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PUBLIC AND ENVIRONMENTAL HEALTH

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

Dr. Kari Jarvinen, Mr. Brian Montgomery, Mr. Greg Shillig, Dr. Bradley McCall

Metro South Public Health Unit, Archerfield, Australia

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.

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

Dr. Mélissa Gagnéux^{1,2}, Marc Lafontaine³, Angela Eykelbosh^{2,4}

1. CIUSSS de l'Estrie-CHUS, Sherbrooke, Canada

2. Université de Sherbrooke, Sherbrooke, Canada

3. Health Canada, Ottawa, Canada

4. National Collaborating Centre for Environmental Health, Vancouver, Canada

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

considerations should be incorporated into disaster risk management planning.

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Outbreak of Toxoplasmosis in the City of Santa Maria, Brazil

Dr. Silvana Dal Ponte¹, Ms. Daniela Burguez²,
Mrs. Giordanna Andrioli¹

1. Hospital De Clínicas De Porto Alegre-brazil, Porto Alegre, Brazil
2. Universidade Federal do rio Grande do Sul, Porto Alegre, Brazil

Introduction: In the first months of 2018, there was an increase in the number of cases of fever possibly related to toxoplasmosis in the city of Santa Maria, Brazil, reaching significant values. Toxoplasmosis is an autoimmune acute infection usually asymptomatic in 80–90% of immunocompetent adults. In this outbreak, the intensity of the symptoms presented warrants attention.

Objective: To report cases of the toxoplasmosis outbreak in the city of Santa Maria, Brazil.

Methods: This is a cross-sectional study using data on the outbreak of toxoplasmosis in Santa Maria published in bulletins by the Municipal Health Department of Santa Maria, Rio Grande do Sul, Brazil.

Results: The outbreak of toxoplasmosis in Santa Maria was confirmed on April 19, 2018. Until June 14, 2018, 510 cases were confirmed. According to the most recent bulletin released by the State Health Department on June 8, 2018, 441 occurrences are people residing in Santa Maria. Five are residents of the districts and seven cases are patients residing in neighboring counties. In a bulletin published on May 25, 2018, 1,116 cases were reported to state epidemiological surveillance by the end of May. Of these, 766 cases were still suspected (fever, headache and/or myalgia accompanied by lymphadenopathy, weakness, arthralgia, or change in vision. In the other 460 cases, there was laboratory confirmation of acute toxoplasmosis, of which 35 were pregnant, with two fetal deaths (36 and 28 weeks), and two abortions. There are also 212 cases still pending laboratory confirmation.

Discussion: The results of this research show that the current outbreak of toxoplasmosis in the city of Santa Maria, Brazil, is the largest reported in Brazil and appears to be the largest in the world. The notification to authorities by physicians was very important for the identification of this outbreak.

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Pseudo Epidemic of Diarrhea Incidence: A Month Post Tsunami in Central Sulawesi, Indonesia

Dr. Ajeng Tias Endarti¹, Dr. Abdul Radjak¹, Dr. Agus Handito²,
Dr. Marlina Adisty³, Prof. Sudarto Ronoatmodjo⁴

1. Mh Thamrin University, Kramat Jati, East Jakarta, Indonesia
2. Sub-Directorate of Hepatitis and Gastrointestinal Infection, Ministry of Health, Central Jakarta, Indonesia
3. National Disaster Management Board, Central Jakarta, Indonesia
4. Faculty of Public Health, University of Indonesia, Depok, Indonesia

Introduction: On Friday, September 28, 2018, the 7.4 Richter Scale earthquake hit Central Sulawesi and was followed by a tsunami. Within a month after the unpredictable earthquake and tsunami, a 773 aftershock earthquake was noted. These events took a major toll on the population in the affected areas. 2,086 people died and more than four thousand people were injured. 1.373 people went missing and 206.494 were evacuated. Surveillance data from November 4, 2018, to October 24, 2018, showed that an increased number of illnesses such as diarrhea was the second leading reported cases. Data showed that the number of diarrhea cases was 3.350 with two peaks of epidemic curves on October 10 and 22, 2018.

Aim: To verify the diarrhea outbreak after the tsunami in Palu, Donggala, and Sigi District.

Methods: Verification of medical records at six selected primary healthcare institutions with the highest number of cases of diarrhea.

Results: A pseudo-epidemic of diarrhea occurred. A high number of diarrhea cases occurred due to double reporting and misdiagnosed cases. Investigation reports showed that liquid defecation was considered diarrhea even though it occurred less than three times a day. The follow-up activity was contacting data entry managers to revise data, disseminate findings during the daily meeting of the health-related officers, and broadcasting findings through a WhatsApp group of provincial and district surveillance officers. Post-investigation, the number of diarrhea incidences was lower and the peak was not shown on the epidemic curve. It can be interpreted that a diarrhea outbreak did not occur in the tsunami-affected area in the Palu, Donggala, and Sigi districts.

Discussion: During a time of disaster, a chaotic situation led to improper data collection. Data verification should be conducted to assure the validity of reported data.

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Public Information, Education, and Communication (IEC) of Health: Active Participation of Health Practitioners in Urban Radio in a Low Resource Setting

Dr. Joseph Bonney¹, Dr. Lawrence Osei-Tutu,
Dr. Richard Selormey², Dr. Bernard Hammond,
Ms. Patricia Bonsu

1. Radiant MD, Kumasi, Ghana
2. Ultimate FM
3. Komfo Anokye Teaching Hospital

Introduction: Over the last two decades, Frequency Modulation (FM) radio has been established as the only form of sound broadcasting in Ghana. Radio is the most accessible of mass media. There are more than 40 operational radio stations in the Ashanti region of Ghana. Most stations are commercial, broadcasting in the local language (Asante-Twi). Many urban radio health slots discuss various diseases and their treatments mainly for the benefit of patients. Complementary and Alternative Medicine (CAM) practitioners who are able to pay for airtime dominate as ‘experts’ in most of these shows.

Methods: We identified an IEC gap regarding policies governing healthcare delivery, healthcare financing, training, ethics