

department of Tan Tock Seng Hospital was at the forefront of the severe acute respiratory syndrome (SARS) outbreak in 2003. The systemic approach for coping with an infectious disease outbreak the department might encounter will be discussed.

Early Detection: Patients presenting with similar patterns of disease are monitored so epidemiologic studies can be performed to identify common presentations.

An updated screening form was devised so that patients and their visitors are screened for symptoms like fever, travel history, employment, and social history that may have an implication on the spread of diseases.

Screening: Information is gathered from varied sources like the news media, the World Health Organization Websites, the (US) Centers for Disease Control and Prevention, and the medical and non-medical media to stay abreast on latest outbreaks so that screening mechanisms are updated constantly.

Contact Tracing: The screening mechanism also tracks patients and their companions.

This hospital has experienced the threat of the avian influenza outbreak in Asia, and also experienced, first-hand, dengue, malaria, and chikungunya disease outbreaks. The mechanisms of early detection and constantly updated screening mechanisms have allowed staff to stay abreast of these disease outbreaks.

Infectious disease outbreaks are constantly evolving issues facing the healthcare institutions.

Keywords: detection; emergency department; infectious disease; outbreak; preparedness; surveillance

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(F48) Improving Pandemic Response Strategies—Lessons from Responding to Multiple Seasonal Influenza Outbreaks at World Youth Day 2008

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Introduction: Key strategies in Australia's plans for containing a future influenza pandemic are rapid case finding and contact follow-up, use of anti-viral agents to treat cases, and providing post-exposure prophylaxis to contacts, isolating/quarantining cases and contacts, and establishing influenza clinics. Managing outbreaks in discrete groups e.g., schools, has not been prominent in planning. At World Youth Day 2008 (WYD'08), held in Sydney Australia, more than 30 outbreaks of influenza were detected by routine and event-specific surveillance systems. They provided an opportunity to explore the implications of elements of these plans. When responding to outbreaks, we followed protocols derived from the above strategies. In addition, we established cluster-specific, temporary influenza clinics.

Methods: We analyzed situation reports generated by state and regional public health agencies during the response and post-event debriefing reports also were used.

Results: During WYD'08, we identified the following challenges likely to be magnified during a pandemic:

1. Detecting and responding to site-specific "clusters" of illness, including establishing temporary, multi-disciplinary influenza clinics;
2. Establishing appropriate clinical case definitions ("traditional" influenza case definition of fever with cough/fatigue proved to be insensitive);
3. Maintaining adequate staffing for the operation;
4. Providing disease control information and equipment to cases and contacts; and
5. Maintaining situational awareness for numerous concurrent outbreaks.

Conclusions: Containing the spread of a pandemic may be enhanced by cluster-specific activities, including temporary, site-specific, multi-disciplinary influenza clinics. Information management systems with capacity for recording several clusters of disease in real time are imperative. Although the responses not always are identical, lessons learned from responding to large seasonal influenza outbreaks can assist in pandemic planning.

Keywords: capacity building; communicable disease; influenza; mass gatherings; medical students; pandemic; public health; recent events; World Youth Day

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(F49) Nowcasting of Pandemic Outbreaks: Integration of Syndrome Detection with Real-Time Assessment of Disease Control Strategies

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Introduction: Each method used for detecting and forecasting infectious disease outbreaks has its specific benefits and shortcomings.¹ The aim of this study was to examine the general architecture of a test bed for development and formative assessments of integrated nowcasting systems in the area of infectious disease epidemiology.

Methods: A nominal group method was used for eliciting system requirements and design specifications from an international expert panel (n = 9). The experts provided the first round of individual comments to the study co-coordinator, who composed these into a case study assessment document. The data analysis proceeded in cycles in which each expert individually reviewed the requirements document, followed by discussions at telephone conferences (n = 12). Finally, the design specification was manifested as an implementation of a prototype test bed.

Results: Central requirements on the test bed included that it should allow representation of data quality and timeliness, permit evaluation of inductive syndrome detection and hypothetico-deductive population caseload analyses, and support explicit fact and hypothesis management. The resulting test bed is designed for use in an iterative procedure for knowledge-based nowcasting system development. The system comprises modules for access to surveillance data for experiments, scenario definition support, experi-

mental system evaluation, maintenance of a design knowledge base, and iterative system refinements

Conclusions: A pandemic nowcasting system test bed has been designed and implemented for use in experiments with data sources, outbreak detection algorithms, artificial and factual populations, and alternative simulation models. The results of this study will contribute to an improved understanding of methods for information system development as support for infectious disease control.

References

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Keywords: nominal group methods; pandemic; public health informatics; response; system design

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(F50) Disaster Waiting to Happen: A Predicted Shigella Epidemic that Unfolded

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Background: In early March 2006, the Norwegian Deployable Hospital (NDH) took on the Role-3 Responsibility for the Northern Forces of the International Assistance Forces in Afghanistan (ISAF), by deploying a field hospital capable of providing medical and surgical support to all ISAF Forces north of Hindu Kush.

Pre-Event: The provision of meals and food was outsourced to a private company (Supreme), staffed by expatriate and local workers. By the end of March, the Force Hygiene Officer inspected this facility, kitchen, and dining room. The inspection (documented by pictures) revealed severe shortfalls regarding hygiene and basic understanding of hygiene principles. Complaints in the report did not result in compliance.

Event/Damage: Shortly after this inspection, on 31 March, at 12:00 hours, members of the forces who had dined at Supreme experienced severe diarrhea and vomiting. Some troops, including a surgeon on-duty, were found somnolent next to the latrines and had to be supported to get to the medical facility. More than 100 troops were registered sick. Laboratory results later confirmed *Shigella Sonnei*, resistant to doxycycline and cotrimoxazole. The source later was found to be a locally employed dishwasher that had not been tested for any infectious diseases.

Clinical symptoms gave suspicion of *Shigella dysenteriae*. Consequently, the number expected to report sick was estimated to be high with an incubation period ranging from 1–5 days. The medical staff already was heavily incapacitated and the facilities were filled by the morning of 01 April.

Response: Two warehouse tents were erected with a bed capacity >200. Furthermore, the NDH asked for assistance from the German Field Hospital in Kabul who sent a team of 23 healthcare personnel to enhance surge capacity. Intravenous fluid replacement or oral rehydration combined with ciprofloxacin (intravenous or oral) was started.

Outcomes: After seven days, most patients were referred to their sick bay, and after 14 days, the last soldier resumed work. Follow-up for late complications was at the discretion of the national medical support system of each nation.

Conclusions: This negligence of basic hygiene principles in a food production facility resulted in a severe event that could have led to a fatal outcome. More than 110 patients reported sick, while German troops suffered a financial loss every day they reported sick. The consequence of this latter policy may be dangerous.

Further details will be discussed during the presentation.

Keywords: disaster response; food safety; International Assistance Forces in Afghanistan; hygiene; Norwegian Deployable Hospital; *Shigella*

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(F51) Awaiting Pandemic Avian Influenza: The Viewpoint of Emergency Medicine Department Personnel in Northern Italy

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Introduction: Microbiologists recognize the inevitability of an avian influenza pandemic on the basis of the increasing number of H5N1 infections in animals and humans. During the last year, the death rates increased. Conversely, the media's interest waned; the risk of avian flu seems underplayed. Emergency medicine departments (EMDs) are healthcare areas where the possibility of an infectious disease threat is paramount.

On the basis of the results of a survey done in a north-eastern Italian EMD (140,000 visits/year), the survey was conducted in another EMD (30,000 visits/year) in north-western Italy in an effort to understand how healthcare professionals faced the issue one year later.

Objective: The objectives of this study were to: (1) assess how healthcare professionals consider their training toward infectious diseases epidemics/pandemics; (2) assess how risk perception for self/family and consequent stress affects attendance pattern/willingness to work during pandemic influenza; and (3) suggest means for reducing absenteeism impact through meeting personnel's needs/perceptions.

Methods: An anonymous questionnaire was distributed to emergency department personnel (physicians, registered nurses, ward clerks) who may be called to respond during a pandemic influenza.

Results: The majority considered themselves to be informed about avian influenza, and was willing to report. Family safety was the main issue. Timely information, protocols, and periodic courses and drills with adequate means of protection are considered paramount; active participation in acquiring information and training can create the sensation of being part of the whole system.

Keywords: avian influenza; emergency departments; Italy; pandemics; personnel

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