2 for aortic aneurism rupture, 2 for unexpected bleeding in operating room, and 1 for obstetric hemorrhage. Two trauma cases and one gastrointestinal bleeding were lost, but the others were reintegrated.

Conclusions

As we do not have irradiation device, our WFWB were not irradiated. Regardless of no radiation, graft versus host disease were not found in Yaeyama hospital. We believe that WFWB is safe and effective. If we cannot get enough blood in big disaster, and etc., WFWB can be a good collaborator.

Keywords

warm fresh whole blood transfusion, remote island, massive bleeding, graft versus host disease

P-091

Austere Supply Chain & Contingency Logistics

Well Water is Not Invincible. Report of Turbidity Well Water Experienced During the 2024 Noto Peninsula Earthquake.

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2. Center for Disaster Medicine and Education, Niigata University, Japan

3. Kouseiren Takaoka Hospital, Japan

Aims

In Japan, the importance of well water has been reevaluated after past disasters experienced a decline in hospital functions due to the cutting off of?municipal water supply. Based on the experience of the 2024 Noto Peninsula Earthquake on January 1, well water as a disaster preparedness measure in hospital will be discussed.

Methods

Koseiren Takaoka Hospital in Toyama Prefecture uses well water on a regular basis and also assumed that well water would be available in the event of a disaster. Therefore, the capacity of the receiving water tank was less than one day's worth, and the design depended on well water. During the 2024 Noto Peninsula Earthquake, I reflect on the impact the hospital has had.

Results

At the hospital, there was no water outages, but the well water became turbidity. The water tank needed to be cleaned, which temporarily made it difficult to use water at the hospital. Although the hospital was equipped with municipal water, it was designed with a low supply, water use was reduced for a few days until well water was restored, which affected the medical practice. We felt that overconfidence in well water as a disaster preparedness measure is dangerous.

Conclusions

Well water has the advantage of securing water even when municipal water is cut off, but it also has the disadvantage of becoming turbidity, depleted, etc. and unusable during earthquakes and landslides. While securing well water is important for disaster preparedness, it is necessary not to be overconfident in well water, especially in “Disaster Base Hospital”, and to take a variety of measures compatible with municipal water.

Keywords

Well Water, Noto Peninsula Earthquake, Hospital Disaster Preparedness

P-092

New Technologies

Effectiveness and challenges of different types of Mobile Medical Containers deployed in the Noto Peninsula earthquake

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1. Kobe Gakuin University, Japan

2. Kansai University of International Studies, Japan

3. General Incorporated Association Mobile Medical Container Promotion Council, Japan

Aims

On January 1, 2024, at 16:10, a magnitude 7.6 earthquake occurred in the Noto region of Ishikawa Prefecture. The earthquake recorded a maximum intensity of 7, and caused extensive damage in many areas. In response, the government, through relevant organizations, arranged Mobile Medical Containers and carried out installation activities as medical assistance. The Noto Peninsula Earthquake deployed medical marine containers and flat-pack containers. This report clarifies the effectiveness and issues of each, and proposes future improvements.

Methods

The results of the Koido Research Term of the Ministry of Health, Labour and Welfare, the activity reports of General Incorporated Association Mobile Medical Container Promotion Council, and the results of the author's field survey are summarized and discussed.

Results

Mobile Medical Containers can be used as stand-alone units, but they can also function as micro-hospitals by connecting medical marine containers and combining them with flat-pack containers. However, in the earthquake, only marine containers alone and a series of flat-pack containers were utilized. Among them, the marine container was highly rated for its airtightness and living environment, but its use while on a trailer chassis did not ensure the safety of lifting and lowering due to snowfall. In addition, when placed directly on a trailer chassis, liquefaction caused the container to tilt and soil to get into the container. Flat-pack containers were also highly versatile and were utilized ?in rest areas for medical personnel, but there were issues such as condensation and noise caused by rainfall.

Conclusions

In order to solve the above issues, it is necessary to package combinations of Mobile Medical Containers in advance according to the content and scale of their use, and place them according to the needs of the affected areas.

Keywords

Mobile Medical Containers, Noto Peninsula earthquake, Medical marine containers, Flat-pack containers

P-093

Public Health & Environmental Health

Leveraging the Disaster-Proven J-SPEED Tool for NCD Screening in Uzbekistan: A Pilot Study

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3. Professor, Graduate School of Biomedical and Health Science, Hiroshima University, Japan

Aims

Our research explores the use of a disaster-specific health data collection tool to screen for non-communicable diseases (NCDs) in Uzbekistan. Developing countries often face challenges in effective data management across sectors. In 2021, Uzbekistan launched a nationwide NCD screening initiative but faced significant issues with timely and effective feedback due to manual aggregation of data. To address this gap, we sought a more efficient and affordable tool for data collection and reporting. Interestingly, the data collection needs in disaster situations mirrored those required for NCD screening. As a result, we adopted the J-SPEED (Japan-Surveillance in Post-Extreme Emergencies and Disasters) tool, commonly used in disaster scenarios in Japan and recognized by WHO as an EMT Minimum Dataset. This allowed us to test its applicability in routine health surveillance, offering a potentially transformative approach to managing NCD data in non-emergency settings.

Methods

In collaboration with the Ministry of Health of Uzbekistan, the J-SPEED tool was employed for NCD screening among adults in selected facilities in four pilot regions. Primary healthcare workers received an average of two hours of training to use the tool.

Results

Over one month of 2024, data from 1,971 individuals were collected, allowing for the creation of summary reports for each primary healthcare facility and the Ministry of Health. Individual data were also provided in CSV format, enabling detailed analysis. The J-SPEED tool facilitated real-time, daily reporting like its use during disaster responses.

Conclusions

This study demonstrated the feasibility of using a disaster-focused tool like J-SPEED for daily health screening in resource-limited settings. Its ability to generate timely reports, much like in disaster management, could significantly improve the effectiveness of national screening programs in developing countries.

Keywords

J-SPEED, non-communicable disease, behavioral risk factor surveillance system, data management, Uzbekistan

P-094

New Technologies

The system of automatic updated medical information summary for hospital refuge at disaster

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1. Kurume University Hospital, Japan

Aims

Large scale disasters have become more frequent in recent years, such as floods caused by heavy rain or large earthquakes in Japan. Some hospitals in those disasters area may have to evacuate patients to other hospitals out of disaster area. At that time, it is very important to attach the documents of medical information for each patient when they are transported. We tried to build a new system of automatic updated medical information summary in order to make success of patient refuge.

Methods

We consulted the section of medical examination information in our hospital about the new summary system to be made at any time, immediately when it is necessary and discussed it with them repeatedly.?

Results

The engineer in the section have built the new patients summary system that extract automatically the information from electronic medical chart system. Its summary is updated every day at midnight. Those summary data are stocked into central server which is separated electronic medical chart system. So we can get each patient summary printed under emergency power system even if the electronic medical chart system do not work.

Conclusions

We can download the summary data or print the summary of each patient if those data are stocked in central server separated electronic medical chart system even though the electronic medical chart system do not work. It is very important to let patients refuge succeed.Conclusion: The system of automatic updated medical information summary may be useful when patients are needed to be evacuated rapidly to other hospitals in area of outside disaster.

Keywords

hospital refuge, patient medical summary, automatical update, hospital in disaster area

P-095

Others

Medical care system after the nuclear disaster (Futaba area, Fukushima Prefecture, Japan)

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Aims

The Fukushima Daiichi Nuclear Power Plant accident forced the evacuation of all residents from the Futaba area in Fukushima Prefecture. Even 13 years after the accident, its impact remains significant, with the population only one-fifth of what it was before the disaster.Our purpose is to report on the current state of the medical care system in this area.

Methods

We analyzed reports from Fukushima Prefecture and local governments, patient transport data from the Futaba Fire Department, and patient data from the Futaba Medical Center (FMC).

Results

Following the lifting of evacuation orders starting in 2014, the number of emergency transports increased by about 10% annually. In the early stages after the accident, the proportion of trauma cases from work-related and traffic accidents was high, but with the return of residents, the proportion of endogenous diseases increased. While FMC has made significant contributions to the regional healthcare system by accepting many emergency patients, challenges remained, including securing medical personnel and budget, establishing surgical capabilities, and improving advanced diagnostic systems.

Conclusions

The future development of the medical system in this region could serve as a foundation for healthcare systems in depopulated areas that may emerge in Japan in the future.

Keywords

Medical care system, Nuclear Power Plant accident, Nuclear disaster, Depopulated areas, Futaba area

P-096

Public Health & Environmental Health

Research the elements necessary for establishing the Health Emergency Operations Center in Japan

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1. Department of Public Health and Health Policy, Graduate School of Biomedical and Health Sciences, Japan

Aims

The International Health Regulations (IHR) (2005) require all member countries of the World Health Organization (WHO) to establish the Health Emergency Operations Center. However, the IHR Joint External Evaluation of Japan conducted by the WHO External Evaluation Team in February 2018 pointed out the lack of the Health Emergency Operations Center and weakness of multi-disciplinary collaboration system.

Methods

First, we analyzed the latest international trends and domestic cases related to the Health Emergency Operations Center. We also conducted a literature survey to examine the status of discussions regarding the establishment of health, medical and welfare coordination headquarters in prefectures that are on the front lines of health emergency management.

Results

After considering the ideal form of the Health Emergency Operations Center that would fit into Japan's existing health crisis management system, it was determined that the purpose of the Health Emergency Operations Center would be to coordinate the activities of the health, medical, and welfare coordination headquarteres in prefectures that consideration of "legal authority and operational concept", "policy group", and "establishment of steering committee" would be necessary.

Conclusions

Among the necessary elements for establishing the Health Emergency Operations Center, the establishment of steering committee was considered to be the most important.

Keywords

Emergency, Operations, Center, IHR

P-097

Others

When multiple smoke inhalation patients occur due to a building fire in Jeju Island, check the patient capacity of each hospital.

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1. NEMC, Korea, Republic of

Aims

Jeju Island has been designated as a UNESCO tourist island and is visited by many tourists.Due to the island's regional specificity, external disaster medical support is limited, so strengthening the island's own response capacity is essential.

Methods

When a building fire broke out in Jeju Island, we checked the capacity of emergency medical institutions in the province to accommodate fire patients. As a result, there were emergency medical institutions that repeatedly stated that they would limit the acceptance of patients. Accordingly, the Jeju Provincial Office and the Jeju Emergency Medical Support Center visited all emergency medical institutions in Jeju Island, inspected the equipment used to respond to fire patients, and conducted interviews with medical staff according to a pre-arranged form.

Results

There are a total of six emergency medical institutions on Jeju Island.As a result of on-site visits to all emergency medical institutions, it was confirmed that they all possess and operate testing equipment.It was confirmed that all emergency medical institutions can provide some types of first aid (oxygen supply, abrasion treatment, etc.).Only half of Jeju Island's emergency medical institutions were able to provide emergency treatment, including hyperbaric oxygen treatment.For the safety of fire patients, a cooperative system has been established with emergency medical institutions to accommodate patients.

Conclusions

In preparation for the occurrence of smoke inhalation patients, the capabilities of emergency medical institutions were reorganized, including on-site confirmation, follow-up measures, and direction setting.There is a need to strengthen cooperation and linkages with organizations that can provide emergency treatment, including hyperbaric oxygen therapy.Emergency medical institutions need guidelines agreed upon by local governments, fire departments, and hospitals to accommodate a significant number of patients. When multiple casualties occur in a region, an organization is needed to activate the hospital's surge patient influx system (in-hospital response).?If there is a response organization within the hospital in the event of a disaster, it is expected that the problem of patient acceptance will be smoother.

Keywords

Disaster medical response, regional cooperation, Patient acceptance, In-hospital response control tower

[표 및 그림] 1. 응급의료기관 현지 방문 결과

응급의료기관		CO검사기 보유 및 가동여부	응급처치 여부		고압산소 치료기 보유 및 가동 여부
			경증	중증	
권역	A	○	산소공급, 단순 찰과상 처치 가능	중증외상·화상 처치 가능 (외상환자의 경우 권역외상센터 우선 이송)	X
센터	B	○			X
	C	○			○
	D	○		불가	X
	E	○			X
기관	F	○			X

[표 및 그림] 2. 활동 사진

제주 다수연기흡입환자 발생 대비 응급의료기관 수용능력 조사 사진

P-098

Others

Younger people's knowledge of the discharge of treated water six months after its release from the Fukushima Daiichi Nuclear Power Plant

Hitomi Matsunaga [1], Isamu Amir [2], Xu Xiao [1], Yuya Kashiwazaki [1], Makiko Orita [1], TMasaharu Tsubokura [2], Noboru Takamura [1]

1. Nagasaki University , Japan

2. Fukushima Medical University School of Medicine, Japan

Aims

On August 24, 2023, the Tokyo Electric Power Company began discharging treated water (DTW) from the Fukushima Daiichi Nuclear Power Plant into the Pacific Ocean as part of the plant's decommissioning process. This study aimed to estimate the views on DTW among university students studying both in and outside of Fukushima.

Methods

The questionnaire survey was conducted in June and July 2024, approximately six months after the start of DTW. All procedures were approved by the Ethics Committee of Nagasaki University.

Results

Of the 1,453 responses, 1246 (85.7%) showed acceptance of the DTW from the FDNPS, while 207 (14.3%) respondents did not approve of it. A logistic regression analysis revealed that experience collecting information or knowledge about the DTW (odds ratio [OR] = 1.523, 95% confidence interval [CI]: 1.090-2.129, p=0.014), those who were able to explain the difference between contaminated water and treated water (OR=1.877, 95% CI: 1.278-2.753, p=0.001), those who thought information about DTW provided by the Japanese government was accurate (OR=4.040, 95% CI: 2.468-6.614, p

Conclusions

The survey suggested that university students in Japan calmly judged and dealt with the issue of the nuclear accident after the beginning of the DTW. The decommissioning process of the FDNPS has been ongoing for many years; therefore, it is important to educate the public and effectively convey information to build trust in international relationships with other Asian countries, such as Korea.

Keywords

Fukushima accident, Discharge of treated water, Recognition of university students in Japan

P-099

Public Health & Environmental Health

A Systematic Review and Meta-Analysis of Cancer Incidence in Residents near Nuclear Facilities

GA BIN LEE [1], Soojin Park [1], Eun-Shil Cha [1], Dalnim Lee [1], Minsu Cho [1], Songwon Seo [1]

1. NREMC, Korea, Republic of

Aims

Concerns regarding the potential health effects of radiation release in communities surrounding nuclear facilities persist, prompting ongoing studies in various countries. However, such research on solid cancers remains limited.?The aim of this systematic review and meta-analysis was to comprehensively investigate the incidence of various solid cancers among residents near nuclear facilities, providing up-to-date scientific evidence of potential health effects for nuclear facilities in the current context of energy security and net-zero emission targets.

Methods

A comprehensive search of the databases PubMed (National Center for Biotechnology Information, Bethesda, MD, USA), Excerpta Medica Database (EMBASE; Elsevier, Amsterdam, the Netherlands), and Web of Science (Clarivate, Philadelphia, PA, USA) was conducted from 1960 to January 2023. Data on breast, bladder, thyroid, central nervous system (CNS), and respiratory system cancers were extracted. Pooled standardized incidence ratios (SIRs) were calculated, using random-effects models.Publication bias was assessed by using funnel plots and Egger's test.

Results

The meta-analyses included the following number of cases for each selected cancer type: breast, n = 20,701; bladder, n = 5398; thyroid, n = 9907; CNS, n = 3634; and respiratory system, n = 18,033. Pooled SIRs for all cancer subtypes were statistically nonsignificant and ranged from 0.99 to 1.04, with substantial heterogeneity among studies (I2 range: 64%?96%). Little evidence of publication bias was revealed upon visual inspection of the funnel plots and performing Egger's test.

Conclusions

The current scientific evidence for the incidence of solid cancers in populations living near nuclear facilities is insufficient to draw definitive conclusions.?Nonetheless, the wide range of heterogeneity among the studies suggested the need for further research with refined study designs, particularly with regard to radiation exposure and individual-level confounding factors, to provide more robust evidence of the public health implications for residents near nuclear facilities.

Keywords

solid cancer , nuclear facility, systematic review, meta-analysis, cancer incidence

P-100

Others

Development of software for assessing internal/external contamination after a radiological accident

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1. NREMC, Korea, Republic of

Aims

The radiological emergency including a nuclear and detonation of a radiological dispersion device could result in the internal and external contamination by a large number of populations. To properly respond to radiological emergency, contamination measurement should be performed in a timely manner. Contamination measurements using transportable radiation detection instruments are typically conducted by emergency responders in the initial phase of an accident to perform radiological triage on affected populations. The dose assessment is necessary for contaminated individuals identified during the radiological triage process. However, interpreting measured results to determine the dose requires specialized knowledge and numerous considerations, making it challenging for emergency responders. To address these problems, we aim to develop the software to calculated radiation dose of contaminated individuals based on count rates (cps and cpm), surface contamination level (Bq/cm2) provided by transportable radiation detection instruments.

Methods

Two types of software were developed to assess the radiation dose: VICOM (Virtual calibration-based Internal COntamination assessment software for population Monitoring) for assessing the dose from internal contamination, and RADSUFR (Radiation Accident Dose estimation program for Skin sURFace contamination) for assessing the dose from external contamination.

Results

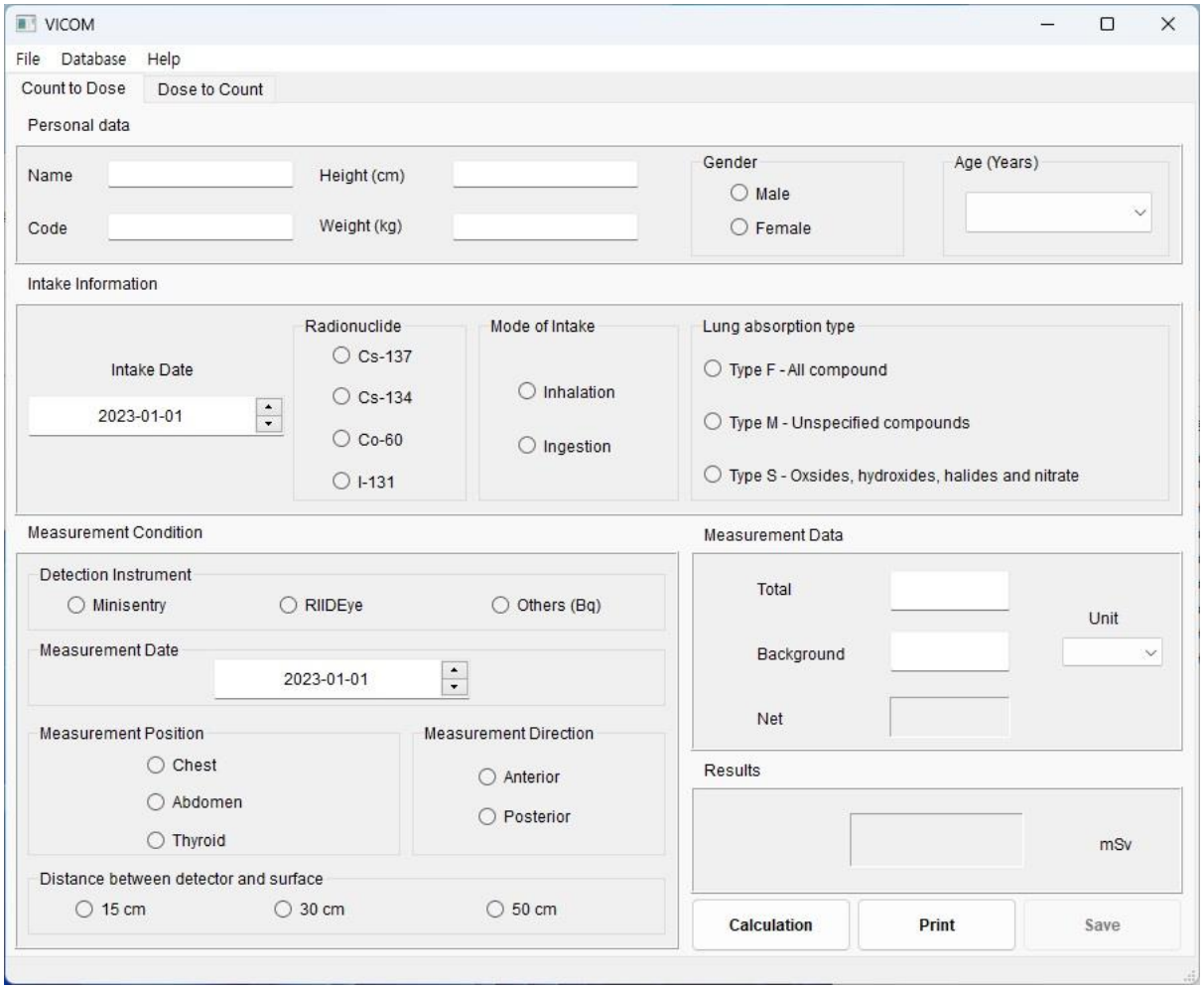
VICOM calculate the internal dose of individuals based on the count rates measured by transportable instruments. Various computational phantoms were used to account for the differences among individuals, including the age, and gender. RADSURF is the software for calculating the external dose from the measured results of the surface contamination level. To convert measured results into internal or external dose, the Monte Carlo method with mesh-type computational phantoms was applied. All data required for dose conversion are integrated into the software, allowing rapid, real-time dose calculations based on the measurements from transportable instruments.

Conclusions

We believe that developed software enhances the accuracy and efficiency of dose assessment in the early stages of emergency response.

Keywords

Radiological accident, Contamination, Dose assessment, Monte Carlo, Software


VICOM
File
Database
Help
Count to Dose
Dose to Count
Personal data
Name
Height (cm)
Code
Weight (kg)
Gender
Male
Female
Age (Years)
Intake Information
Intake Date
2023-01-01
Radionuclide
Cs-137
Cs-134
Co-60
I-131
Mode of Intake
Inhalation
Ingestion
Lung absorption type
Type F - All compound
Type M - Unspecified compounds
Type S - Oxsides, hydroxides, halides and nitrate
Measurement Condition
Detection Instrument
Minisentry
RIIDEye
Others (Bq)
Measurement Date
2023-01-01
Measurement Position
Chest
Abdomen
Thyroid
Measurement Direction
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50 cm
Measurement Data
Total
Background
Net
Unit
Results
mSv
Calculation
Print
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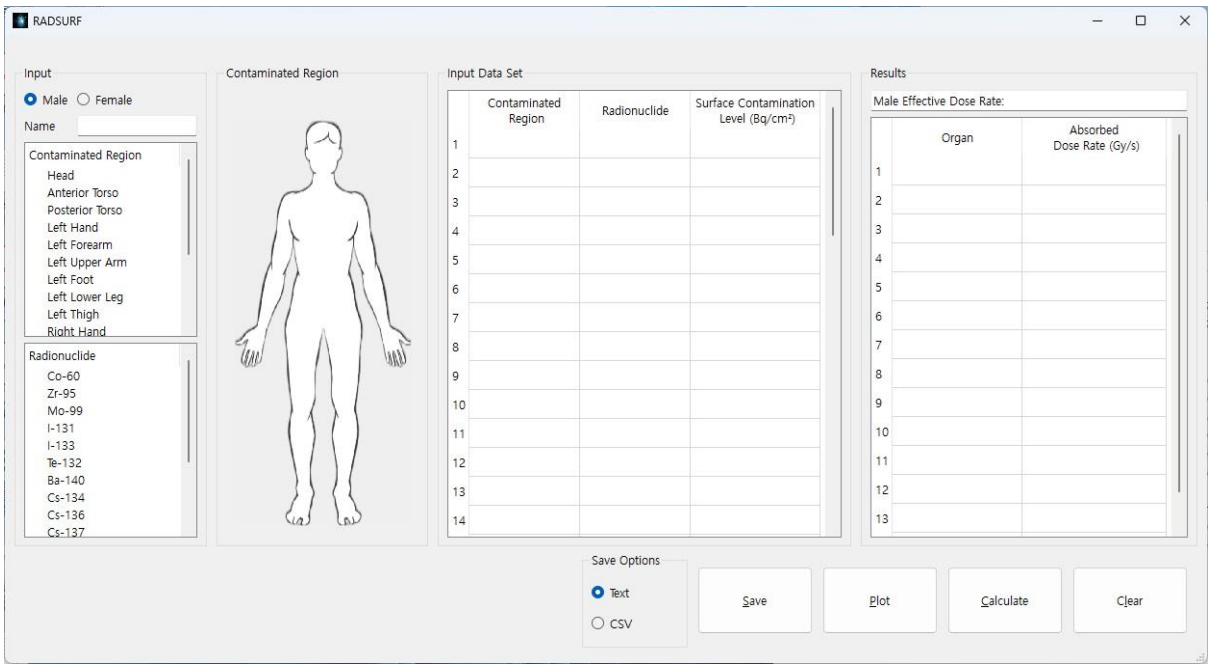
RADSURF
Input
Male
Female
Name
Contaminated Region
Head
Anterior Torso
Posterior Torso
Left Hand
Left Forearm
Left Upper Arm
Left Foot
Left Lower Leg
Left Thigh
Right Hand
Radionuclide
Co-60
Zr-95
Mo-99
I-131
I-133
Te-132
Ba-140
Cs-134
Cs-136
Cs-137
Contaminated Region
Input Data Set
Contaminated Region
Radionuclide
Surface Contamination Level (Bq/cm²)
Results
Male Effective Dose Rate:
Organ
Absorbed Dose Rate (Gy/s)
Save Options
Text
CSV
Save
Plot
Calculate
Clear

P-101

Public Health & Environmental Health

Basic procedure and direction on health surveillance and epidemiology studies in case of radiation accidents: focusing on the EU SHAMISEN project recommendations.

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1. NREMC, Korea, Republic of

Aims

In Korea, although a large-scale nuclear accident has not experienced, it recognizes the importance of timely response and long-term follow-up after the Fukushima accident. In this study, by reviewing the European guideline for response to nuclear accidents, we explore the basic principle and preparedness on health surveillance.

Methods

The EU-SHAMISEN project highlights both the successes and limitation in post-Fukushima accident response, offering recommendation to enhance health and living condition for affected populations. The recommendations encompass general principles for all phases and phase-specific recommendations across five areas: Evaluation, Communication and Training, Dosimetry, Health Surveillance, and Epidemiology. We examined the preparedness for Korea nuclear accidents, with focus on the health surveillance system and epidemiology studies.

Results

The SHAMISEN recommendations emphasize distinguishing between health surveillance system which assess individual health condition and guides support and treatment, and epidemiology, which examines radiation exposure effect on population-level diseases rate and risks. However, two parts highlight the need for a robust roster system for ongoing follow-up and for data linkage. In surveillance system, we need to figure out available national registry (e.g., National Health Insurance Service and National Cancer Center), a legal basis for its utilization must be established. Also, post-accident health checkups should be conducted systematically to prevent over-diagnosis. In epidemiology, methodology must be developed to suit the purpose, with careful control of confounding factors. Furthermore, as requires long-term follow-up, a solid legal basis and a dedicated research team must be established.

Conclusions

In the event of nuclear accident, it is essential to promptly conduct health surveillance and epidemiology studies to evaluate both the direct and indirect health effects. However, current laws in Korea prioritize disaster response over health assessment. To ensure effective implementation for health assessment, the execution system should be examined prior to any accident, and procedure including a legal framework, must be established.

Keywords

Nuclear accident, Epidemiological study, Radiation, Health effect

P-102

Others

Visualization of Public Health Nurse Activities through the application of J-SPEED

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1. Hiroshima University, Japan

Aims

This study is an attempt to visualize health activities through Japan-Surveillance in Post-Extreme Emergencies and Disasters(J-SPEED), which is widely used in the field of disaster medicine.?

Methods

J-SPEED has been used in disaster medicine and COVID-19 control to collect and visualize detailed data in near real-time from various locations and to implement a data-driven health crisis management response.?Based on these achievements, to enable evidence-based project evaluation and planning, the Department of Public Health at Hiroshima University planned and conducted training sessions using J-SPEED in 2020 and 2021 for administrative public health nurses in Hiroshima Prefecture, focusing on visualizing public health nurse activity data. The 2021 training included a lecture and practical exercise on J-SPEED.?

Results

According to an online survey of training participants, participants' willingness to collect, analyze, and report data increased significantly from 19% before the training to 64% immediately after the training, recognizing that J-SPEED has the potential to increase acceptance of data utilization. Furthermore, although some participants actually practiced using J-SPEED after the training, the busyness of their work and lack of data processing skills were cited as factors hindering their use of the data.?

Conclusions

Continued training sessions on visualizing public health nurses' activities via J-SPEED are anticipated to achieve data-based visualization and improvement of public health nurses' activities in the future.

Keywords

J-SPEED, Public health nurse, Public health administration, Data visualization

P-103

Primary Health & Disasters

Factors Associated with Fatigue of Medical Responders in Noto Peninsula Earthquake in Japan (2024)

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2. Associate Professor, Graduate School of Biomedical and Health Science, Hiroshima University, Japan
3. Professor, Graduate School of Biomedical and Health Science, Hiroshima University, Japan
4. Master student, Graduate School of Biomedical and Health Science, Hiroshima University, Japan
5. Graduate School of Biomedical and Health Science, Hiroshima University, Japan

Aims

The demanding nature of the medical responders' work in providing care for the affected population in the 7.6 magnitude earthquake that struck the Noto Peninsula, Japan, on January 1, 2024 is noted. This study aims to determine the factors influencing the fatigue of medical responders during the disaster.

Methods

A cross-sectional study was conducted from January 1st to March 31st using the medical responder version of J-SPEED(the Japanese-Surveillance in Post-Extreme Emergencies and Disasters) among medical responders. The items within the questionnaire encompassed a self-assessment of fatigue on a scale ranging from one to ten, along with information on the type of activity, occupation, duration of working (days), onset of working (in months) and condition of working environments and having illness-related symptoms. Logistic regression analysis was applied to determine the factors influencing the fatigue of medical responders.

Results

Among the 4,656 medical responders, 75.4% worked in the field, with the majority being nurses (30.4%), logisticians (28.6%), and medical doctors (21.7%). Fatigue is strongly associated with having adverse environmental conditions (OR: 4.33, 95%CI: 2.85-6.57) and the onset of the disaster (January) (OR: 1.62, 95% CI: 1.35-1.94). In multivariate logistic regression, other factors associated with fatigue in medical responders included working in headquarters (OR: 1.17, 95% CI: 1.00-1.37, the nursing profession (OR: 1.42, 95%CI: 1.17-1.74), the role of logistician (OR: 1.59, 95%CI: 1.31-1.94), the onset of disaster (January) (OR: 1.49, 95%CI: 1.22-1.81), working continuously for more than 3 days (OR: 0.81, 95%CI: 0.70-0.94) and the presence of unfavorable environmental conditions (OR: 4.10, 95%CI: 2.69-6.26).

Conclusions

The study reveals a significant relationship between work-related factors and fatigue in the context of medical responders. These findings contribute to evidence-based strategies for fatigue management in disaster response operations, thereby bearing significant implications for enhancing the efficacy of medical response initiatives in potential large-scale disasters globally.

Keywords

Fatigue, medical responder, Noto Peninsula Earthquake,disaster educatio


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