



## Role of dentist in disaster management- A review

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### Abstract

Disaster management deals primarily with resource and information management towards a catastrophic event and is evaluated by how quickly, effectively and smoothly one manages these resources. The ability to handle disasters efficiently has become a problem for the modern technology. Dentists may not be the first group that springs to mind when thinking about homeland security. But, in fact, general dentists already have many of the skills necessary to play a crucial role-from surveillance and education, to emergency response.

**Keywords:** Disaster management, dentists, surveillance and education

### Introduction

Dentists may not be the first group that springs to mind when thinking about homeland security. But, in fact, general dentists already have many of the skills necessary to play a crucial role-from surveillance and education, to emergency response. Generation of mass casualties by major incidents or a significant bioterrorism attack and a basic life saving response by the existing medical care systems becomes nearly impossible. The current geopolitical environment makes such a scenario entirely possible – some say inevitable<sup>[1]</sup>.

Professionals preparing and coordinating emergency responses may reach out to others that have resources to contribute to the effort to respond but are not specifically connected to medical response (e.g. hospital staff). Such classes include dentists and dental workers<sup>[2]</sup>. Dentistry has played a well-recognized role for a long time in participating in the recovery of mass casualty incidents, such as natural disasters, explosions, injuries, and in the forensic identification of victims where it is not possible to create identity by traditional means. After intentional attempts to spread *Bacillus anthracis* spores via U.S. mail in 2001, ADA conducted two seminars to decide how dentistry can be best equipped to respond<sup>[3]</sup>.

### How can dentists help?

Dentists can participate and enable crisis managers to use scarce physician resources in the most effective manner by having some services that would be successfully provided by dentists. Some assigned duties do not tax dentists' knowledge or experience (dispensing medications/immunizations) where as others may require additional training or some supervision (providing basic care in quarantine situation)<sup>[2]</sup>.

### Surveillance

Since they are spread around the community as well as the general public, dentists may be part of an efficient surveillance network. Patients visit dentists who are generally medically healthy and have not shown a physician<sup>[2]</sup>. Observation of intraoral or cutaneous lesions, or both, if present, can promote the early detection of bioterrorism

attacks or the spread of pandemic infection by notifying public health authorities of such observations. Early detection of an infectious agent in the population by prompt initiation of preventive and therapeutic intervention could permit a reduction in the number of casualties<sup>[4]</sup>.

### Referral of patients

Patients who show early signs and symptoms of infectious disease or have suspicious cutaneous lesions should be referred to physician for a definite diagnosis and appropriate treatment<sup>[5]</sup>. Referral is important because early treatment or early initiation of prophylaxis can have a significant outcome of patients encounter with disease. The clinical course of small pox for eg – can be ameliorated by vaccination even after patient has been injected<sup>[3]</sup>.

### Diagnosis and monitoring

After infectious disease-causing mass casualty has been identified dentists who are able to recognize signs and symptoms of that disease may be able to identify afflicted patients. Dentists can collect salivary samples, nasal swabs, other specimens needing lab processing which can yield valuable diagnostic information and indication of process of treatment including status of patient's infectiousness<sup>[2, 5]</sup>.

### Triage

A system must be established to prioritize treatment among casualties in an effective response to any mass casualty event, as immediate treatment for all casualties is not possible because of insufficient personnel, facility and medical supply resources. With very little extra preparation, dentists are able to assist in this vital role. This encourages physicians to provide specific care rather than screening casualties for patients most desperately in need. If required, dental offices could serve as triage centers.

### Immunizations

In order to reduce the spread of infectious agents, whether from a natural pandemic, intentional attack by bioterrorism or contamination from a local case, rapid immunization of a large number of people might be mandatory in a short time. Dentists will engage with limited training in mass

immunization program and may be a key factor in the success of the urgent program. To decrease the concentration of highly infected patients, dental offices may be used as immunization centres <sup>[2]</sup>.

### Role in forensic odontology

In almost all mass disasters, whether natural, accidental or intentional, forensic dentistry continues to be a crucial element. Based on the list of missing persons, dentists collect ante mortem data on the occurrence of the tragedy and then equate the remains to the ante mortem data. Overlays have traditionally been used even before 1980 in many disaster situations <sup>[1, 2]</sup>.

### Legal and licensure issues

Mass casualties do not respect political boundaries. In case of declared emergencies dentists should cross state lines to render care without concern for geographical limitation <sup>[2, 4]</sup>.

### Forensic odontology

Forensic odontology has been defined as that branch of dentistry which, in the interest of justice, deals with the proper handling and examination of dental evidence and with the proper evaluation and presentation of dental findings. In the human identification in major disasters (aircraft, earthquakes, tsunamis), in the identification of violence, in ethnic studies, and in the recognizing of mummified and deformed bodies, such as drowned people, victims of fire and incidents involving motor vehicles, forensic dentistry has played an important role. In forensic odontology, rugoscopy, cheiloscopy, bite marks, tooth prints, radiographs, photographic and molecular tests are the various methods used <sup>[6, 7, 8]</sup>.

### Conclusion

In preventive oral health care, dentists are generally regarded as pioneers. Education, risk communication, diagnosis, monitoring and warning, care, delivery of drugs, decontamination, sample collection and forensic dentistry are theoretically included in the services offered by dentists. General dentists were called upon to engage in the creation and incorporation into a regional mass disaster response plan of a dental response to bioterrorist attacks; and to establish training program to train dentists to provide services that they can be recruited to conduct in an emergency. We therefore strongly recommend that a high priority be put on providing the information and training required for these professionals to enhance their ability to respond effectively to such events <sup>[2]</sup>.

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