

**Potential role of dental professionals in mass casualty & disaster events**Dr. Swati Dahiya\*<sup>1</sup>, Dr. Taranpreet Kaur<sup>2</sup>, Dr. Ankit Srivastava<sup>3</sup><sup>1,2</sup>MDS (Oral Medicine & Radiology)<sup>3</sup>Senior lecturer, Department of Oral Medicine & Radiology, Malla Reddy Dental College for women Hyderabad, Telangana, India**Review Article****\*Corresponding author***Dr. Swati Dahiya***Article History***Received: 23.11.2017**Accepted: 27.11.2017**Published: 30.11.2017***DOI:**

10.21276/sjds.2017.4.11.11

**Abstract:** The number of reported natural and human-made disasters continues to rise worldwide. Although traditional emergency medical services center around medically trained and paramedic personnel, dental practitioners have many skills and attributes that are of vital importance in responding to a mass casualty situation. The present article highlights various aspects in which the dental professionals can play in a major public health disaster.**Keywords:** Casualty, Emergency, Triage**INTRODUCTION**

Mass casualty situations arise in the most unpredictable manner – multi-vehicle motor accidents, industrial accidents, natural disaster and terrorist attack being examples where large numbers of casualties may arise with injuries of varying degrees of severity. Professionals who plan and manage emergency responses must reach out to groups that have assets to contribute to the response effort but are not intrinsically tied to the medical response (eg, hospital personnel). Dentists and dental staff are examples of such groups. Dentists are exposed to information in many general medical areas during their predoctoral education that can be useful in disaster response situations. They also routinely perform many tasks that emergency responders may be required to do, such as perform minor surgery, dispense drugs, give injections, and administer anesthesia. It should be apparent from this description that dentistry has much to contribute to the response to a major disaster in terms of personnel and facilities when the traditional medical care system in an area is overwhelmed [1].

**Dental professionals can prove to be helpful during a major public health disaster in the following ways:****Surveillance**

Some mass casualty events are distinct entities easily recognized and of easily defined duration and effect on a population (eg, a severe weather event). Other disasters, particularly bioterrorism attacks and pandemics, often have relatively indistinguishable beginnings and ends and unpredictable effects on a population. Dentists can be part of an effective surveillance network because they are scattered throughout a community much as the general population is and are visited by patients who are generally medically healthy and have not seen a physician. Observation of intraoral or cutaneous lesions or both when they are present and the notification of public health authorities about these observations may facilitate the early detection of a bioterrorism attack or spread of a pandemic infection. Early detection of an infectious agent in a population may allow for reduction in the number of casualties by prompt initiation of preventive and therapeutic intervention [1].

**Supporting other Health Professionals**

Dentists and their dental auxiliaries can augment the existing medical professionals, in responding to a declared medical emergency. When the local medical resources are unable to cope adequately with huge number of victims, dentist can be recruited to provide certain services that will allow physicians to do things only they can do. Dentists can enhance the surge capacity of the local medical system until additional physicians arrive or demand for immediate care decreases [1].

**Dental Offices acting as Medical Sites**

Dental offices are equipped with potentially useful equipment and supplies and should be prepared to serve as decentralized auxiliary hospitals in case the need arises [2]. Further, dental offices equipped with air and suction lines, x-ray equipment and sterilizing capability, can be used as self-contained alternate medical sites if hospitals are under attack or are unsafe because of widespread infection associated with biological weapons [3]. There is a need to marshal all available resources in response to a disaster of great

magnitude if losses and disruption of everyday life are to be minimized and recovery facilitated [1].

### **Referral of patients**

Patients who show early signs or symptoms of infectious diseases, have suspicious cutaneous lesions, or are suspected of having such diseases may be referred to a physician for a definitive diagnosis and appropriate treatment, if necessary. This referral may be important because early treatment or early initiation of prophylaxis can have a significant influence on the outcome of the patient's encounter with the disease. The clinical course of smallpox, for example, can be ameliorated by vaccination even after the patient has been infected [1].

### **Triage**

Triage is derived from the French, meaning to sort out, and can be applied to various situations ranging from everyday triage of emergency department patients to large scale disasters. Triage is a way of categorising patients in the order of severity of their injuries, with the underlying principles being to accomplish the greatest good for the greatest number of casualties and to make the most efficient use of available resources [4]. Dentists are able to assist in this important function with relatively little additional training. This assistance allows physicians to provide definitive care for patients most urgently in need rather than screening casualties. Dental offices could serve as triage centers if needed [51].

### **First Aid**

This is an area that is not generally covered in either medical or dental curricula, basic first aid skills such as bandaging and splinting having been replaced by more academic pursuits. These skills must be taught and demonstrated in order to maximise their potential of haemorrhage control and prevention of further injury. It would be advisable for interested civilian individuals to seek further training with the local ambulance service or Red Cross, and for military dental personnel to seek from their medic counterparts further training and skill reinforcement [4].

### **Airway management**

General dentists should be familiar with airway management from a basic life support aspect using head tilt, chin lift and jaw thrust maneuvers to open and maintain an airway, especially in the unconscious or obtunded patient. Bear in mind however, cervical spine injuries may be present and clinical suspicion should be high in certain scenarios where sudden force or impact around the head and neck region may have occurred. For those with further training, useful adjuncts such as oropharyngeal airways may be used [4].

### **Surgical assistance**

This may range from simple suturing and wound toilet to assisting a surgeon in an operating theatre environment. Dentists will be familiar with blood and basic surgical techniques of asepsis, instrument handling and the handling of tissue. However, these skills may need to be applied to different areas of the body, for example having to assist in the reduction of a lower limb fracture or an exploratory laparotomy. Surgical skills of a general nature that can be performed by general dentists would include wound toilet, removal of foreign objects such as glass or metal, wound debridement, simple suturing (including other parts of the body where access is much greater than that offered by the oral cavity) and wound dressing and post-operative aftercare. Dental professionals with further training especially in intravenous sedation would have an advantage and be an asset in terms of airway management and placement of intravenous lines [4].

### **Immunizations**

To limit the spread of infectious agents, whether from a natural pandemic, a deliberate bioterrorism attack, or contamination as a result of a local event, rapid immunization of great numbers of individuals may be required in a short amount of time. Dentists can participate in mass immunization programs with a minimum of additional training and may be the critical factor in the success of urgent programs [5]. Dental offices can be used as immunization sites to minimize the concentration of potentially infected persons [1].

### **Medications**

In mass casualty situations, particularly after a bioterrorism attack or the unfolding of a pandemic infection, the population may require medication to treat or prevent the manifestation of the infection being faced. Physicians, nurses, and pharmacists may not be able to effectively prescribe or dispense the medications necessary in the critical, appropriate time required. Dentists can be called on to prescribe and dispense the medications required after that determination has been made by the physicians and public health officials managing the disease outbreak [5].

### **Infection control**

Dentists and dental auxiliaries practice sound infection control procedures in their offices on a daily basis. They are well versed and well practiced in infection control and can bring their expertise to mass casualty situations, particularly situations that involve infectious agents, to limit the spread of infection among individuals and between patients and responders who are rendering assistance. Decontamination of casualties from certain bioterrorism attacks in which contact with patients' clothing or skin surfaces may spread the agent to caregivers may be accomplished by dentists with some additional training [1].

### Forensic Assistance

Forensic odontology continues to be a crucial element in nearly all mass disasters whether natural, accidental, or intentional. Dental identifications have always played a key role in victim identification during natural and manmade disaster situations and in particular mass casualties normally associated with aviation disasters [5].

### Emergency Psychotherapy

People in a disaster area are subjected to unusual psychological stresses. These persons will exhibit behavior of several types that will not only render them incapable of caring for themselves or helping others, but will impede rescue efforts and care of casualties. Some people will be hyperactive and will interfere with emergency activities; some will be docile and apathetic and wander aimlessly about in a stunned condition; some will spread rumor, despair and fear, and some will become confused and disorganized. These states last only temporarily and are usually gone within a few days, but they severely complicate the casualty care problem within the emergency period of the first 48 hours. Much valuable aid can be rendered in this emergency psychotherapy by dentists who have been trained in the recognition and supervision of the care of these patients. Dentists are highly competent and experienced in the management of persons who are apprehensive and emotionally upset, as they encounter them frequently to some degree in their normal practice of dentistry. Most dentists are very adept at allaying apprehension, and in the face of a severe shortage of psychologists and psychiatrists in a disaster situation, they could be used to great advantage [6].

### CONCLUSION

Dentistry has valuable assets in a mass casualty event, particularly one that results from the spread of disease through the population. The dental profession and emergency response communities should work together to maximize the effectiveness of dentistry's contribution and prepare the dental community to be effective responders.

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