

Detecting Biothreat Agents: the Portuguese National Reference Laboratory Response

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Abstract

At present, the threat of a biological terrorist event with a dangerous pathogen and its insidious impact are among the most, yet least understood, threats to civil society today.

The use of manufactured weapon, such as bomb, will produce consequences limited in time hence the most of the damage occurs immediately. By contrast, the use of a biological weapon is an extended process whose scope and timing cannot be precisely controlled.

Many biological agents could be used as biological weapons. The CDC bioterrorism list includes 45 biological agents that have been targeted as most likely to be used in bioterrorism attack. Of these, six have been designated as “high priority” agents: *Bacillus anthracis*, *Yersinia pestis*, *Francisella tularensis*, *Brucella spp.*, botulinum toxin produced by *Clostridium botulinum* and *Variola major* virus. Beside the pathogenic impact, the use of these agents will likely produce widespread panic, which will quickly overwhelm local law enforcement, as well as providers of health care. Since the majority of these agents require an incubation period before disease becomes noticed, the terrorists often escape without notice.

The Portuguese National Institute of Health (PNIH) is prepared to recognize and respond to a biological event, including bioterrorism, having responsibilities in the determination of the etiological agent's and its susceptibility to antibiotics.

In order to ensure quick and reliable results, a laboratory algorithm was developed, taking in account the human and technical resources available. This algorithm was tested within a framework of an external quality control scheme and the results obtained demonstrated that the performance of our lab is at the same level of other European reference labs, even if the human, technical and financial resources are quite different.

The PNIH also have the responsibility to inform other health and criminal authorities whenever an unusual biological agent is detected.

Therefore, the role of PNIH is essential, promoting a rapid laboratory response and contributing to risk communication between the several authorities with responsibilities in the

establishment of preparedness plans and measures that will contribute to control and mitigate the effects of bioterrorism attack on public health.