Abstracts of Oral Presentations-WADEM Congress on Disaster and Emergency Medicine 2019

PUBLIC AND ENVIRONMENTAL HEALTH

Averting 'Albo-Geddon': Challenges to Metro South Health Emergency Response to Invasive Mosquito Detections in a Complex Stakeholder Environment

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Introduction: Invasive mosquito species present significant organizational and health risks of covert disease outbreaks (dengue, Zika, or chikungunya) following an incursion into novel geographies. In Australia, detections at international First Points of Entry will trigger a multi-agency response to prevent escape into nearby urban environments that are largely unmonitored. Brisbane's mosquito surveillance and response systems were challenged in 2017-2018 by the unprecedented frequency of detections in imported oversized tires that stretched the biosecurity response with escape opportunities.
Aim: Describe the unique challenges to Metro South Public Health Unit within a complex stakeholder environment represented by federal, state, and municipal agencies.
Methods: We present as a case study of an invasive mosquito detection that escalated to a public health incident of statewide significance through an incident management team structure. We focus on describing the significant governance and logistic challenges to the emergency mobilization of Metro South Health staff.
Results: Since mid-December 2017 biosecurity have reported 12 detections of invasive mosquito species (Aedes aegypti, Ae. albopictus, Ae. japonicus) in infested tires arriving in Brisbane. Each emergency response was successful due to amendments to operational protocols and policy review. The legacy is a permanent enhancement of local mosquito monitoring, improved response systems, and greater operational preparedness.
Discussion: The organizational impact of invasive mosquitoes is likely to be underestimated and under-resourced in jurisdictions beyond their expected distributions. Our experiences demonstrate the value of a clear and shared understanding of interagency emergency frameworks to effectively integrate each response. Resolution of uncertainties around organizational roles and responsibilities, and interpretations of guidelines, implementation strategies for mosquito surveillance, and control in novel contexts will require organizational agility and robust partnerships. Strategic re-focus is recommended to embed robust preventative measures and review of policy to mitigate the risk and impact of emergency responses to future invasive mosquito detections.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s73
doi:10.1017/S1049023X19001584

From Science to Policy and Practice: A Critical Assessment of Knowledge Management Before, During, and After Environmental Public Health Disasters

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Introduction: Canada, like many countries, increasingly faces environmental public health (EPH) disasters. Such disasters often require both short- and long-term responses, necessitate evacuation and relocation, cause major environmental impacts, and generate the need for specific knowledge and expertise (chemistry, epidemiology, risk assessment, mental health, etc.).
Aim: Given the importance of evidence-based, risk-informed decision making, we aimed to critically assess the integration of EPH expertise and research into each phase of disaster risk management in several Canadian and other jurisdictions.
Methods: In-depth interviews were conducted with 23 leaders in disaster risk management from Canada, United States, United Kingdom, and Australia, and were complemented by other methods (i.e. participant observation, information gathered from participation in scientific events, and document review). Three criteria were explored: governance, knowledge creation and translation, and related needs and barriers. An interview guide was developed based on a standardized toolkit from the World Health Organization. Data were analyzed through a four-step content analysis.
Results: Six cross-cutting themes emerged from the analysis. These themes are identified as critical factors in successful disaster knowledge management: 1) blending the best of traditional and modern approaches, 2) fostering community engagement; 3) cultivating relationships, 4) investing in preparedness and recovery, 5) putting knowledge into practice, and 6) ensuring sufficient human and financial resources. A wide range of promising knowledge-to-action strategies was also identified, including mentorship programs, communities of practice, advisory groups, systematized learning, and comprehensive repositories of tools and resources.
Discussion: There is no single roadmap to incorporate EPH knowledge and expertise into disaster risk management. Our findings suggest that beyond structures and plans, it is necessary to cultivate relationships and share responsibility for ensuring the safety, health, and wellbeing of affected communities while respecting the local culture, capacity, and autonomy. Any such