G5 - Relevance of teaching environmental recovery and restoration in the aftermath of a biological incident in human health sciences

Antonio Peña-Fernández[1], Soledad Fenoy[2], Carmen del Águila[2], Ma Carmen Lobo-Bedmar[3], Angela Magnet[2], Fernando Izquierdo[2], Dolores Ollero[2], Mark D. Evans[4], Mª Ángeles Peña[4]

E-mail:sfenrod@ceu.es

[1] School of Allied Health Sciences, De Montfort University, Leicester, LE1 9BH, UK. [2] Universidad San Pablo CEU, Laboratorio de Parasitología e Inmunología, Madrid. [3]Departamento de Investigación Agroambiental. IMIDRA. Finca el Encín, Crta. Madrid-Barcelona Km, 38.2, 28800 Alcalá de Henares, Madrid, Spain. [4] Universidad de Alcalá, Departamento de Ciencias Biomédicas, Crta. Madrid-Barcelona Km, 33.6, 28871 Alcalá de Henares, Madrid, Spain.

Agents involved in biological incidents can spread easily, so response teams are required to decontaminate the environment impacted by these incidents to minimise public risks. We are developing training to provide basic skills so human health science students can respond to biological incidents. We have created key competences for these students based on the core skills that any medical first responder to biological emergencies should have. A key competence of the training developed is related to environmental planning. To provide this training a short workshop of two hours was created involving an outbreak of infection in an urban area produced by *Cyclospora cayetanensis*. Students were required to tailor a recovery plan using the novel methodology developed by Public Health England named "*UK Recovery Handbook for Biological Incidents*" (2015). This novel methodology helps selection of appropriate protection and recovery options to safeguard humans and decontaminate the affected environment in the aftermath of a biological incident based on the physiological characteristics of the microorganism involved and the environment impacted (information that was provided to students to overcome time constraints). Students, by peer-group interaction, tailored a recovery plan selecting only those options that were most applicable for the scenario proposed through critical thinking and discussion, *e.g.* use of chrorine-based decontamination liquids will have a limited efficacy as oocysts of *Cyclospora* are resistant to these. This training was tested with final year undergraduate students enrolled in the BMedSci Medical Science (Hons) degree at DMU in 2016/17 (n=24). Students were able to tailor an appropriate response to recover the proposed environmental contamination scenario with the resources and information provided. The feedback questionnaire showed that 60% enjoyed the workshop and only 13.4% did not (26.6% neither agreed nor disagreed). 80% of the students indicated that they learnt how to establish some public health interventions and 60% how to tailor an appropriate recovery programme. However, some students had difficulties with the recovery concepts (20%) and the interpretation of the physiological characteristics. The increased prevalence of biological contamination incidents necessitates development of appropriate training to include environmental decontamination strategies.

Keywords: biological incidents, Cyclospora, undergraduate training, recovery and remediation.