Disaster Management Community

Solution Exchange for the Disaster Management Community
Consolidated Reply

Query: Mass Casualty Management - Experiences

Compiled by G. Padmanabhan, Resource Person and Nupur Arora, Research Associate
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From Deepa Prasad, United Nations Development Programme, Bhubaneswar

Posted 11 November 2007

There has been an escalation of Mass Casualty Incidents as a result of natural and human induced emergencies disasters, often resulting in public health emergencies. While its possible to forecast cyclones and some other natural hazards, there is no system to forecast occurrence of earthquakes. Such events for which advance warning is not possible make handling of Mass Casualties very challenging.

The Hyderabad blasts (26th August 2007), serial blasts in suburban trains of Mumbai (11th July 2006), serial attacks in Srinagar, bomb blasts in Varanasi (7th March 2006) and New Delhi (29th October 2005) are some of the evidences of rising incidence of terror attacks in our country. Such instances have brought to fore the limitations of Emergency Medical Response Systems and networks.

Loss of lives can be limited if there are organized systems in place that can be scalable during crisis. This system depends on the availability and coordination of different elements, ranging from pre-hospital (information, communication, network of ambulance services, police, fire, etc.) to hospital care.

I request members to share their experiences on:

- Existing Mass Casualty Management systems at the city level
- How can we ensure better management of mass casualty incidents for cities in general and hospitals in particular
- Challenges to implementation and functioning of such systems, particularly on issues of funding, system access, capacity building, personnel, sustainability, governance and medical control
- Procedures and protocols outlined for involvement of private sector - public private partnerships in the field

As a part of the GoI-UNDP Disaster Risk Management Programme we propose to facilitate preparation of plans for handling mass causality in select urban areas. Experiences and views of the members of this community would be of immense help in supporting city and state authorities in the preparation of such plans. Looking forward to your valuable experiences and responses.

Responses were received, with thanks, from

1. **H. S. Sharma, Independent Consultant, Gurgaon**
2. **Sushil Gupta, Risk Management Solutions Internationals (RMSI), Noida**
3. **Aparimita Pramanik, Mudra Institute of Communications Research (MICORE), Ahmedabad**
4. **Rudra Prasanna Rath, Orissa State Disaster Management Authority, Keonjhar**
5. **H. S. Brahma, National Disaster Management Authority, New Delhi**
6. **Chaitali Dave, GoI-UNDP Disaster Risk Management Programme, New Delhi**
7. **V. R. Raghavan, Satyam Foundation, Hyderabad (Response1; Response 2)**
8. **Arun Sahdeo, Consultant for National Institute of Disaster Management, New Delhi**
9. **Mrityunjai Kumar, Indian Council of Medical Research (ICMR), New Delhi**
10. **Deepa Prasad 1, United Nations Development Programme, Bhubaneswar**
11. **Amit Sharma, International Federation of Red Cross and Red Crescent Societies (IFRC), New Delhi**
12. **J. R. Bhardwaj, National Disaster Management Authority, New Delhi**
13. **Ravishwar Sinha, Independent Consultant, New Delhi**

Further contributions are welcome!

Summary of Responses

Responding to the query on Mass Casualty Management, members appreciated the initiative bringing up the issue, and shared their experiences, provided useful suggestions to ensure better management of mass casualty incidents, and discussed challenges to the implementation and functioning of such systems.

Respondents pointed out the approach to mass casualty management must differ according to the type of disaster. For natural disasters, the management will be different from disasters caused by human actions. Further, they mentioned that within natural disaster the approach, the strategies for dealing with a situation like the 2004 Tsunami would differ from other natural disasters such as cyclones, earthquakes or floods.

Members shared examples of mass casualty management systems highlighting the importance of preparedness measures and teamwork. In the **United Kingdom**, during the Cold War, the government provided Iodine tablets as a preventative measure against nuclear radiation. Discussants shared an experience from **Tamil Nadu** following the 2004 Tsunami where the government, NGOs, individuals and corporations worked together to care for the numerous deaths.

Respondents also stressed the need to impart training and education to communities to reduce casualty rates during disasters. They mentioned an organization in the United States, the Community Emergency Response Team (CERT), which trains communities on disaster preparedness for hazards that may affect their local area and trains them in basic disaster response. In **Turkey**, another program, the Community Disaster Volunteer Training Program (CDV), trains volunteers on a number of life saving skills. Respondents suggested organizing these types of trainings that focus on imparting emergency management skills, including how to run an Incident Command System and manage Emergency

Response Functions along with basic management skills and specialized training on search and rescue, first aid, etc.

Citing the above experiences, members outlined several recommendations to strengthen Mass Casualty Mechanisms in India. They felt that merely facilitating the preparation of plans for handling mass causality situation is not enough; government and responsible organizations must strictly **implement these plans** during crises. Regarding the institutional set up for mass casualty management, discussants underscored the need to **sensitize all stakeholders** including district, state and central level administration.

Additionally, respondents discussed the existing public health systems in cities, noting that for efficient mass casualty management, public and private hospitals along with the entire medical fraternity and general public citizen need to be involved in managing casualties during emergencies. Moreover, they felt **strengthening public heath systems** would contribute towards effective mass casualty management.

Highlighting the issue of coordination, members felt **successful partnerships and coordination** among law enforcement, fire, emergency, medical services, emergency management, environmental protection departments, and the medical community are necessary in order to successfully manage casualties in non-emergency and emergency situations.

Respondents also emphasized the importance of **preparedness** for effective handling of casualties during emergencies and suggested that cities, particularly metros and areas vulnerable to natural disasters, map resources available, such as the number of doctors, hospitals, ambulances, medical stores, volunteers and para-medics staff.

Discussants outlined the need to bring about **attitudinal changes** regarding mass casualty management systems, as well; arguing willingness to change the system to make it more effective. This change would require channeling of resources, like providing greater financial support from the government and private sector for improving.

In addition, members listed the following **things to do** before and during emergencies to improve Mass Casualty Management Systems**.** Before an emergency, authorities need to:

- Ensure medical first aid kits are present in all public utility vehicles
- Orientate conductors, drivers as well as managers of private and public vehicles to deal with emergencies
- Earmark one safe place in a city, preferably a less crowded area with good connectivity, to open a help line, these centres can be served as emergency operation centres within one municipality

Then after a disaster, the authorities need to:

- Restore communication system and electricity as soon as possible
- Dispose of the dead as soon as possible to prevent the spread of disease
- Provide first aid to the injured
- Take steps to control water born diseases, like cholera and diarrhea
- Involve foot path dwellers, beggars, commercial sex workers, road side dhaba (small eating joints) owners in the relief and rescue operations

Finally, respondents shared various **challenges when trying to implement and run** such complex institutional mechanisms at the state level, due to the lack of coordination between various authorities and departments and no single line of command to respond to casualties during disasters. They also pointed out the absence of Standard Operating Procedures, which are necessary for managing casualties. Another challenge mentioned was poor communication between stakeholders and the authorities, hindering management of casualties. Along with the above, discussants felt crowd control mechanisms along with traffic and hospital management are other areas requiring serious attention.

Overall, members felt there is an urgent need to address the issue of mass casualty mamagement, especially in the urban context, and mentioned that this calls for insightful planning and considerable logistic exercises at all levels.

Comparative Experiences

Tamil Nadu

Teamwork is the Key to Disaster Response, Nagapattinam District *(from Aparimita Pramanik, MICORE, Ahmedabad)*
After the 2004 Tsunami, the government, NGOs, committed individuals, and corporations worked together to care for those injured by the disaster. The district collector actively ensured cooperation and was one of the few officers to reach the devastated areas within hours, helping with relief materials, disposing of the dead and providing assistance to thousands of people. Teamwork and proper coordination amongst all the stakeholders helped to effectively manage of massive number of casualties.

International

United Kingdom

Preventing Casualties during Nuclear Disaster *(from H. S. Sharma, Independent Consultant, Gurgaon)*
As a precaution, during the Cold War (late 1940s to early 1990s), the British government provided its citiziens Iodine tablets. As a result of the irraditation from a nuclear explosion, Iodine-131 isotope which the human body normally produces and absorbs can cause cancer; hence the first precaution is to take an iodine tablet to saturate the Thyroxine producing thyride gland. Provding prevenative iodine tables, ensured communities were prepared in case of a nuclear disaster.

From Chaitali Dave, GoI-UNDP Disaster Risk Management Programme, New Delhi

United States of America

Training Communities to Manage Casualties
Under the Community Emergency Response Team (CERT) Program communities are educated about disaster preparedness on the local hazards in their area. The program trains community members on basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. Once trained, community member are prepared to assist in the case of a disaster, if professional responders are not immediately available to help. Read more

Turkey

Training Community Disaster Volunteers, Istanbul
Under the Community Disaster Volunteer Training Program, volunteers are trained and organised to enable them to effectively respond during disasters. The volunteers develope life-saving first aid skills, learn how to do non-medical triage, educated on post-disaster public hygiene, how to provide psychological first aid, along with how to do light search/rescue and building triage. Read more

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Related Resources

Recommended Documentation

Teamwork is Key to Disaster Response *(from Aparimita Pramanik, MICORE, Ahmedabad))*
Newsletter; by Mr. J. Radhakrishnan; District Collector, Nagapattinam District, Tamil Nadu; SPAN; 2005
Available at http://usembassy.state.gov/posts/in1/wwwfspnovdec051.pdf (PDF Size: 1.59 MB)

Highlights importance of teamwork and mentions how the district administration and community worked together to effectively manage the mass casualties caused by the 2004 Tsunami.

Hospital Contingency Plan *(from V. R. Raghavan, Satyam Foundation, Hyderabad; response X)*
Plan; World Health Organization (WH); Revised in 2005
Available at http://www.whoindia.org/EN/section33/section34/section38.htm

WHO India's detailed Hospital Contingency Plan designed to effectively handle emergencies and mass casualties caused by disasters.

National Disaster Management Guidelines - Medical Preparedness and Mass Casualty Management (*from Deepa Prasad, United Nations Development Programme, Bhubaneswar and J. R. Bhardwaj, National Disaster Management Authority, New Delhi)*
Guidelines; National Disaster Management Authority (NDMA); New Delhi; 2007; Permission Required: Yes, Contact NDMA to get a copy)
Available at http://pib.nic.in/release/release.asp?relid=32654

Press release on the guidelines prepared by NDMA to manage public health emergencies with mass casualties in the country

Recommended Contacts and Experts

Haley Rich, West High School Citizen Corps Council, USA *(from Chaitali Dave, GoI-UNDP Disaster Risk Management Programme, New Delhi*)
858 W. Cambria Drive, Pueblo, Colorado 81007 USA;

Has done impressive work on training of teenagers to practice responding to multiple casualty scenarios under School Emergency Response Training Programmes

Recommended Organizations and Programmes

From Chaitali Dave, GoI-UNDP Disaster Risk Management Programme, New Delhi

The Community Emergency Response Team (CERT) Program, United States of America
cert@dhs.gov; https://www.citizencorps.gov/cert/index.shtm

Educates people about disaster preparedness and trains them in disaster response skills like fire safety, light search and rescue, team organization, and disaster medical operations

Community Disaster Volunteer Training Program (CDV), Turkey
Tel: 90-216-308-64-72; Fax: 90-216-332-32-11; ahep@boun.edu.tr;
http://www.ahep.org/ev/egitim5_0e.htm#

Trains community volunteers on life-saving skills, non-medical triage, public hygiene, psychological first aid, light search & rescue and building triage

Centralized Accident and Trauma Services (CATS), New Delhi *(from Mrityunjai Kumar, Indian Council of Medical Research, New Delhi)*
Deen Dayal Upadhya Hospital, Hari Nagar, New Delhi; Tel: 1099; cats@del2.vsnl.net.in; http://www.linkindia.com/cats-delhi

Provides first-aid and quick, safe transportation for patients to hospitals in coordination with other organisation such as Delhi police and fire service during emergencies

Association of Health and Hospital Administrators, Hyderabad *(from V. R. Raghavan, Satyam Foundation, Hyderabad; response 1)*
Contact Prof. (Col) Dayakar;

Works on health and hospital related issues and has started working on issues related to Mass Casualty Management, which was taken up at its Annual Conference

National Disaster Management Authority (NDMA), New Delhi *(from Nupur Arora, Research Associate)*
Centaur Hotel, Near IGI Airport, New Delhi 110037; Tel: 25655012; www.ndma.gov.in

Authority has issued guidelines for Medical Preparedness and Mass Casualty management and has constituted various committees to tackle the problem.

Related Consolidated Replies

Improving Preparedness and Community Participation, from N. C. Vij, National Disaster Management Authority, Government of India, New Delhi (Experiences) Disaster Management Community. Issued 29 May 2007
Available at http://www.solutionexchange-un.net.in/drm/cr/cr-se-drm-29050701-public.pdf (PDF Size: 311 KB)

Shares experiences for improving preparedness and community participation levels for efficient management of disasters

Ensuring Coordinated Response during Emergencies, from Anshu Sharma, SEEDS, New Delhi (Advice) Disaster Management Community. Issued 1 August 2007
Available at http://www.solutionexchange-un.net.in/drm/cr/cr-se-drm-01080701-public.pdf (PDF Size: 113 KB)

Seeks advice and references to ensure structured emergency response coordination, also highlights role of coordination networks to ensure effective coordination during disasters

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Responses in Full

H. S. Sharma, Independent Consultant, Gurgaon
I want to sensitise the disaster management community about a hidden danger of Giant proportion, which would surpass even Bhopal gas disaster by many times more in death statistics. Three hundred thousand died in Bhopal and continue to die this day. I am talking of nuclear disaster in NARORA NUCLEAR POWER Plant built against all advice on MORADABAD FAULT line. No action has been taken till date nobody knows where iodine tablets are stored. I lived in U.K. during cold war times and every citizen knew in which house Iodine tablets are stored. During nuclear disaster the iodine-131 isotope is produced and absorbed in human system causing cancer by irradiation, hence the first precaution is to gulp iodine tablet to saturate the Thyroxine producing thyroid gland.

According to me this will the first step towards avoiding mass casualty or ensuring Mass Casualty Management in case of an emergency.

Sushil Gupta, Risk Management Solutions Internationals (RMSI), Noida
I agree with Deepa to address the problem of Mass Casualty Management. However, mere facilitating the "preparation of plans for handling mass causality in select urban areas" is not enough.

I believe, there are enough guidelines/ plans with State Authorities/ Central Government and resources such as "Rapid Action Forces", Emergency Disaster management Plans for Earthquakes, Floods, Cyclone, Chemical Disasters etc. in one or other form may not be specific title of "Mass Casualty Movement".

What is important is implementation of these plans and practical results at the time of crisis. Time and again these failed. That does not mean that we should not move ahead. We should take lessons from past and correct our mistakes.

An effective implementation will only come when concerned authorities are made responsible for the failure and serious efforts are made in this direction. "Terrorism" is a big challenge to society at large and need to be studied and understood in detail to curb it.

I request, other members to present their views on the topic as I believe, it is really an important topic which needs serious attention of one and all.

Aparimita Pramanik, Mudra Institute of Communications Research (MICORE), Ahmedabad

Mass casualty management will differ according to the type of disaster. For natural disaster the management will be different than that of caused by Human being. Further within natural disaster the approach for Tsunami will differ from Super Cyclone or Earth Quake or Flood. The response differs and therefore efforts should be made to find a standardised one. I will share my own inputs for disasters like Tsunami and Super Cyclone as they share some commonality. When such incidence occurs efforts should be made to:

- Mobilise resources like money, food, clothes, medicine and people to reach the affected areas as soon as possible
- Restore communication system first being the telephone. It should be supplemented by Electricity
- Dead should be disposed as soon as possible to prevent spread of disease
- Fist AID to the injured
- Steps needed to control Water born diseases like cholera, diarrhea.

Who will do this? Managing such disaster is not possible with an individual efforts. Teamwork is key to Disaster Response as revealed by J. Radhakrishnan one of the I.A.S. Officer deputed as Collector of Nagapattinam District of Tamil Nadu that was affected much by Tsunami of 2004. (Life after the Tsunami, SPAN, November-December-2005). Government, NGOs, committed individuals, Corporate has to work together to reduce mass casualty caused by natural disaster. This may be equally applicable for other disaster discussed by you.

One of the very important initiative in this connection has bee n taken in our country by setting up Emergency Management and Research Institute (EMRI) having a toll free number-108.During disaster any one can dial this number and seek help.

Rudra Prasanna Rath, Orissa State Disaster Management Authority, Keonjhar

I am fully agree with Deepa's Concern for the management of Mass causality involved disasters. I believe following few things may be done for the quick management of the situation:

- Ensuring Medical fast aid kits in all Public utility vehicle even though there is provision for the same but no one really bothers about same.
- Imparting training to the conductors, drivers as well as mangers of these vehicles to deal with emergency situations that come out of such disasters.
- Involve footpath dwellers, beggars, prostitutes, roadside dhaba owners in the disaster management drive.
- Earmark one safe place of the city (preferably less crowded but good connectivity) in each city and open one help line. These centres can be served as emergency operation centres within one municipality

- Map the isolated buildings, buildings where the owners are not staying in the area and check them on a routine basis to ensure such nuisance things are not happening

The list of suggestions can go along way but the important thing is there should not be shortage of resources and technical manpower for the purpose of the same. Any one interested can go through the above suggestions and I would be happy to receive feedbacks.

H. S. Brahma, National Disaster Management Authority (NDMA), New Delhi
The comments and suggestion of the member is fine and noted. We will have to sensitise all our partners at every levels, ire right from District administration to state and finally to the central level. This has to be done by all.

Chaitali Dave, GoI-UNDP Disaster Risk Management Programme, New Delhi
Haley Rich in Pueblo, Colorado, USA has done impressive work in voluntarily educating high school students about emergency response based on the USA's Community Emergency Response Teams (CERTs). You may see the following link: https://www.citizencorps.gov/cert. For a similar program in Turkey see http://www.ahep.org/ev/egitim5_0e.htm , she developed Teen SERT/CERT for teenagers to practice responding to multiple casualty scenarios. SERT stands for School Emergency Response Training.

The multiple casualty exercises are held with adults watching and taking notes and photos. That is, only the teenagers are involved in the incident command and emergency management and as casualties. So if an emergency happens and no adults can assist, the teenagers have experience of managing the situation without any outside assistance. After each exercise, full debriefings are held with adults.

V. R. Raghavan, Satyam Foundation, Hyderabad *(response 1)*
I should thank the moderator and the members to initiate back to back query on the interesting subject of mass casualty management. I bring back to the members attention of the discussion we had on coordination for disaster management, which is also associates with this query.

I try to bring forth my little experience of working in this sector and observations made from various mass casualty incidents including what Deepa quoted of Hyderabad blasts. We at Satyam Foundation are undertaken a study on mass casualty incident management of two incidents occurred in August and September of this year. The study report is yet to make public but I try to share some of the issues emerging from the study for members to review and use. Once, the report is out, I can share it across with the members.

Institutional Framework
There are two types of mechanism we can see in the country on mass casualty incident management, even though there are different acronyms for this in practice. One, in rural set up, where the incident management is entirely under the revenue officials headed by District Collector/Deputy Commissioner/ District Magistrate. The state level process is generally headed by the Chief Secretary but more day to day function by Relief Commissioner under Revenue Ministry. This is more or less same in all states. In comparison, in major urban centres, there is no such mechanisms and is all based on the type of incidents.

For earthquake, floods and epidemic it is mostly the Municipal authorities, fire accidents it is fire department and communal violence, bomb blasts and accidents it is mostly the police held incident command. Thus by default these agencies manage rather than any predetermined framework. The absence of who takes up as incident command management is still unresolved issue in metros and major

cities. Thus, one can find lack of proper coordination in urban mass casualty incident management in comparison to rural administration set up.

Lack of any Standard Operating Procedures

In the country from my experience of working on coordination at different levels, I find that there are some type of contingency planning and standard operating procedures laid down on paper at least for floods, cyclones, fire accidents, earth quakes. These are mostly under the single command control of the District Collector of the particular district, but still there are huge gaps in the understanding of roles and responsibilities of each player and person. Where as in Urban and Cities, there is no standard operating procedures laid down and mostly it is the departmental protocols which are used for day to day work prevail even during emergencies.

Poor Communication

With lack of unified command system or incident management, the most of the urban incidents were mostly come into view only through mass media. there are always different stories from different stakeholders and each contradicts other information. No one is clear about the time of incident and who should provide alert. there are some positive from Hyderabad blasts, is that people could able to call 108: a government of AP initiative under Public Private Partnership with Corporate IT giant Satyam. this emergency help line could able to communicate to all three major stakeholders, the police, fire and hospitals about the incident and its emergency ambulance reach out at the site of incident for transferring victims and injured to hospitals.

Site Management

None of the staff on duty trained on basic emergency response, at various public places. The first responders are the general public and the private security staff in park. All the first responders lack formal training in emergency response and CPR & First aid

There is no concept of primary survey and secondary survey. This is to ensure that initial assessment of site of incident is to look out for any imminent dangers and second is to response to be given in danger zone based on objective assessment that not all the first responders are exposed to danger at the same time. It was seen that more than two hundred people are in the primary zone of the bomb incident in Lumbini Park with all politicians, police, media and other VIPs at the site of the incident.

There is very little crowd control this includes onlookers, politicians and their followers and huge contingent of media

Traffic Management

No traffic management system in place for Mass casualty incident response and there is no plan of evacuation and diverting vehicular flow. There is very little consciousness among the general public to make way for ambulances and emergency vehicles.

Most of the emergency vehicles are inadequately equipped to deal with mass casualty incidents.

Hospitals, Fire, Police, Public works department, Electricity department all lack infrastructure to support and deal in case of mass casualty incidents in urban areas

Hospital Management

Most of the state run hospitals have rarely encountered huge mass casualty in recent past and thus are not equipped or prepared. More over there are very inherent problems in these hospitals. Most of the specialists were put on to duty other than medical care of patients but to take care of Very VIPs visiting the state or at demonstration site/hunger strike places/ at assembly in anticipation of some incident. thus, a very good team of doctors and support staff are always out side the hospital.

There is no hospital based emergency management plans exist even in private hospitals. In most of the hospitals there is no trauma care centres. In general practices, people rush to hospitals nearer to them and find that there is neither equipment nor facilities for treating emergency medical care.

There is no communication to victims or their relatives on the inventory of hospitals which can cater to treat people hurt during blasts or burns.

No hospital carried out emergency drills or simulation exercise to carryout medical care at the time of emergencies. Aftermath of Mumbai blasts, Delhi blasts, even after Mecca Masjid blasts, one could have anticipated these type of emergencies in major cities, thus get prepared for such eventualities.

There was an incident narrated on the procedures to be followed to get drugs for treating patients. There is need to review the procedures to be followed in both private and government hospitals on procurement and issue of medicines and equipments at the time of emergency.

The differential attitude of visitors to Mecca Masjid and emergency wards clearly show that there is very little care and ethics followed. There is need for awareness on dos and don'ts for all including politicians, media and other VIPs.

We are yet to evolve strategy on Mass Casualty Management in the state. Hopefully, with UNDP and other agencies showing interest, there will be lots of decks will be cleared for Mass Casualty Management institutionalizing. Once, again, it is the political will of the government and general civic sense (policy and practice) which are key for Mass Casualty Management.

Arun Sahdeo, Consultant for National Institute of Disaster Management, New Delhi

I would like to say that the existing Mass Casualty Management System at city levels in our country is still not geared up. Even city like Delhi the basic Public Health System is highly stretched and overburdened. The System is somehow able to cope with the day to day requirements. But when it comes to handling mass casualty I think the public health system is completely caught off guard. The reason is we have not planned and executed Mass Casualty Management Plans for one reason or the other. Recently the Government has initiated a Course on Hospital Preparedness for meeting this requirement but it has to go a long way. The burdensome routine affairs, resource crunch and lack of appreciation and sensitivity among the decision makers seems to be holding the system back. For an efficient Mass Casualty Management, we need to prepare not only all Hospitals whether private or public but the entire Medical Fraternity in particular and citizen in general. There has to be a legal backup supported by institutional arrangements at city levels. Capacity building, training and awareness generation may go a long way in institutionalizing mass casualty, management in the long run.

Willingness to bring a change in the System would be most important aspect. Bringing attitudinal change is the biggest challenge. The resources including budgetary support from government, public corporations and private and corporate sector would follow for the noble cause as it deals with precious human lives. The training of all stakeholders including medical practitioners would be of critical importance. The existing curricula must include mass casualty management as one of the subjects. There should be periodical orientation and refresher training. The SOPs and Protocols may be laid out at micro level and periodically rehearsed. The entire process should be blended in the existing Public Health System to make it sustainable.

Mrityunjai Kumar, Indian Council of Medical Research (ICMR), New Delhi

The need to address the mass casualty as a priority agenda calls for an insightful planning and considerable logistics exercise as well as culture of preparedness. Although various measures are already

in place and regulatory environment is becoming conducive to effective implementation, however, a lot needs to be done.

I studied the response timings of the Centralised Accidents Trauma Services (CATS) units in the event of any mass casualty event keeping the Commonwealth games sites in consideration in a GIS environment and the results showed a definite gap in the deployment scenario. If the CATS units, which are supposed to be deployed at the strategic sites themselves show a widened geographic inequality and clustering.

Then it becomes mandatory to examine the scenario with most modern technology available as also use ICT based environment and evidence creation for sound decision making.

It also mandates an intensive study in resource mapping on equal footing with improving the facilities at the hospital's end along with improving the pre-hospital trauma care services.

Deepa Prasad, United Nations Development Programme (UNDP), Bhubaneswar

The Ministry of Health & Family Welfare has released the National Disaster Management Guidelines on Medical Preparedness and Mass Casualty Management, drafted by the National Disaster Management Authority (NDMA).

Please find below the link to the Health Minister's speech on the occasion providing insights into the proposed initiatives in this area http://pib.nic.in/release/release.asp?relid=32654

Amit Sharma, International Federation of Red Cross and Red Crescent Societies (IFRC), New Delhi

The incidents of road accidents, rail and civil aviation accidents, fire accidents, stampede, bomb blasts and epidemic outbreaks resulting in mass casualty are more frequently occurring than that of natural disasters.

Public health departments are the backbone of a city's public health system, but if they work alone they cannot be effective. In order to be successful in non-emergency and especially emergency situations, they must build and maintain working relationships outside of the typical public health arena. These associations should include law enforcement, fire, emergency medical services, emergency management, environmental protection departments, and the medical community. Successful partnership and coordination between these entities during any emergency situation is critical to successful reduction in morbidity and mortality.

The risk of mass casualty incidents increases particularly during mass gathering events. The particularly high population density at mass gathering events may facilitate transmission of infectious diseases, or attract deliberate releases of chemical, biological or radioactive agents, or bomb attacks. An example of an acute outbreak at a mass gathering is the noro virus outbreak at an international scout summer camp in the Netherlands in 2004.

As a part of mass casualty management planning, the following recommendations may be considered:

- Cohesive working teams should be developed by collaborative planning and partnerships.
- A wide range of trainings comprising of core activities of emergency management such as Incident Command System, Emergency Response Functions, basic management skills and specialized training on search and rescue, first aid etc should be organised.
- Enhancing the existing surveillance systems may be considered. Development of an event-specific epidemic intelligence strategy, including a budget and human resources plan, and establishing a network with national and international stakeholders.

J. R. Bhardwaj, National Disaster Management Authority (NDMA), New Delhi

Kindly note that National Guidelines on Mass Casualty have been prepared and released by the National Disaster Management Authority (NDMA). Honorable Health Minister was the chief guest at this function.

Ravishwar Sinha, Independent Consultant, New Delhi

Thank you for bringing up this topic. As these unfortunate events resulting in mass casualties seem to be becoming more frequent it is essential the preparation for the same now needs more updation. Most of the state Governments and at the National level such activities have been initiated which are generally Government led, as situation that needs to be improved with the civil society coming forth with its strengths and comlimeraity being built in the planning. I would suggest:-

Preparation

In the cities particularly in Metros and vulnerable areas the mapping of resources needs to be done and updated periodically. Like the doctors, hospitals, ambulances, medical stores, volunteers and para medics etc. The resource requirements need to be assessed and agreed upon. For instance the hospital would be able to cope with a couple of cases from its own resources but would need drugs , and staff to deal with more cases. How that can be garnered from the best possible and nearby facility and how they would be paid for? This is an important aspect that has been not very closely looked.

A suggestion would be to create a MOU between the agencies in the area. Perhaps a corpus fund for emergencies created and an easy administering mechanism put in place.

These as is clear would be local initiatives that community and local Governments could evolve.

Disasters occur suddenly with devastating effects , however the impact could be mitigated to a large measure if it is met with methodically. There is also the realization that immediate response is reflexive and this has also saved many lives.

However I believe the quicker the methodical approach is adopted the better would be the results. Sympathetic and affectionate approach to the victims and their families should be the basis of the approach. In the rehabilitation phase the psychological impact on the victims should be understood and provided for.
Children and women made vulnerable due to the disaster should be adequately provided and cared for.

The medico legal angle that is an essential aspect of the criminal acts need to be better understood and the volunteers should be apprised about them. This also helps in finding the culprits to book and has a deterrent effect.

Prevention is better than cure.

Civil society must be appraised to key an eye open and bring to the attention of authorities any suspicious activities.

It is very heartening to see the response of the Government of India and the states to the National Disaster Management Authority, and I am sure this would go a long way in making better responses.

V. R. Raghavan, Satyam Foundation, Hyderabad *(response 2)*

This subject is increasingly getting attention of government and civil society organizations. In Hyderabad, the subject was discussed during the Annual Conference of Association of Health and

Hospital Administrators held on 24 Nov. 2007 at Yasodha Hospitals. More details of the proceedings could be obtained from Prof. (Col) Dayakar, Association of Health and Hospital Administrators, Hyderabad (dayakar.thota@gmail.com).

Myself being associating with Health Management and Research Institute (a public private partnership initiative between Government of AP and tech giant Satyam Computers Ltd.) on Multi-Casualty Management in Urban centers doing a research project for Greater Hyderabad, while doing secondary research, found that World Health Organization India has a detailed Hospital Contingency Plan to overcome emergencies. The contingency plan module is accessible in their web site (http://www.whoindia.org/EN/section33/section34/section38.htm)

Many thanks to all who contributed to this query!

If you have further information to share on this topic, please send it to Solution Exchange for the Disaster Management Community in India at se-drm@solutionexchange-un.net.in with the subject heading "Re: [se-drm] Query: Mass Casualty Management - Experiences. Additional Reply."

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