

Conclusion: Medical laboratory technologists and students in central and southern Taiwan have a deficiency of knowledge about HIV/AIDS that may impact their attitudes. The medical laboratory profession should seek to change unfounded fears of HIV/AIDS for the betterment of the profession, their immediate families, and for patients with HIV/AIDS.

Keywords: acquired immune deficiency syndrome (AIDS); education; Human Immunodeficiency Virus (HIV); knowledge; medical laboratory technologists; Taiwan

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Infectious Disease Preparedness after SARS—A Singapore Emergency Department's Experience

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It has been more than a year since severe acute respiratory syndrome (SARS) took the medical world by storm. Many lessons were learned from the outbreak, which changed the way many emergency departments manage potential infectious disease outbreaks. This poster highlights the changes and measures taken by our emergency department for future responses to such threats.

The following topics will be addressed: (1) resources for appropriate infection control system available for bioterrorism and emerging infectious diseases; (2) geographical isolation; (3) air handling and filtration system in the department; (4) command and control; (5) risk communication between patients, relatives, nursing, and medical staff; (6) patient, visitor and public information management; and (7) technology—radio frequency identification (RFID), and its application in contact tracing for patients and visitors coming to the department.

Keywords: emergency department; outbreak; preparedness; response; severe acute respiratory syndrome (SARS)

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The Global Epidemic Recognition and Management (GERM) Chart: A Prototype

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In the past three decades, North America has witnessed an increasing vulnerability to emerging infectious diseases. This vulnerability has been accentuated in recent years as unique threats such as Anthrax, severe acute respiratory syndrome (SARS), Norovirus, and Monkeypox have emerged. Despite a highly sophisticated healthcare environment, the public health aspects of an infectious disease epidemic remain problematic.

Old and new concepts such as quarantine, isolation, alternative care sites, surge capacity, prophylaxis, and pharmaceutical stockpiling are challenging to local experts and planners. In relation, the concepts are often difficult for infrastructure personnel, healthcare providers, and the average citizen to assimilate. To meet these challenges, the authors have developed a guidance tool for the implemen-

tation of community-based planning in response to an outbreak and potential epidemic.

This guidance tool is divided into three categories outlining action plans for specific segments of the local infrastructure: Category 1—Healthcare Workers; Category 2—Healthcare Facilities; and Category 3—Public Health Officials. Within each category, action plans have been developed in progressive phases and are dependent upon the location of an outbreak from a global perspective and its perceived threat to communities locally, regionally and nationally: Phase 1—Limited/No Outbreak (North America Unaffected); Phase 2—Multinational Outbreak (North America Unaffected); Phase 3—North American Outbreak (Local Community Unaffected); and Phase 4—North American Outbreak (Local Community Affected).

The tool's composition not only prioritizes activities, but also enhances educational endeavors. While the tool contains action plans specific to North American communities, its general concepts, and educational aspects may be exported and personalized for use elsewhere.

Keywords: action plans; global epidemic recognition and management (GERM); North America; prototype; threats; tools

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Examination of Continuous Aspiration of Subglottic Secretions

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Objective: Continuous aspiration of subglottic secretions (CASS) lately has been noted because of its effectiveness for preventing ventilator-associated pneumonia (VAP). However, the method used for aspiration has not been examined in detail, so the amount of secretion obtained with CASS was determined under several conditions.

Methods: This study was conducted at the High Care Unit (HCU) of the Kobe University and Ohara Hospitals. A total of 21 patients needing prolonged intubation with tracheotomy were studied. Three types of tracheotomy tubes were examined (Types A, B, and C). First, the amount of aspiration with CASS using the Type A tube was determined during 30 days with regard to gender, size of the tracheotomy tube, respiratory condition (requiring ventilation or not), and swallowing function. Second, the amount of CASS with Type B or C tubes was determined during seven days. Continuous subglottic drainage was performed with around 45 mmHg.

Results: The average daily aspiration of the Type A tube was 47.8 ±50.3 ml, the most being 215.2 ±57.4 ml and the least being 9.8 ±8.9 ml. Male patients, who were intubated using a large-sized tracheotomy tube, required mechanical ventilation, and had swallowing function, tended to have greater quantity with CASS, though no significant difference was shown. The average daily aspiration quantity of the Type B tube was 2.3 ±3.1 ml, and that of the Type C tube was 10.0 ±11.7 ml. Statistically significant differences were demonstrated between the 3 types of tracheotomy tubes.

Conclusions: These amounts of CASS collected were more than expected, but because the amount of aspirations with CASS had not been reported in detail yet, it is difficult to draw conclusions. There are some reports that CASS is effective for preventing VAP, so to aspirate the secretions effectively is necessary. As this survey found a significant difference among three types of tracheotomy tubes, specification of tracheotomy tubes is important. Moreover, procedure of aspiration and infection control measures such as oral health care must be investigated. Also, a randomized, clinical trial of CASS with regard to incidents of VAP, which identifies the bacteria causing VAP and are isolated from CASS, should be conducted.

Keywords: continuous aspiration of subglottic secretions (CASS); Japan; tracheotomy tubes; ventilator-associated pneumonia (VAP)

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Major Biological Threats Facing the International Community

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The objective of this presentation is to provide an understanding of the biological threats facing the international community to be better informed to provide biological security (biosecurity) to the respective populations. Biosecurity may be defined as the state wherein people, animals, and plants, as well as the environment in which they live, are protected against dangers arising from the emergence of epidemics and epizootics of natural or laboratory etiology.

This presentation will discuss the limited concerted effort by intergovernmental agencies to meet the threat of biological threats of natural etiology by monitoring the incidence and spread of a few reportable diseases. A particularly threatening disease may at times become the target for concerted international action, such as the global response to severe acute respiratory syndrome (SARS), but so far this has been the exception. Usually once the biological threat has materialized (i.e., the disease is apparent and spreading), the responsibility for its management is assigned to national public health agencies, who use control methods based on epidemiology, preventive medicine, hygiene and sanitation, and quarantine. Given that infectious diseases do not respect political boundaries, a response that depends almost solely on the actions of local and national authorities could be substantially improved upon.

Research and development may engender biological threats by accident or design. A laboratory accident may release an agent under investigation into nature, where it could have incalculable effects on humans or the environment. Similarly, the field-testing of microorganisms designed for specific purposes may lead to those organisms spreading beyond the test site, again with incalculable effects. Currently, governments seek to reduce the level of hazard associated with research and testing by imposing strict regulations that dictate the parameters under which risky activities may be carried out. Because microorganisms are not contained by political borders, an international effort to control hazardous bioscientific activities is necessary.

Biological threats are, in effect, biological weapons. Society seeks to meet the threat of biological warfare through the 1972 Biological and Toxin Weapons Convention (BWC). The BWC State Parties extend the strictures spelled out in the Convention to their citizens through the adoption of implementing national legislation. However, as this presentation will discuss, the BWC's shortcomings limit its ability to prevent the proliferation of biological weapons. In particular, it lacks provisions for verification; i.e., State Parties are severely handicapped in their ability to verify whether a country indeed is complying with the treaty. The need for a stronger international biological arms control regime is apparent.

No international law is likely to prevent terrorists from acquiring and deploying biological weapons. Therefore, society may first learn of the existence of an illicit terrorist biological warfare program when its goals are met; i.e., when a biological weapon strikes a human, animal, or plant population. This presentation will briefly discuss how society might act to diminish the threat of terrorists acquiring biological weapons, though it should be clearly understood that whatever might be done will likely be ineffective.

Keywords: biological; Biological and Toxin Weapons Convention (BWC); international; security; society; terrorism

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Free Papers Theme 20: CBRN-2

The Truth Hurts: Hard Lessons from Exercise Supreme Truth, Australia's Largest Mass-Casualty Field Exercise with Contaminated Casualties

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Field exercises offer a number of advantages over tabletop exercises in planning for mass-casualty incidents. The opportunity to conduct them in real time within a hospital environment rarely presents itself because of the degree of disruption to normal patient care. The Royal Adelaide Hospital underwent a multi-million-dollar refurbishment in 2003–2004, part of which resulted in the creation of a new emergency department. The presence of two emergency departments at one site presented the opportunity to conduct Australia's largest mass-casualty field exercise with contaminated casualties.

Exercise Supreme Truth was conducted in May 2003. In the scenario, an explosion by a terrorist at a race course disseminated a toxic chemical into the crowd. To ensure as realistic an event as possible, there was no predeployment of emergency crews or materials, and hospital staff were not informed of the details of the event. A significant number of "victims" presented to the hospital under their own initiative, prior to decontamination. A total of 170 "smart casualties" were used in the event, and the largest fixed decontamination system in Australia was tested for the first time.

Despite months of planning, and an attempt at anticipating all potential outcomes, a number of unexpected problems in the management of multiple contaminated casualties developed. Footage of the exercise will be shown, and details of the many lessons learned will be presented.