

**Advancing Knowledge Translations to Contribute to Resilience in Emergency Preparedness, Response and Recovery: The Role of Evidence Aid**

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**Introduction:** Policymakers, practitioners and the public all have a role in health emergency and disaster risk management (Health EDRM). They need to access, understand and use evidence from research to take actions to reduce health risks and harm. They need the best available evidence to maximize their ability to save lives and reduce suffering. Evidence Aid seeks to meet this need through collections of specially prepared plain-language summaries of systematic reviews, freely available online in multiple languages ([www.EvidenceAid.org](http://www.EvidenceAid.org)). The summaries and webpages can be linked to reference management software and embedded in other websites.

**Method:** Evidence Aid has added a substantial number of summaries to its collections since 2020, for example, adding a collection for reviews of relevance to the COVID-19 pandemic and its associated measures. From 2021, Evidence Aid built on its partnership with the Pan American Health Organization (PAHO/WHO) to identify and summarize reviews relevant to building resilience into health systems. This included enhancements enriching the content of each summary with the authors' implications for practice and research, equity considerations and funding sources.

**Results:** In November 2022, the Resilient Health Systems collection contained more than 200 summaries relevant to ensuring that health systems are resilient to emergencies, disasters and related challenges. There were also 600 summaries relevant to the COVID-19 pandemic, 150 on the health of refugees and asylum seekers, more than 100 on physical and mental health impacts of disasters and 110 on preventing and treating acute malnutrition.

**Conclusion:** Evidence Aid's 1000+ summaries of systematic reviews relevant to Health EDRM provide a unique gateway into this evidence base for policymakers, practitioners and the public wishing to ensure that disaster preparedness, response, recovery and rehabilitation are effective and efficient. It should be a key component in helping people and organizations to care, cope and overcome in an increasingly challenging world.

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**Designing a Robust Methodology to Evaluate Emergency Health and Medical Responses to Disasters**

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**Introduction:** Health and medical disciplines have traditionally preferred experimental and quasi-experimental methods to evaluate interventions. More recently, mathematical modeling was used to test intervention efficacy in the SARS-CoV-2 pandemic. The challenge for disaster researchers is neither approach suits examining phenomena about emergency health responses in disasters. This study applied an alternative methodology to examine questions of how and why emergency health and medical responses reduced mortality during six different natural hazard disaster events.

**Method:** The case study methodology is orientated by the researcher's perspective and 'not assigned a fixed ontological, epistemological or methodological position'. This flexibility allows alignment of the researcher's worldview with the methodology best fitting the research problem and its context, such as post-positivism. Qualitative case study design carefully links five key design elements and sequences, including research questions, propositions, a unit of analysis, data collection, and data analysis.

**Results:** Six holistic single case studies described how and why the emergency health response reduced mortality risk of people affected by different disasters. An evidenced-based theoretical emergency health program logic model compared and contrasted inputs, activities, outputs, and outcomes between theoretical and actual responses. Rival explanations were tested before data collection for each single case and applied to challenge the logic model. Each case applied four strategies to increase the validity and reliability of the holistic single case study findings.

**Conclusion:** Qualitative case study methodology provides a robust and flexible framework to examine complex questions about emergency health and medical responses, including questions about events, processes, activities, performance, and outcomes. The methodology is equally suited to real-time or retrospective studies. The strength of the approach is the high compatibility for examining phenomena within the context they occur, and linking program logic, data collection, and data analysis methods to the specific question being investigated.

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**A National Survey of Hospital Cyber Attack Emergency Operation Preparedness**

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**Introduction:** Cyberattacks on healthcare systems are increasing in frequency and severity. Hospitals need to integrate cybersecurity preparedness into their emergency operations planning and response in order to mitigate adverse outcomes during increasingly likely cyber events. No data currently exists regarding the level of preparedness of US hospital systems for cybersecurity attacks. We surveyed hospital emergency managers to assess cybersecurity preparedness for these events.

**Method:** Fifty-seven emergency managers representing hospitals across the US participated in an online Qualtrics survey regarding current preparedness and response procedures for cybersecurity hazards.

**Results:** Survey responses between April 2019 and May 2021 demonstrated that a majority of hospital systems surveyed included cybersecurity disasters in their HVA (82.4%, 47/57), and most ranked it as one of their top five priorities (57.4%, 27/47). However, over half denied specifically mentioning cybersecurity in their EOPs (52.6%, 30/57). Fourteen of the 57 hospital systems (24.5%) endorsed previously activating an Emergency Response for a cybersecurity incident unrelated to Information Technology (IT) failure.

**Conclusion:** The survey results suggest that American hospitals are currently underprepared for cybersecurity disasters. We emphasize the importance of prioritizing cybersecurity in HVAs and implementing specific EOP annexes for cybersecurity emergencies.

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### NGO-led Disaster Response Through the Use of Interdisciplinary Teams

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**Introduction:** Japan is one of the most disaster-prone countries in the world. The government has traditionally taken the lead during disaster responses, but now NGOs have begun to play an active role in disaster response. Peace Winds Japan (PWJ), is the first Japanese NGOs to utilize medical teams, search-and-rescue dogs, and disaster response in conjunction with one another. The presentation will be focused on operations and lessons learned.

**Method:** Initially, the NGO only supported disaster-affected areas, both domestic and abroad, by providing relief supplies. However, in 2010 they began training rescue dogs to perform life-saving search-and-rescue operations immediately after sudden onset disasters. In 2014 NGO dispatched rescue dogs and a disaster response team for the first time at the Hiroshima landslide disaster. A medical team was added in 2018, and since then has sent out teams to ten other disaster sites, including West Japan Flood in 2018 and Ukraine Crisis as an international EMT in 2022.

**Results:** One of the strengths of the organization is the ability to respond quickly by using aviation and maritime transport. They operate two helicopters and one vessel and can promptly and effectively transport patients and resources. Eight critical

patients were transported from the hospital by helicopter during the West Japan Flood.

**Conclusion:** Furthermore, joint rescue drills were conducted with both public and private organizations, and continue to seek ways for collaboration and cooperation in disaster settings.

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### It's Sinking: Coastal Cities of Jakarta and Semarang, Indonesia

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**Introduction:** Jakarta and Semarang are predicted to be engulfed by seawater by 2050, based on evidence by the Copernicus Sentinel-6 satellite. The current sinking rate is reaching almost 20 cm annually in both coastal cities, as reported at the World Economic Conference in May 2022, due to climate change, rising sea levels and excess groundwater extraction leading to land subsidence. Therefore, the objective of this study is to analyze the sinking of both coastal cities of Jakarta and Semarang, using indicators of vulnerability, exposure, and impact by 2050.

**Method:** The YEW Disaster Severity Index (DSI) was used to analyze the impact, vulnerability, and exposure attributed to sinking. Data were obtained from real-time Google, Copernicus Sentinel-6 satellite, and triangulated with United Nations Office for Disaster Risk Reduction, World Bank Data, Government of Indonesia Central Bureau of Statistics, as well as reputable journals.

**Results:** The impact analysis on the sinking of Jakarta and Semarang, calculated in April 2022, using the YEW DSI, scored a High DSI impact of 6.03 and a Moderate DSI impact of 5.76, for each town respectively. Jakarta and Semarang also scored more than 100% baseline ability to cope on the YEW DSI indicators, which accounted for five vulnerability indicators and one exposure indicator of a total 13 million population affected. By 2050, both cities will be 5.6 meters below sea-level, with a constant current sinking of 20 cm per year.

**Conclusion:** At present, vulnerability and exposure of the affected population account for a total of 13 million in both coastal cities. The analysis showed the inability to cope within local capacity, indicating a response is needed. The future of Jakarta and Semarang is in the hands of local, national, and global decisions and policymakers, in mitigating its impact through forest land conservation, adaptation, and relocation of the affected population.

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