

A Survey of the Stock and Utilization of Pathogens in Domestic Biomedical Laboratories

Abstract

To establish the inventory of infectious biological materials and to explore the potential biosafety problems associated with handling the infectious biological materials in biomedical laboratories, a nationwide questionnaire study and follow-up site investigations were conducted in this project. The web-based questionnaire can be linked directly to a biomedical laboratory database with sorting-out functions to extract information upon searching for identities of installation unit or pathogen. It is expected the information collected and tool developed in this project will be useful to Center for Disease Control to enforce the newly announced 'Regulations Governing Management of Infectious Biological Materials and Collection of Specimens from Patients of Communicable Diseases'.

A total of 128 valid questionnaires (9% response rate) were returned and formed the basis for subsequent analyses. Twenty-nine biomedical laboratories were chosen for site investigation. Results of the surveys suggested: (1) most of the laboratories are unfamiliar to the newly announced 'Regulations Governing Management of Infectious Biological Materials and Collection of Specimens from Patients of Communicable Diseases'. (2) Most of the missions of biosafety committee are overlapping the functions of infectious control committee (in the case of hospitals) and occupational safety and health committee. Merging the tasks of different committees within installation unit can make the implementation more effective and reduce the administrative loading to the laboratory personnel. (3) Due to the unfamiliarity with the Regulation and resistance to change, government intervention is needed to ensure that biosecurity and biosafety issues are taken more seriously in biomedical laboratories.

To assist developing internal auditing for laboratory biosafety, five hospitals (2 medical centers and 3 regional hospitals) were invited to implement the 'Self-evaluation on Management System for Handling and Examining Infectious Biological Materials in Health Care Facility', which adopted the frameworks of volunteer protection program and environmental management system. The results indicated that all the five hospitals achieve 70% of the biosafety management items, with safety equipment and emergency response were less qualified. It is suggested that further improve these two areas will ensure the safety of handling and examining infectious biological materials in hospitals.

The web-based questionnaires and linked biomedical laboratory database developed in this project can be used in the future in regular bases to keep track of the stock of infectious biological materials and management practices upon them in biomedical laboratories. The 'Self-evaluation on Management System for Handling and Examining Infectious Biological Materials in Health Care Facility' established can be used to develop a guideline of internal auditing for laboratory biosafety.