

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

EBOLA

A State of Biopreparedness

Dr. Kavita Varshney¹, Ms. Caren Friend¹, Dr. Shopna Bag¹, Ms. Margaret Murphy², Ms. Kathy Dempsey¹, Ms. Penelope Clark¹, Dr. Patricia Ferguson²

1. Westmead Hospital, Westmead, Australia
2. University of Sydney, Westmead, Australia

Introduction: Westmead Hospital (WMH) recognized gaps in its preparedness to respond to the Ebola 2014 outbreak in West Africa. A fragmented system was identified. A 'State of Bio-preparedness' project team convened to discuss all health-care services in the planning, training, and implementation of a biopreparedness response.

Methods: A survey targeting the staff's competence and confidence in biologically hazardous infection management was conducted. Semi-structured interviews explored staff members' experiences and perspectives of biopreparedness response. The collaborative team called "State of Biopreparedness" (SOB) was assembled and a clinical practice improvement project was undertaken. To assess readiness, nine simulated Viral Haemorrhagic Fever (VHF) exercises involving staff and consumers were conducted. These exercises were debriefed by the multidisciplinary committee and themes and issues were identified. These nine simulation drills then assessed readiness and evaluated performance.

Results: A number of consistent issues continue to emerge including:

1. A standard communication pathway for notification was needed - use of the incident paging system (111 pages) to notify the hospital's incident management team.
2. A consistent and coordinated approach to the training and maintenance of standardized and high-level Personal Protective Equipment (PPE) protocols for frontline clinical and clinical staff was required.
3. Clear delineation of roles and responsibilities and supporting these roles by translating the VHF Control Guideline and policy into task cards and checklists.
4. Strengthening intra- and interdepartmental staff collaboration and communication.
5. Infection control measures to be taken by staff after identifying a patient with possible VHF to reduce the risk of transmission of disease to staff, other patients, and visitors.

Discussion: Integrating disaster management processes with clinical protocols had a positive impact on the hospital's biopreparedness response. Simulation exercises were a vital and practical way for staff to feel confident and competent to perform their roles.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s15

doi:10.1017/S1049023X19000487

Association Between Vitamin A Supplementation and Mortality Among Patients with Ebola Virus Disease: An International Multisite Cohort Study

Dr. Adam Aluisio¹, Derrick Yam², Jillian L. Peters³, Daniel K. Cho⁴, Shiromi M. Perera⁵, Stephen B. Kennedy⁶, Foday Sabr⁷, Stephanie Garbern¹, Tao Liu², Adam C. Levine¹

1. Warren Alpert School of Medicine, Brown University, Providence, United States
2. School of Public Health, Center for Statistical Sciences, Department of Biostatistics, Brown University, Providence, United States
3. Warren Alpert Medical School of Brown University, Providence, United States
4. Brown University, Providence, United States
5. International Medical Corps, Los Angeles, United States
6. Ministry of Health, Liberia
7. College of Medicine and Allied Health Sciences, University of Sierra Leone, Freetown, Sierra Leone

Introduction: Micronutrient supplementation is recommended in Ebola Virus Disease (EVD). However, there is limited data on its therapeutic impacts. This study evaluated the association between vitamin A supplementation and mortality outcomes in EVD patients.

Methods: This retrospective cohort study accrued patients with EVD admitted to five International Medical Corps run Ebola Treatment Units (ETU) in two countries from 2014-2015. Protocolized treatments with antimicrobials and micronutrients were used at all ETUs. However, due to resource limitations and care variations, only a subset of patients received vitamin A. Standardized data on demographics, clinical characteristics, malaria status, and Ebola virus RT-PCR cycle threshold (CT) values were collected. The outcome of interest was mortality compared between cases treated with 200,000 International Units of vitamin A on care days one and two and those not. Propensity scores (PS) based on the first 48-hours of care were derived using the covariates of age, duration of ETU function, malaria status, CT values, symptoms of confusion, hemorrhage, diarrhea, dysphagia, and dyspnea. Treated and non-treated cases were matched 1:1 based on nearest neighbors with replacement. Covariate balance met predefined thresholds. Mortality proportions between cases treated and untreated with vitamin A were compared using generalized estimating equations to calculate relative risks (RR) with associated 95% confidence intervals (CI). **Results:** There were 424 cases analyzed, with 330 (77.8%) being vitamin A-treated cases. The mean age was 30.5 years and 57.0% were female. The most common symptoms were

diarrhea (86%), anorexia (81%), and vomiting (77%). Mortality proportions among cases untreated and treated with vitamin A were 71.9% and 55.0%, respectively. In a propensity-matched analysis, mortality was significantly lower among cases receiving vitamin A (RR = 0.77 95%; CI:0.59-0.99; p = 0.041).

Discussion: Early vitamin A supplementation was associated with reduced mortality in EVD patients and should be provided routinely during future epidemics.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s15-s16

doi:10.1017/S1049023X19000499

Evolving Strategy and Incident Management Systems in Hard to Reach Areas and Fragile Security Settings: The Case of Ebola Response in the Democratic Republic of Congo

Dr. Nda Konan Michel Yao¹, Dr. Tambwe Bathe Ndjoloko²

1. WHO AFRO, Brazzaville, Congo

2. Ministry of Health, Kinshasa, Democratic Republic of Congo

Introduction: DRC Ministry of Health declared the 9th outbreak of Ebola Virus Disease (EVD) in the Equator province on May 8, 2018, that ended on July 25, 2018. There were 54 cases with 38 confirmed, 33 deaths (61%), and 21 survivors in three “zones de santé” (districts). On August 1, 2018, the 10th EVD outbreak of the country was declared in the Ituri and North Kivu provinces. This one is the most important outbreak ever experienced. By November 18, 2018, 373 cases were reported with 326 confirmed and 214 deaths (58%) in

two provinces including 14 “zones de santé.” While the 9th outbreak occurred in hard-to-reach areas, the 10th is occurring in fragile security settings, requiring specific strategic/operational approaches.

Aim: To describe strategic and operational approaches including IMSs used to address these deadly outbreaks.

Methods: A case study methodology using response strategy documents and observations was used, coupled with the use of operation review exercises.

Results: The response strategy evolved continuously taking into account the epidemiological context, including geographical spread. It also took into account cultural, political, and sociological (community resistances) sensitivities. Conditions of pre-existing health system and services were considered. The prevailing security context (armed groups) was taken into account. The evolving situation impacted implementation of response areas including critical interventions like setting up confirmation and treatment centres, rapid response teams, and IMS structures. Areas of response were reviewed continuously, including response structures with further decentralization, outreach, or locally delegated interventions to ensure geographical access and continuity in response services.

Discussion: Response areas to deal with EVD outbreaks are well known. However, an effective response requires a continuous adjustment of the strategy and a flexible response structures with related IMSs based on regular deep situation analysis. Social sciences still have a critical role to play for that purpose.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s16

doi:10.1017/S1049023X19000505