68.029
Evaluation of Local Preparedness for Influenza Pandemic in Taiwan
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Background: Asia countries have been most affected by H5N1 influenza since 2003, and would be possibly the first to face the next pandemic. Taiwan, situated in Asia, has formulated the strategic plan for pandemic influenza. But according to SARS experience, the implementation of the local governments will be the crucial element.

Methods: Twenty-five local governments were asked to complete their preparedness and response plan by 2004. In 2005, we evaluated those plans with 4 indicators, including cross-sectoral coordination, surveillance, medical resources mobilization, and personal protective equipments (PPE) management. In 2006, an exercise assuming a cluster of H5N1 cases occurred in their prefectures was conducted to examine their implementations. An expert committee was organized to observe the performances

Results: The average score of evaluation was 78%. The governments in central area got highest scores which seems to be consistent with their performance during SARS outbreak wherein the impact were minimized. All scored high in cross-sectoral coordination. 92% of them were familiar with surveillance system. Although the Material Information System controls the stockpile and usage of PPE was developed after SARS epidemic, only 56% could utilize efficiently. The major gap was in medical resource mobilization. Only 52% local governments could totally grasp the health-care workers, ambulances, medical equipments, alternative medical facilities and funeral capacity. Fourteen governments attended the exercise all could run the mechanism successfully. The major gap was in medical resource mobilization. Only 52% local governments could totally grasp the health-care workers, ambulances, medical equipments, alternative medical facilities and funeral capacity. Fourteen governments attended the exercise all could run the mechanism smoothly and conduct early containment, but outsourcing was needed for larger clusters.

Conclusion: Most local governments in Taiwan had included essential elements in their plans, but the executive and technical procedures have to be further practiced and promoted continually. Evaluation, exercise and then comparison among peers can facilitate the revision of the plans and better practice. We conclude that these processes are valid to improve the overall preparedness.

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68.030
Comprehensive Family Hygiene Promotion in Peri-Urban Cape Town: Reduction of Respiratory Illness in Children Under Five
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Previous studies have confirmed effectiveness of handwashing on diarrheal reduction in developing countries, yet few are comprehensive in addressing a spectrum of gastrointestinal, skin, and respiratory illnesses that mark the burden of infectious disease for families, especially children <5 years. Addressing illnesses through a program of family hygiene promotion (education plus the regular use of key hygiene products) could result in marked reduction of morbidity and mortality, fewer healthcare visits, and related costs.

Effects of intensive hygiene education alone and in combination with the use of hygiene products (soap, surface cleaner/disinfectant, and antiseptic) were assessed. Four communities, 685 households participated: two of government (RDP) housing (indoor tap/flush toilet) and two of informal (INF) housing (communal tap/latrines). Community facilitators monitored illness symptoms weekly and reinforced disease-prevention behaviors established through participatory learning and action focusing on handwashing/bathing with soap, cleaning toilet and food surfaces, and treating skin problems with antiseptic. RDP and INF communities were co-located in two geographic areas, with one area receiving education and products (intervention), and the other receiving education only (control). Illness data were gathered from Jun-Nov 2006 (baseline), and for the same 2007 period following education and product introduction (intervention). Respiratory illnesses assessed included symptoms of cold, pneumonia, flu, otitis media and strep throat.

Children <5 in all communities had significant reductions in respiratory illnesses over time. RDP controls were more likely to experience respiratory (HR = 1.25, CI: 1.08—1.43) illnesses at follow-up than intervention counterparts. INF controls were more likely to experience respiratory (HR = 1.26, CI: 1.11—1.44) illnesses at follow-up than intervention counterparts.

While hygiene education alone showed meaningful reduction of respiratory diseases across all communities, families with education plus the use of key hygiene products saw significant respiratory illness reduction in children <5.

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68.031
Educational Lecture Contributed to Control the Outbreak While It Did not Solve Insecurity of Health Care Providers in a Long-Term Care Facility
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Background: Although most nosocomial norovirus outbreaks take place in geriatric wards endemically, still outbreaks may cause tremendous problems for health care systems with which closure of the unit was associated. Health care providers in a long-term care facility (LCTF) in Tokyo were educated about norovirus in 16 November; however, they experienced an outbreak of gastrointestinal disease (nausea, vomiting or diarrhea) among residents during 22—25 January 2008.
Methods: Twenty-nine health care providers in the LCTF educated for an hour on January 25, 2008. They were asked to fill in a questionnaire on their personal practical knowledge to hospital infections, with self-evaluated score (scale of 7; 1 = minimal, 4 = middle, 7 = maximal) on risk cognitions and insecurities. We judged level of knowledge to be “enough” when the answer corrected over 60%, while under 60%, judged to be “not enough”.

Results: We received responses from 27 before and 29 after the educational program (male 6, female 20, no answer 3, average age 46 ± 13).

1. Risk cognition: No significant change was observed before and after educational program. The highest score was observed at “I became sensitive at disposal, hand hygiene, etc.” in 6.0 before the educational program, and in 5.7 after the program.

2. Degree of insecurity to an outbreak: There was no significant change by the educational program. Middle level insecurities were observed. After educational program, replies presupposed to “I felt invasion-re-remembrance of outbreak.” (Sample sharpness = 3.2).

3. The knowledge to standard precautions and to norovirus before the educational program was judged to be “enough.” But the knowledge to antiseptics and sterilization, to hand hygiene, and to exogenous infection were judged to be “not enough”. All have improved after the educational program.

Conclusions: The degree of risk cognitions was high, but the educational program did not solve health care providers’ insecurity to an outbreak. It was thought that improving knowledge level contributed to control the outbreak.

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68.032

Microorganisms in Wastewater Reused for Irrigation in a Mexico City Periurban Area


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Background: Wastewater represents a water source for irrigation in periurban areas, with water recycling as a response to water shortage, related to public health risk of microbiological contamination. Mexico City (MC) periurban areas reuse water for irrigation. In order to explore the public health impact in a periurban agricultural area south of MC, the presence of total coliform (TC), fecal coliform (FC), fecal enterococci (FE), Helicobacter pylori (Hp), RNA F-specific bacteriophages (MS2) and enterovirus (EV) in residual water, surface reused water and drinking were determined.

Methods: Water samples were taken, three from a wastewater treatment plant (RW), three from canal system that receives the treated water reused for irrigation (IW) and four drinking water samples (DW). All samples were processed for TC, FC and FE by standard methods of membrane filtration; Hp detection was performed by PCR-Hybridization, MS2 was counted by the double agar layer method ISO 10705–1; EV genomes by elution concentration method and detection by RT-PCR

Results: A significant reduction in TC and FC counts in RW was observed. FE, MS2 and EV were not removed, showing tolerance to the wastewater treatment. In IW all bacteria counts were high, related to water discharge from irregular settlements and livestock, as a second microbial water contamination, MS2 and EV were positive in all IW samples. Only two water sample were positive to Hp after water treatment (IW). Water reused in the canal system represents a potential health risk for agricultural workers and crop consumers

Conclusions: FC and TC are not adequate microbial indicators. Hp was present after water treatment. The treatment tolerance of EV and MS2 was evident by their presence in IW. EV and MS2 could be used as viral contamination indicators and complement the indicator bacteria presence. Water quality monitoring should be used for a better management, including control of pathogen distribution.

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68.033

Solar Radiation and Enteric Virus Presence in Irrigation Water

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Background: The most important use of treated wastewater is agricultural production. Potential health risk associated with it is of great concern, mainly for agricultural workers and vegetable consumers. Enteric viruses are more resistant to environmental conditions than indicator bacteria; therefore, it is important to know about their presence and survival under field conditions. Solar UV-B radiation has an effect on viral nucleic acids by dimers formation, inhibit replication and transcription, turning virus into non-infectious.

Methods: Samples were taken from the periurban agricultural area, south of Mexico City, where treated and non treated wastewater is used for irrigation. Water samples were taken and processed to detect rotavirus (RV), astrovirus (AST) and enterovirus (EV) presence by RT-PCR. The sampling period comprised two years, covering the cold-dry (November-February) and the warm-rainy seasons (June-October). The frequencies of enteric viruses were compared with UV-B radiation data base, registered by Meteorologic Web of Mexico City Government (REDMET)

Results: The higher viral frequencies in irrigation correspond to lower periods of UV-B radiation, which were during the cold-dry period for both years. The 40% and 30% of samples were positives for RV in the first and second years respectively. AST was detected in 10% of samples for both cold-dry periods. For EV 80% and 70% of the samples were positive in the same periods. During the March-May period, UV-B radiation is higher; this opens the possibility of larger removal of enteric viruses before the warm-rainy period as shown by the lower frequency of positive samples.

Conclusion: Under field conditions the effects of environmental factors on the pathogens are poorly understood.