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PANDEMIC

Development and Implementation of First Hospital-Based Epidemic Outbreak Management Plan: Lessons Learned from Nepal

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Introduction: Patan Hospital, located in Kathmandu Valley, Nepal is a 400-bed hospital that has a long history of responding to natural disasters. Hospital personnel have worked with the Ministry of Health (MOH) and the World Health Organization (WHO) to develop standardized disaster response plans that were implemented in multiple hospital systems after the earthquake of 2015. These plans focused primarily on traumatic events but did not account for epidemics despite the prevalence of infectious diseases in Nepal.

Aim: To develop and test a robust epidemic/pandemic response plan at Patan Hospital in Kathmandu that would be generalizable to other hospitals nationwide.

Methods: Using the existing disaster plan in conjunction with public health and disaster medicine experts, we developed an epidemic response plan focusing on communication and coordination (between the hospital and MOH, among hospital administration and staff), logistics and supplies including personal protective equipment (PPE), and personnel and hospital incident command (IC) training. After development, we tested the plan using a high-fidelity, real-time simulation across the entire hospital and the hospital IC using actors and in conjunction with the MOH and WHO. We adjusted the plan based on lessons learned from this exercise.

Results: Lessons learned from the high-fidelity simulation included the following: uncovering patient flow issues to avoid contamination/infection; layout issues with the isolation area, specifically accounting for donning/doffing of PPE; more sustained duration of response compared to a natural disaster with implications for staffing and supplies; communication difficulties unique to epidemics; need for national and regional surveillance and inter-facility planning and communication. We adjusted our plan accordingly and created a generalizable plan that can be deployed at an inter-facility and national level.

Discussion: We learned that this process is feasible in resource-poor hospital systems. Challenges discovered in this process can lead to better national and system-wide preparedness.

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The Development of a Community-wide Primary Health Comprehensive Planning and Response Coordination Group to Plan for and Manage Seasonal Influenza and Possible Pandemic Response

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Introduction: The Canterbury Primary Response Group (CPRG) was formed following the threats of severe acute respiratory syndrome (SARS) and avian influenza worldwide. The possible impact of these viruses alerted health care professionals that a community-wide approach was needed to manage and coordinate a response to any outbreak or potential outbreak. In Canterbury, New Zealand, the CPRG group took the responsibility to coordinate and manage the regional, out of hospital, planning and response coordination to annual influenza threats and the possible escalation to pandemic outbreaks.

Aim: To outline the formation of a primary health and community-wide planning group, bringing together not only a wide range of health providers, but also key community agencies to plan strategies and responses to seasonal influenza and possible pandemic outbreaks.

Methods: CPRG has developed a Pandemic Plan that focuses on the processes, structures, and roles to support and coordinate general practice, community pharmacies, community nursing, and other primary health care providers in the reduction of, readiness for, response to, and recovery from an influenza pandemic. The plan could reasonably apply to other respiratory-type pandemics such as SARS.

Results: A comprehensive group of health professionals and supporting agencies meet monthly (more often if required) under the chair of CPRG to share information of the influenza-like illness (ILI) situation, virus types, and spread, as well as support strategies and response activities. Regular communication information updates are produced and circulated amongst members and primary health providers in the region.

Discussion: Given that most ILI health consultations and treatments are self or primary health administered and take place outside of hospital services, it is essential for providers to be informed and consistent with their responses and

knowledge of the extent and symptoms of ILI and any likelihood of a pandemic.

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Using the MCRISP Network to Study Acute Gastroenteritis and Influenza-Like Illness Outbreaks in Child Care Centers Compared to Statewide Epidemics

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Introduction: Biosurveillance is critical for early detection of disease outbreaks and resource mobilization. Child care center (CCC) attendance has long been recognized as a significant independent predictor for respiratory and gastrointestinal diseases, but CCC surveillance is currently not part of the statewide disease surveillance system. The Michigan Child Care Related Infections Surveillance Program (MCRISP) is an independent, online reporting network with >30 local CCCs that was created to fill this surveillance gap.

Aim: To describe the capability of a novel CCC biosurveillance system (MCRISP) to report pediatric Influenza-Like Illness (ILI) and Acute Gastroenteritis (AGE) illness over three years

to (i) assess both the timing and magnitude of epidemics in CCCs and (ii) compare CCC outbreak patterns with those of the state database.

Methods: MCRISP collates real-time syndromic reports of illness from local county CCCs. The statewide Michigan Disease Surveillance System (MDSS) collects reports of diagnosed illness from designated laboratories, clinics, and hospitals statewide. We assessed epidemic curves based on MCRISP incidence rates and MDSS case counts for ILI and AGE over three seasons (2014–7).

Results: A total of 4,627 MCRISP cases (2,425 ILI and 2,202 AGE reports) were reported during the three years of study surveillance. Epidemic patterns (seasonal peaks, troughs, and breadth) for both ILI and AGE in CCCs mirrored those reported at county and state levels, respectively. Two distinguishing features of CCC ILI outbreaks were noted in all three seasons: MCRISP ILI rates remained elevated after MDSS influenza counts abated, and MCRISP rates consistently peaked prior to MDSS influenza peaks. Neither of these phenomena were observed in comparing AGE outbreaks between surveillance systems.

Discussion: ILI and AGE incidence rates from the MCRISP network appeared to broadly mirror epidemics from the established state surveillance system. MCRISP may act as a sentinel system for larger community outbreaks of respiratory disease.

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