

territories, institutions, authors, journals, research areas and citations of publications. Statistical methods and knowledge domain maps were applied to conduct contribution and collaboration, co-occurrence and co-citation analysis using VOSviewer. COOC software was used to construct the two-mode matrix, conduct hierarchical cluster analysis of high-frequency keywords and journals, and identify keywords of bursts.

Results: A total of 10,962 articles were retrieved. The most frequent country and institution were USA (2,423, 22.10%) and the University of California System (212, 1.934%), respectively. The research areas were included but not limited to computer science (2,198, 20.051%), engineering (1,421, 12.963%) and public environmental occupational health (1,032, 9.414%). Three research hotspots were identified: (i) Internet-based social and psychological surveys; (ii) Distance education, telecommuting and telemedicine; (iii) Artificial intelligence-assisted diagnosis of COVID-19 patients. The clustering results of a two-mode matrix showed that research had the most frequent interaction with health, social media and information technology. According to co-citation analysis, a total of four clusters of journals had been obtained (clinical medicine, medicine, computer science and engineering, and public health). The keywords of burst were computer-based learning, general public, student-centered learning, etc.

Conclusion: Information technology has played an important role in the response to COVID-19, which belongs to the interdisciplinary field.

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Impact of Early Phase DMAT Support Using Natural Disaster Support Techniques for Hospitals Experiencing COVID-19 Outbreak in Japan.

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Introduction: Hospitals experiencing a COVID-19 outbreak are in a similar situation to those affected by natural disasters, with a breakdown in command and coordination, shortage of personnel and supplies, and increased stress among staff. In Japan, when a COVID-19 outbreak occurs, the first step is for the hospital or health center to respond. However, if the local authorities are unable to respond, the Ministry of Health, Labour and Welfare dispatch Disaster Medicine Assistance Team (DMAT) by request of the local government to facilitate early recovery. This study will examine the effectiveness of early phase support by DMAT.

Method: Patients and healthcare workers in 31 hospitals supported by DMAT after an outbreak occurred between April 2020 and January 2021 were included in the study. Attack rate and case fatality rate for patients and the attack rate for healthcare workers were analyzed for each of the two groups: those

that started support less than ten days after the first positive case and those that started support more than ten days after the first positive case.

Results: For hospitals that started support in less than ten days, the attack rate was 27.9%, the case fatality rate was 17.4% for patients, and the attack rate for healthcare workers was 9.7%. For hospitals that took more than ten days to start support, the attack rate was 44.8%, the case fatality rate was 23.1% for patients, and the attack rate for healthcare workers was 14.3%. The attack rate ($p < 0.001$) and case fatality rate ($p = 0.011$) for patients and attack rate for healthcare workers ($p < 0.001$) were significantly lower in hospitals that started support in less than ten days.

Conclusion: Early intervention of DMAT support using natural disaster support techniques for hospitals experiencing an outbreak reduced the attack rate and case fatality rate for patients and healthcare workers.

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An Organizational Perspective of a COVID-19 Outbreak at a Tertiary Hospital

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Introduction: The COVID-19 pandemic challenged health-care systems globally disrupting access to high quality essential health services. The pandemic may be viewed as a disaster impacting on patients and staff alike. There is a paucity of research describing how large health services have maintained, scaled and innovated care during the pandemic. The study was conducted to provide insights to inform hospital disaster management responses, specifically to identify organizational learnings from the COVID-19 response, capture instances of innovation, understand the impact of COVID-19 on models of care and to identify organizational priorities to prepare for a potential future disaster or terror event.

Method: Survey research was conducted using a qualitative research strategy. The study was conducted at a 550-bed university-affiliated tertiary hospital located in the southeast corner of Australia in the State of Victoria. The survey was purpose designed, included open-ended questions requiring text responses, and was completed in an online survey form. A thematic analysis of the data was completed.

Results: A total of 258 staff completed the survey, with staff representing doctors, nurses, allied health, and support personnel. There were four overarching domains of learning identified; People and Care, Staff Support, Implementation of Care, and Organizational Factors. These domains were supported by 14 topic areas which highlighted specific areas of learning and

opportunity in preparing for or responding to a potential future disaster or terror event

Conclusion: There was a need during the pandemic to pivot rapidly to reorganize services and workforce to operate and deliver care in a safe manner. Attention to and action in the domains of People and Care, Staff Support, Implementation

of Care, and Organizational Factors can be considered by organizations when planning health service delivery in response to and during the COVID-19 pandemic, or more generally to a potential future disaster or terror event.

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