The Use of An Emergency Department Screen Saver
Linked to Web Resources to Raise Awareness of Bioterrorist Threats

Linda L. Casebeer, Ph.D.¹, Thomas E. Terndrup, M.D.¹, Norman W. Weissman, Ph.D.², Sarah D. McNutt, M.D.¹,
Helmut F. Orthner, Ph.D.², Margaret A. Tresler, M.P.H.¹
¹University of Alabama School of Medicine, Birmingham, Alabama
²University of Alabama School of Health Related Professions, Birmingham, Alabama

ABSTRACT

An emergency department screen-saver linked to web-based reference materials was developed for healthcare providers to raise their index of suspicion of bioterrorist agents in patients presenting with flu-like symptoms. Web-based materials were released for general use in October, 2001, with high traffic volume on the site as health care professionals scrambled to review anthrax information.

Background

Recent bioterrorism events in the United States have highlighted the issue of continuing education for physicians and other health professionals in the diagnosis of rare emerging infections.¹ ² Physicians may forget information learned in medical school that would be needed to make an accurate diagnosis of a rare infection.³ ⁴ Educational theorists have suggested two overall approaches to curriculum design for rare events: 1) practice and retraining sessions and 2) reference materials available on the job.⁵ Some emergency departments (ED)s used practice sessions to prepare for mock terrorist attacks they thought would overwhelm the medical system with hundreds of victims that needed to be triaged. Anticipated scenarios included the release of anthrax spores as a cloud into a building or sprayed over a stadium. In spite of such practice, a hospital in northern Virginia treating two postal workers with inhalation anthrax reported the elaborate rehearsal had not resembled the real attack and did not prepare them for the diagnosis and treatment of the postal workers.⁶

System description

Three systems components were developed 1) an interactive, animated screen saver 2) posting of content material on bioterrorist agents in brief summary form linked to indepth reference material, and 3) interactive case-vignette continuing medical education (CME) module and test. The screen saver was designed to act as a reminder system and as a means of engaging physicians and leading them to more in-depth web-based reference materials. Development specifications included compatibility with Windows 95, 98, 2000 and NT operating systems, use of Windows 2000 Design Guidelines and minimum hardware requirements of 32MB RAM and 6MB of free disk space on hard drives. The interactive screen saver consisted of 5 smallbox and anthrax images changing at a speed of every 5 seconds. By clicking on screensaver hot links, the user could access pop-up boxes explaining the image and linked to a web-based reference system designed in layers of 1) brief descriptions 2) indepth reference sections and 3) a case-based continuing medical education module with remediation at the time of the response. Cases were tailored to the type of provider.

The screen saver linked to web resources was successfully implemented in August, 2001, in the emergency department of a large university hospital and then made available on the web at www.bioterrorism.uab.edu. During the period of October 22, 2001-February 28, 2002, web site traffic reports indicated over 500,000 hits to the site. The peaks of this activity were the weeks of October 22, 2001 (91,080 hits) and January 14, 2002 (97,539). The average web page views per day totaled 66,744 for the same period, with peaks of 13,934 the week of January 14th, and 11,307 the week of January 7th.

Rare emerging infections create a diagnostic dilemma. While outbreaks attributed to bioterrorism can lead to immediate information seeking by healthcare providers, it is important that credible systems to support information seeking be developed before outbreaks occur. The use of a graphic image linked to further web-based reference resources is a feasible strategy for assisting physicians in the diagnosis of rare emerging infections, including potential bioterrorist agents.

References


Acknowledgements

This work has been supported by Contract #290-00-0022 from the Agency for Healthcare Quality and Research. Programming for the screen saver was done by Russell McClinton, Virturuss Interactive, LLC.