

Incorporating Bioterrorism Training into Dental Education: Report of ADA-ADEA Terrorism and Mass Casualty Curriculum Development Workshop

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Abstract: Numerous areas have been identified in which the dental profession may be called upon to assist in the event of a major terrorism attack. In order to successfully fulfill these roles, dentists and dental students must be adequately prepared. Dental schools play a vital role in this preparation. Participants in an ADA-ADEA workshop reached consensus that all dental students should be trained in a core set of competencies enabling them to respond to a significant bioterrorism attack, help contain the spread of the attack, and participate in surveillance activities as appropriate upon direction of proper authorities. Further emergency response training should be available to individuals interested in gaining additional knowledge and skills to assist in response to an attack. Participants also concluded that, where possible, training should be seamlessly implemented into the current curriculum without the addition of new courses; however, the group also recognized the possible need for alternative models at some dental schools. Challenges to implementing bioterrorism training into the dental school curriculum include regional variation, management of the basic science curriculum, and financial considerations. The development of an exportable training package will be considered and funding sources explored in moving forward with the development of a curriculum.

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The dental profession could potentially play a significant role in the emergency response to a major bioterrorism attack.¹ If a major attack were to occur, little time will be available to develop a response. In preparation for fulfilling such a role if called upon, it is vital to identify the specific areas in which the dental profession can provide emergency assistance and to prepare dentists adequately.

In June 2002, the American Dental Association (ADA) held a meeting in an effort to identify the role of dentists in responding to a bioterrorism attack. By the conclusion of the meeting, the participants had identified a number of areas in which the dental profession may be called upon to assist in the event of a major attack, including: surveillance and notification, diagnosis and monitoring, referral, immunizations, medications, triage, medical care augmentation, decontamination, and infection control.¹

A number of concerns were acknowledged related to dentists' ability to assist in these areas. Two specific areas of concern were preparation to respond to an attack, including the appropriate role of dental schools in training dentists to respond, and to what extent, if any, training should be mandated. With respect to the role of dental schools, participants concluded that bioterrorism training should occur within the predoctoral curriculum. In addition, continuing education programs for bioterrorism training should be developed and made available to dentists. Participants maintained that all dentists should receive at least a basic level of bioterrorism training, including training that would enable them to recognize diseases and to provide treatment and preventive measures under the direction of the responsible emergency response agency through one or both of these mechanisms.

On November 17-18, 2003, the ADA and the American Dental Education Association (ADEA) co-sponsored a workshop, "Terrorism and Mass Casualty Curriculum Development," in Chicago, Illinois to address questions related to training and education that remained at the conclusion of the June 2002 meeting. The workshop brought together leaders in dentistry, dental education, and bioterrorism training. The questions included how best to incorporate bioterrorism training into the dental school curriculum and how extensive the training should be. The goals of the workshop included resolving these issues and developing models to integrate bioterrorism education into the dental school curriculum.

Bioterrorism Training

The workshop participants agreed that all dental students should receive a minimal level of bioterrorism training with the option to receive additional training. Participants generally agreed that the core competencies taught to all dental students should make them familiar with the potential agents that might be used in an attack, prepared to respond to a significant attack, and able to become a source of surveillance information in the event of an attack.

The workshop participants also recommended several specific core competencies in which dental students should receive training. Dental students should be familiar with the key agents likely to be used in a bioterrorism attack so that they can recognize patients exhibiting signs and symptoms resulting from such agents. These agents should include the agents identified by the Centers for Disease Control and Prevention (CDC) as Category A and B chemical, nuclear, and radiological threats, with an emphasis on the biological agents. The CDC Category A and B agents are considered the highest priority based on transmission rates, morbidity and mortality rates, and potential public health impact. These skills will enable dentists to recognize symptoms in patients and enable them to assist with basic triage in the event of a major attack. Triage can be broadly defined; in this instance, it is used to mean that dentists can assist in categorizing individuals in the event of an attack based on the presence and apparent severity of symptoms.

Dental schools should also prepare dental students to respond once an attack is recognized. The extent to which dentists can respond varies widely

based on the level of training received. The view was expressed by some already actively involved in local emergency preparedness activities that all dental students should be trained to the basic level of emergency medical services (EMS) capability. In addition, response in the event of an attack will be voluntary. In addition, all dental students should be trained to assist in containing an agent and isolating infected individuals in the event of an attack. Appropriate and timely actions taken to contain the spread of an agent can dramatically influence the overall impact of an attack. Most participants agreed, however, that while more extensive emergency response training should be available to students, it should not be required for all students. Students interested in greater involvement in response to an attack can seek training opportunities to develop the skills necessary for such involvement. Optional advanced training may provide students with the skills necessary to provide inoculations and advanced cardiac life support (ACLS). In addition, some skills, such as ACLS, require reinforcement and continued training to ensure sustained competency in such areas. Basic skills should be taught to enable dentists to respond immediately to a terrorism event in a manner that would minimize the spread and impact of the threat.

Finally, dental students should be able to report surveillance information to appropriate sources. Reporting may include ongoing monitoring of the spread of disease and the recurrence of disease following the initial treatment. Students should have a basic understanding of the Federal Emergency Response Plan, including an understanding of their role so that they respond appropriately in the event it is necessary for this plan to be implemented.

Training all dental students in these core competencies will provide them with the skills necessary to react to situations that may arise within their practice, should an attack occur using biological or other agents of terrorism. Their response will help to detect the situation as quickly as possible, contain the agent to minimize the region impacted, and notify appropriate authorities to initiate necessary emergency procedures. Students will also gain knowledge to provide assistance to the responding emergency community should they choose to do so. In addition, students will have the opportunity to undertake more extensive training, enabling them to provide additional services in the event of a major attack.

Incorporating Bioterrorism Training into the Dental Curriculum

Workshop participants identified three primary methods by which terrorism training can be implemented into the predoctoral dental school curriculum. In the first scenario, a new course or courses are created in which students would receive training. Alternatively, bioterrorism training can be seamlessly implemented into courses already contained in the current curriculum. In this scenario, different aspects of terrorism training are incorporated into the curriculum without disrupting the structure of the curriculum. The third scenario combines the previous two scenarios by incorporating training into the current curriculum with the addition of a concluding capstone course to the current curriculum.

Each method has advantages and disadvantages that must be carefully considered. Ultimately the workshop participants concluded that while the addition of new courses related to terrorism training to the curriculum would allow for more extensive training and may prove simpler than incorporating the training into multiple existing courses, the already crowded predoctoral curriculum leaves little room for the addition of entirely new courses. Thus, incorporating the core competencies into existing courses proves a more viable option.

Many of the necessary competencies can be incorporated without disruption. For instance, training on the CDC Category A and B agents can be integrated into microbiology, pharmacology, and general pathology. Dental students already learn to recognize illness and injuries; thus, incorporating training on identification of potential terrorism agents can be included alongside training on other agents causing illness and injury. Other courses into which terrorism training may easily be incorporated include oral medicine, oral pathology, ethics, and practice management.

Challenges and Considerations

The workshop participants identified several challenges to incorporating bioterrorism training into the dental school curriculum including: regional

variation, management of the basic science curriculum, and financial considerations.

First, while a terrorism attack can certainly occur throughout the country, certain regions are more likely to face such an event than others. Dental schools in regions less likely to be the target of an attack may be less interested in devoting curriculum time to training dental students to respond to an attack. Incorporating training into the current curriculum, rather than creating new courses, may provide the best option for dental schools located in more likely target areas, yet barriers may remain at dental schools in rural and other areas considered unlikely to be prime targets of terrorism.

Second, incorporation of emergency response and bioterrorism training into the existing curriculum may require an extra effort of coordination and cooperation in schools where the basic sciences are taught through a separate school or in conjunction with the medical school. It may be necessary to develop an alternative model for schools where this situation exists. Such a model might include a separate course to provide dental students with bioterrorism training.

Finally, incorporating changes into the curriculum can require significant resources. In a time when dental schools are facing significant budget cuts, allocating the necessary resources to the development of a terrorism training curriculum may prove difficult. It is vital that all potential sources of funding, including grants, are fully explored. In addition, the development of an exportable package that could be distributed to dental schools and used to train dental students should be considered. While such an endeavor would entail significant resources, the overall expense would likely remain significantly lower than if each dental school designs and implements its own terrorism curriculum. In addition, such a collaborative effort may enable the procurement of resources not available to individual institutions.

If dentists are to play a significant role in response to bioterrorism, dental schools have a major obligation in preparing future dentists to fulfill appropriately this responsibility. Dental schools should train all students in a core set of competencies related to bioterrorism and provide additional opportunities for further education.

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REFERENCE

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