

COMMONWEALTH OF AUSTRALIA
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Air-disaster-response Planning: The Getting Ready

By E. E. Grollmes*

After an air disaster, a state of chaos is likely to result unless an adequate emergency response plan has been prepared and practised. The author examines the steps which must be taken to prevent the deterioration of the situation, placing emphasis on learning from previous incidents and active pre-emergency planning. The essential elements of the plan, together with other factors which should be considered, are outlined in the following text.

No matter how carefully an emergency-response plan has been developed, nor how often it has been practised, nor how many variables have been anticipated, the scene of a disaster will be hectic, at times frantic. Nonetheless, without pre-planning and practice, effective response to a major disaster is impossible.

A disaster is an unforeseen combination of events that disturbs the vital functioning of a society. Though a disaster is almost always unexpected, it can be anticipated and prepared for. However, an air-disaster commonly escalates almost instantaneously beyond the emergency-response resources of an airport. Therefore, in coping with a disaster, airports often find themselves dependent on the emergency-response capabilities of surrounding communities. It is in this context that this paper has been written.

At the site of any major disaster, the worst enemy – and the one most difficult to avoid – is chaos. An area that may have been very quiet and orderly only seconds before is suddenly transformed into a scene of fire, wreckage, and carnage. The event is inevitably followed by a moment of shock and disbelief. But the readiness of the airport to respond will soon be obvious. Chaos will be threatening and/or impinging everywhere. One thing is certain, airport personnel who do not know the disaster-response plan will be a hindrance to its implementation.

Ideally, every survivor of an air disaster should fall into a net of preparedness comprised of many interwoven, interlocking strands held together by command, control, communications, and – perhaps most of all – by co-operation. Regrettably, until an airport or airline experiences a disaster, there is a tendency to view a crash as a chapter in the operations manual or as a yearly exercise. Consequently, the state of disaster-preparedness at too many airports exists on paper much more than in fact. The managers of such airports would do well to look at history where it is painfully evident that a haphazard response to a major air disaster will terminate in further disaster. A successful response can only result from careful planning, study, and practice. This requires an expenditure of time, money, and effort. Without this expenditure, talk about disaster-preparedness remains mere talk. Yet when it comes to disaster-preparedness, how many airports throughout the world are content to invest little, if anything, more than the minimum? Unfortunately, the number is seemingly higher than many responsible for airport safety are accustomed to admit.

Disaster Response Plan

Every disaster-response plan must be based on a twofold foundation of professional expertise and common sense. Neither is adequate without the other. Assuming this foundation is in place, the chances of an effective disaster-response plan are greatly increased if it is the result of co-operative pre-planning – including representatives from all the emergency-service agencies likely to be involved. Budgeting officials ought to be included. Such inter-agency discussion should produce a plan characterised by the best thought and experience of the assembled group and be meaningful to all parties. If the disaster-response plan is complete, it will contain precise statements on jurisdictional boundaries, the chain of command, identifications, communication systems, and co-ordination procedures. The plan will anticipate problems such as supplies, communications, control, staging, and transportation. In addition, arrangements for alarm and evacuation, mutual aid, and the welfare of survivors and rescuers will be stated in detail. Provisions will be made for a pool of specialised equipment to be gathered. Also, personnel who might conceivably be needed in a rescue are identified and carefully catalogued. This list will be constantly updated along with the names, addresses, and phone numbers (both office and home) of other potential sources of help. However, if the plan is to be workable, it must give and allow great flexibility to rescue officials in solving problems and/or coping with unforeseen circumstances.

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It is of course to be expected that, owing to a multiplicity of variables, disaster-response plans will differ from airport to airport. In shaping an emergency plan to meet the needs of a particular airport, the following operating characteristics have to be considered: 1 Aircraft size – an indicator of the size of the disaster that might occur; 2 traffic density, use, and schedule; 3 physical layout of the airport; 4 surrounding environment of the airport; and 5 climate. It is also imperative that an airport's disaster-response plan be co-ordinated with the emergency plans of the airport's tenants and with those of the airport's surrounding communities. They should all receive a copy of the airport's plan. This will allow the tenants and the neighbouring communities to know exactly what the airport expects of them and, also, what is expected of other response organisations. Such advance information will help keep to a minimum the guessing and false assumptions that often confuse and impede a disaster-response.

To ensure understanding and co-ordination of plans, mutual aid agreements must define each organisations' availability, chain of command, response procedures, liabilities, and compensation (if any). Furthermore, such an agreement must contain an explicit statement regarding its duration and limitations. In their negotiations, representatives of the airport and those of the surrounding communities would do well to become aware of each other's responsibilities, resources, and needs. Obviously, the response to a disaster will be greatly furthered if the activated emergency-response plan eliminates overlapping assignments, needless repetition of action, and authority disputes.

Practising the Plan

Along with developing the right emergency-plan, airports must arrange for their personnel to have the right amount of practice. The airport and every emergency-service agency needs to ask itself whether the annual disaster drills are really aimed at determining the quality and adequacy of the disaster-response plan or are they simply an exercise to meet bureaucratic requirement? Is the principal motivation to save lives? When serious problems with the plan are uncovered, are changes made and implemented, is additional training given and needed equipment purchased? Every airport employee must know and be trained for the role he or she will play in the event of a disaster. Disaster-response drills, though expensive and time-consuming, are an essential component of a disaster programme. Moreover, given that air disasters are more likely to occur in bad rather than good weather, it would be of more benefit if drills were conducted in severe weather conditions at least occasionally. To avoid such practice means the disaster-response plan in question is in many ways untested.

An effective disaster-response plan, and the drills supporting it, should ideally stem from an attitude that the airport engenders and develops in all of its employees. This attitude, if present, will be reflected in the day to day operation of the airport and constantly manifest itself in a genuine caring for people. It is unrealistic to believe that personnel who are insensitive, inefficient, and careless on a routine basis will suddenly become sensitive, efficient, and caring in the midst of crisis. It should also be noted, corporations as well as individuals have characteristic behaviour patterns. A company committed to serving its customers and working with the media when all is going well is the company most likely to preserve these relationships in the midst of a disaster. Hence, those involved in assessing the disaster-response needs of an airport cannot afford to overlook the daily, characteristic attitudes of airport employees and tenants. Later on these attitudes may well determine whether a disaster-response succeeds or fails.

The Responders

Every emergency plan is basically an attempt to expedite getting the right people to the right place at the right time. Of all the emergency-service responders to a major disaster, the most important is the Site Commander designated in the disaster-response plan. It is of absolute importance that the Site Commander be the right person – knowledgeable, experienced, mature, efficient. But, above all, the Site Commander must be a leader – a leader who can function exceedingly well and effectively despite the distress and ruin at a disaster site. The first 15 minutes on the job at the scene will be the most critical and probably the most difficult to manage properly. Nevertheless, the Site Commander must be aware that the chances for the successful employment of response capabilities diminish sharply if the leadership shown in the first all-important minutes is tentative or, worse still, misdirected. On arrival at the scene, the Site Commander's first duty is to establish a Command Post for the co-ordination of all response activities. Moreover, equally pressing and important, the Site Commander must quickly evaluate the disaster and define the threat it represents. Only then can responsible decisions be made. To act precipitously before the required evaluation and definition is to invite a guest that needs no invitation – chaos.

The Command Post can be a vehicle, a trailer, a canopied-tent, or an area, depending on where the disaster is and what resources the airport has available. In any case, it must be functional and marked, visible and accessible. It must also have as good a view as possible of the whole disaster scene. The Command Post, moreover, must be close to, but not within, the areas designated for medical, security, and crash-fire-and-rescue (CFR) personnel and vehicles. If the Command Post is too far removed from the actual site and not conspicuously marked, response personnel are likely to bypass it, making it the most isolated and least informed co-ordinating point at the site.

All responders to a major disaster are subordinate to the Site Commander until an officially communicated change of command. If not tightly controlled, the response to a disaster will often exceed the need. Over-response is much more a hindrance than a help to the Site Commander. There is perhaps no example more illustrative of this than that so painfully evident following the crash of Air Florida, Flight 90, in Washington, D.C., January 13, 1982. At the scene, during the rescue, there were 37 different authorised units using nine different radio channels simultaneously. As one fire official put it, "At six o'clock the Potomac was lined with hundreds of authorised spectators in white hats." Nonetheless, volunteer groups continued to pour in. These included Boy Scouts, Lions Clubs, nurses' aids, etc. No single event better captured the spirit of the moment than when a volunteer scuba diving team was finally ordered out of the water.

To avoid such pandemonium, all emergency-service personnel and equipment, and certainly any other group, should advance to the scene only after they have been explicitly requested by the Site Commander. Even in such circumstances, responders should report to a designated staging area rather than the disaster-site itself, unless otherwise instructed.

In a government study of the emergency response to the Continental crash in Denver, November 15, 1987, many rescue workers reported that no staging area for rescuers and their vehicles was ever established. As a result, the crash-site was soon overcrowded. One fire official reported that in certain areas rescue personnel were 10 deep – all waiting for a chance to help! He added that, if a firefighter left his workplace, on his return he would have to go to the end of the line. Many times it was extraordinarily difficult to evacuate a survivor from the wreckage because of the number of rescue-workers standing in the way.

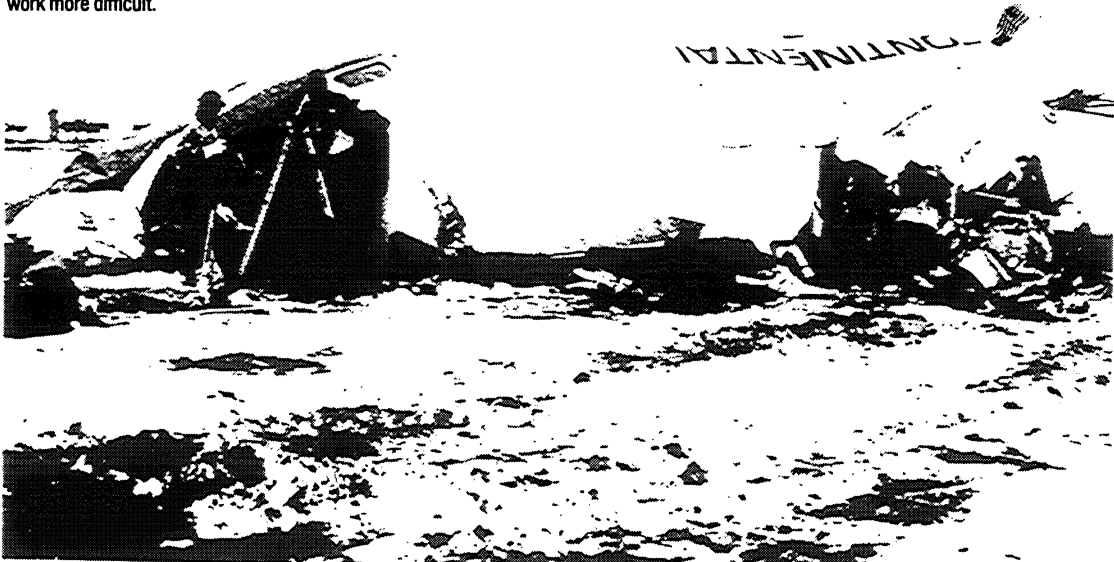
Hence, to maintain control of the disaster-site, a staging area is an absolute essential. Moreover, on their arrival there, responders should be screened and given proper identification badges, along with distinctive colour-coded hats, coats, vests, depending on what position they hold or what emergency-service they represent.

Command and Control

When a large number of strangers first work together – the odds are very much in favour of their making many mistakes. Hence command, control, communications are paramount if mistakes at a disaster-site are to be kept to a minimum. Working from the centrally located Command Post, the Site Commander must supervise and co-ordinate all the emergency-response functional areas – CFR, medical, security, and airport operations. The Site Commander can do this only by establishing, confirming, and making operative a chain of command, assigning responsibilities, and spelling out procedures to all personnel. The successful resolution of an emergency depends heavily on a correct, effective, and co-ordinated implementation of the critical elements of the disaster-response plan. These critical elements are: Command, control, and communications; the emergency-response functional areas mentioned above; site strategy; equipment array and usage; evacuation; care of the uninjured; removal of the deceased; and media relations.

To make possible the accomplishment of the above, the disaster-response plan must indicate and/or allow for the appointment of co-ordinating officers for each major phase of the rescue effort. The Site Commander's rather large staff must include an Operations Officer, responsible for the implementation of the Site Commander's strategic decisions, and a Liaison Officer, responsible for co-ordinating plans with the involved airline and other appropriate agencies, that is, from the local, federal, state, and/or the private sector. As soon as possible, a Public Information Officer must be designated who is responsible for the dissemination of factual and timely reports concerning the disaster-response to the news media. Three other officials who must be designated without delay are: A Staging Officer, responsible for the orderly gathering of units, equipment, and personnel at a pre-identified location or locations separate from the disaster site, but having good access to it; a Resource Officer, responsible for acquiring supplies and equipment as requested by the Site Commander, and a Triage Officer,

1 In the first hours after the Continental crash in Denver, the crash site was overpopulated with responders, making rescue work more difficult.



responsible to co-ordinate the medical screening of the rescued, to evaluate injuries, and to determine the medical assistance needed. If anything, even sooner than the above, a Communications Officer needs to be on board who is responsible for the handling of radio and telephone communications for the Site Commander. If the disaster-site is beyond airport airspace and if helicopters are to be used, an Air Control Officer must be designated and given the responsibility of co-ordinating all helicopter activities under the general direction of the Site Commander. The Air Control Officer will work from a command helicopter. Meanwhile, overseeing the fulfilment of police responsibilities is the Incident Security Officer, who is also a member of the command staff. The focus of this officer's concern will be: 1 establishing and maintaining emergency-vehicle routes to and from the scene and to and from surrounding hospitals; 2 securing the disaster-site; 3 ensuring only authorised persons enter the area; and 4 the identification of the dead. Far from least, a Command Physician must be appointed who is trained in emergency medicine and in treatment of the critically injured. The twofold responsibility of the Command Physician is to direct and co-ordinate the physicians on the scene and to make the difficult decisions inevitably involved in the medical-rescue effort.

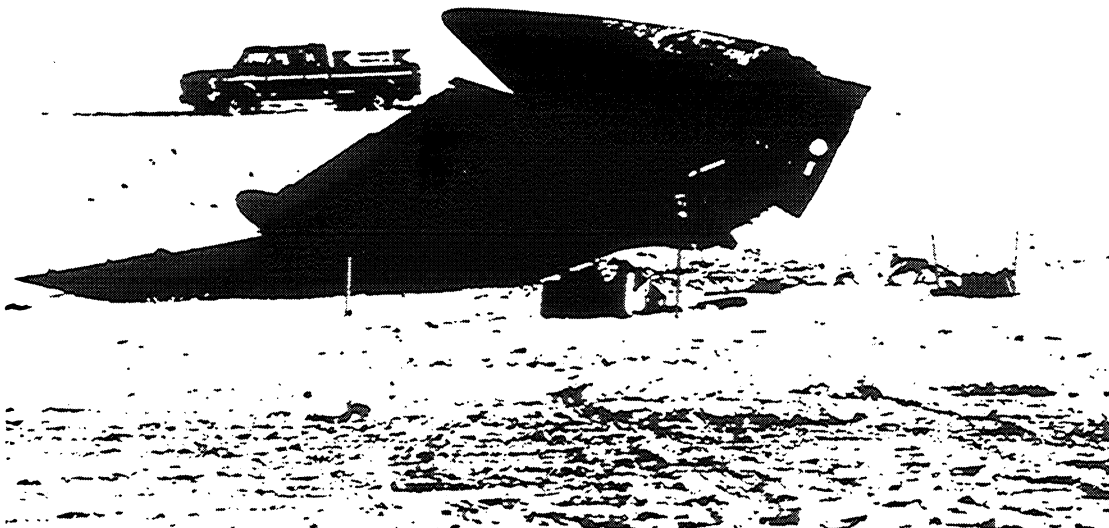
In order to turn the individual officers into a cohesive unit, the Site Commander is advised to remember that the best and fastest way to effect a successful rescue is to become organised.

In passing, it should be pointed out that each of the co-ordinating officers has to be capable of adapting or changing normal procedures with efficiency and dispatch and, also, of identifying and knowing the limitations within which they must work. Their help and expertise should allow the Site Commander to remain easily accessible at the Command Post at all times. Likewise, the co-ordinating officers must stay readily available. At the site, they must station themselves in a location where each has the broadest possible view of his or her area of responsibility but always remain accessible to those under their charge. It is critically important that these officers maintain continuous contact with both the Site Commander and their own subordinates.

In designating the co-ordinating officers in the disaster-response plan, it is necessary to be aware that the person who would be most appropriate in ordinary circumstances may not be the right person at the scene of a disaster. Hence, it is crucial to include a back-up list of leaders, ie, experienced, highly-trained assistants, who can step in if needed. In any event, when it becomes clear that a co-ordinating officer or any of the subordinate responders cannot fulfill his or her responsibilities, for whatever reason, the Site Commander must appoint a replacement immediately.

The disaster-response plan has to manifest a keen awareness that while the rescue is in progress, other matters need to be handled within the terminal. Airport operations personnel must co-ordinate the airport's emergency-response with that of the involved airline. They must provide appropriate space, as well as other necessities and conveniences, for the survivors. These arrangements must include a shower, clean clothes (perhaps loose-fitting surgical garments until more appropriate clothing is obtained), food, and a place to rest. They should be shielded from the public by tight security. Only those visitors screened by officials and approved by the individual survivor himself or herself should be allowed access. Whatever psychiatric or religious help is required or requested should be arranged immediately. The airport is legally bound to notify the appropriate investigative agencies of the accident. Furthermore, in conjunction with the involved airline, the airport must be prepared to respond to the numerous and urgent inquiries of family and friends about the status of individual passengers. Help needs to be available for bereaved families. Also, a temporary morgue has to be established and arrangements made for the transfer of the dead. With regard to most, if not all, of the services provided for the survivors, the Red Cross can be a great help.

2 The wreckage of the crashed Continental plane, after the incident in Denver, November 15, 1987.



Communications: The Greatest Challenge

At the site of every large-scale disaster, the greatest problem is communications. Yet, despite whatever difficulties, an effective communications system must be achieved if there is to be any hope of a successful response. It cannot be over-emphasised that both command and control are the result of communications. Moreover, only after control is present does co-ordination and rescue become a possibility. Communications is indeed the central nervous system of every disaster-response. In every instance where it fails, paralysis begins.

Every disaster-response should have the benefit of a co-ordinated communications network that provides the ability to interface with all the responding emergency services. Communications will also benefit greatly by the presence of a command communications vehicle on the scene, capable of co-ordinating and monitoring the use of the network. Hence, a command communications vehicle should be dispatched to the scene as soon as the controlling jurisdiction is alerted to the disaster. Also, the disaster-response will be expedited if mutual aid frequencies are kept open *exclusively* for the Site Commander and those explicitly requested to respond.

There are of course numerous means and methods by which information and instructions can be conveyed during an emergency. Without becoming lost in a sea of technical jargon, the point to be made is that all emergency-service personnel in a given jurisdiction must be familiar with whatever devices, ie, walkie-talkies, radios, or CB's, to be used and with whatever frequencies or languages, ie, codes, words, signs that have been adopted as official. To avoid unnecessary confusion, let it be noted, plain language is in order in every instance.

Perhaps from time to time it is useful to be reminded that a breakdown in communications at a disaster-site can have dire consequences. Following the Delta Airlines crash in Dallas, August 2, 1985, a request was made – using the proper official code – for obtaining mutual aid ambulances. However, the off-airport agencies did not clearly understand the technical language used and, therefore, did not clearly understand what assistance was being requested. Consequently, in some cases, only fire units were dispatched when ambulances were also expected.

The command communications centre is usually either in or adjoining the Command Post. Established by the Site Commander, it controls all radio, courier, and message information to and from the scene of the disaster. Ideally, at least six radio links will be in use: (a) For police and security – including enroute control to and from hospitals; (b) for rescue workers on the scene; (c) for emergency-medical-service (EMS) responders – including contact with the triage site, ambulances, and hospitals; (d) for messages to and from the helicopters involved; (e) for the provisions necessary for the relocation and welfare of survivors and for the removal for the dead, and (f) for supplies.

Probably the most widespread obstacle to the achievement of an effective communication system at a disaster-site is that various emergency-service agencies – even those from the same or an adjoining jurisdiction – operate on different frequencies. Hence, they cannot talk to one another. Wherever this problem exists, it needs to be addressed by disaster-response planners. A single common frequency must be agreed on and made available to all agencies.

Of all the initial steps to be taken in response to a disaster, none is more important than police seizing control of the highways and/or main thoroughfares that must be used by emergency-service vehicles moving to or from the scene. The roads must be kept open. Without this, the disaster-response will be seriously delayed, gravely reduced, and may even become impossible. Admittedly there are a few major cities which have the capability of conducting a rescue solely through the use of helicopters, in theory. Unfortunately, these plans remain largely untested and demand such a high degree of co-ordination that they verge on the impractical. For better or for worse, in the vast majority of instances, the use of nearby highways and main thoroughfares remains fundamental to the implementation of disaster-response plans. However, the availability of these roads is too often presumed. They will be available only if those responsible for traffic control and security make them so. In going about their work, police would do well not to be too much swayed by car-drivers such as the little old lady who – about to be handed a traffic ticket – looks up at the policeman and says, "I've always defended you when you were accused of police brutality."

In providing open roads, it would be a help to mark them in advance with signs declaring each an "Emergency Service Route. These signs should be especially placed alongside main arteries connecting the airport with nearby hospitals. Though such would obviously not remove the necessity of strong traffic control, the policy might well lessen the problem on the day of the disaster through educating the public.

In addition to keeping the roads open, police must handle other major responsibilities. First, they must seal off the disaster-site to all but authorised personnel designated by identification badges issued at the staging area. At the Air Florida crash, Washington, D.C., there were two bogus physicians and a bogus priest. Second, they must secure the staging area. Third, the police need to provide crowd control and keep onlookers from interfering or impeding rescue efforts. Fourth, police must be instrumental in preserving materials such as cargo and the personal property of victims. Finally, the local police department has the responsibility to assist the coroner and the physical examiner in the identification of the dead.

The Rescue Operation

The key men in any disaster-response are, of course, those members of CFR crews who do battle with, wrestle with, and at least eventually subdue the disaster itself. They have the responsibility to confront the fire, to crawl through, over, and under the wreckage in order to discover, to free, to rescue the living and, in time, to help remove the dead. At the site of a major disaster, death is present in such abundance that it is not always recognised. "At first you don't realise how many people are killed," said one Fire Chief, D. J. Mumphrey of Kenner, Louisiana, who responded to the Pan Am Disaster there, July 9, 1982. "You don't see that when the plane crashes – you see it after the crash. You see it sporadically as you go through the debris and realise you are walking on people – mutilated people."

To avoid any confusion, the disaster-response plan has to emphasise that the main goal of the rescue is to bring the most good to the greatest number and to evacuate the living as soon as possible. Therefore, the first duty of the CFRs is to cut a path, to open a route that will allow the survivors to escape. If fire is involved, the CFR crews must of course struggle with the flames and do everything possible to keep them from spreading. Furthermore, the disaster-response plan should stipulate that the survivors who are not injured or pinned in the wreckage are to be cared for with first aid and taken to appropriate space reserved for them as soon as possible. Thus, when medical help arrives the only remaining casualties at the scene ought to be those who are trapped, seriously injured, unconscious, or dead. It should be clear, therefore, that the initial work of the Police and Fire Departments is to establish access, not only to the disaster-site, but to the victims themselves and in so doing to make it possible for survivors to receive medical care in a secure setting.

At the disaster-site, as soon as circumstances permit, two-man reconnaissance teams should be sent, equipped with radio, clipboard, flashlight, and basic medical gear, into assigned sectors of the wreckage to locate survivors. The purpose of these teams, of which at least one member is an emergency-medical-technician (EMT), is to report the location of victims still alive, the extent of their injuries, and to deliver absolutely necessary care, eg, the stopping of massive bleeding. The reconnaissance teams do not evacuate victims. Their goal is to evaluate and relay data so that rescue teams coming behind them can treat the most seriously injured first. Moreover, if possible, the team assigned to do so will enter the fuselage of the plane itself in search of survivors. On completion of its survey, each reconnaissance team reports to the Site Commander or Command Post with data to be plotted on the official map or sketch of the disaster-site.

As information comes in from reconnaissance teams about the location and condition of survivors, rescue teams respond. Again, these teams of four to six members include at least one medical professional. They are equipped with stretcher, emergency-medical gear (minimal), and rescue gear, eg, wrecking bars, wire cutters, pry bars, flashlight, surgical- scissors, etc. One word of caution which cannot be over-stressed is that in assigning the reconnaissance and rescue teams into the wreckage, the safety of the rescuers is imperative.

A well-conceived disaster-response plan will indicate the four stages through which the rescue must progress: 1 The evacuation of victims easily found and easily removed; 2 the evacuation of victims trapped, but very visible and still not exceedingly difficult to remove; 3 the rescue of victims buried deep in rubble, and 4 the total removal of rubble and debris and the rescue or removal of any victims discovered.

In those instances where the living are found trapped or entwined with the dead, a physician can greatly facilitate the rescue-process by certifying the dead and thus allowing the corpses to be removed quickly by firemen in order to gain access to the living. However, the dignity of the dead should be fully respected at all times.

Although, in general, there is no place for untrained personnel within the restricted area of a disaster-site, those responsible for disaster-response should not overlook the value of ironworkers – especially if the movement or removal of wreckage is necessary for the rescue.

Undoubtedly, at times, the work of those involved in the rescue will appear superhuman. Nevertheless, the rescue-workers remain human. Hence, the disaster-response plan must make sure that they are relieved periodically, that they are debriefed, and that food and a place to rest are provided.

In today's world, any discussion of emergency-rescue must include full recognition of the unique capabilities of the helicopter, which must be incorporated into disaster-response. Their role should include assignments for: 1 Search and rescue; 2 transportation of medical teams; 3 transfer of injured, and 4 carrying of supplies. The role of helicopters must be clearly defined in the disaster-response plan and their use carefully co-ordinated with the ground transportation involved in the rescue. Firemen must be instructed on how to identify and prepare appropriate landing space for helicopters. If the disaster-site is within the jurisdiction of the airport, the helicopters flying to and from the scene will be controlled by the airport tower. However, if the disaster-site is beyond airport jurisdiction, the helicopters must fly under the direction of the Air Control Officer in the designated command helicopter. The latter will of course stay in continuous communication with the Site Commander who makes all final decisions on when and where helicopters are to be used.

Medical Response – The Concept of Triage

In response to an accident involving an overwhelming number of casualties, medical personnel who insist on giving maximum care to every victim will experience a total collapse of their emergency system. The word "triage" comes from the French, and means, literally, "to sort". This battleground-tested theory assumes few care givers but many in need of care. According to this theory, all victims should be moved quickly, but the worst do not go first. Rather all victims are divided into three categories. There are those whose injuries are so severe they will probably die regardless of the care administered, those who will very likely live, and those who may or may not survive. The latter are the ones at whom the first medical attention is directed; efforts are made to clear the airway, stop their bleeding, treat them for shock, and transport them to a hospital immediately. Once there, they should have a better chance of living.

Within the confines of triaging, the guiding principle is to do as little as possible, as quickly as possible, and as simply as possible, for as many as possible. Screening, stabilising, and preparing for evacuation are the goals. Detailed treatment occurs once the victims reach the hospital.

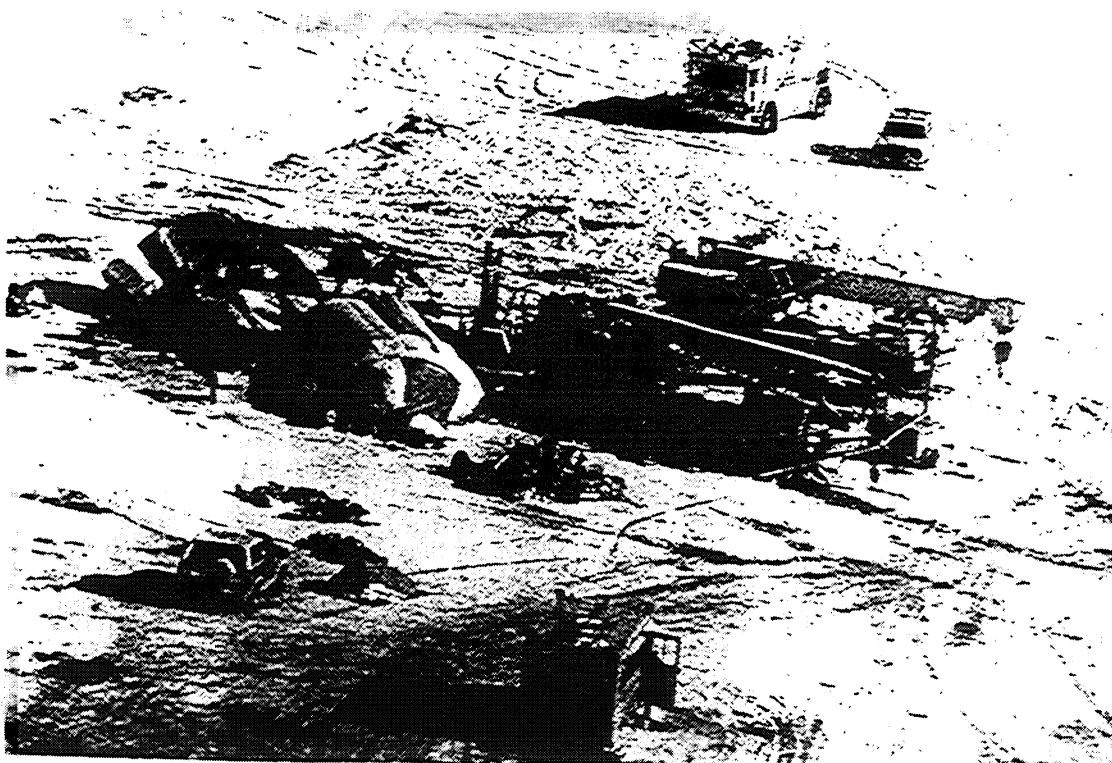
On a disaster-site, triage-trained personnel, such as EMT's, paramedics, or triage teams from hospitals are more desirable than physicians. The preference for the former is because of their training and experience in coping – on scene – with multi-victim emergencies. Those with traditional medical training are much more effective in hospital-settings where they can better apply their one-on-one skills and make full use of their equipment. Perhaps it should be noted that at the Kansas City Hyatt Regency Disaster in the USA, a number of physicians and nurses arrived on the scene fully intending to help only to discover their training did not prepare them to function in such circumstances. As a result, many of them experienced inadequacy and helplessness and, subsequently, deep feelings of guilt.

Since most triaging occurs outdoors, weather can be a factor. Following the Continental crash in Denver, USA, treatment of the injured was affected because medical personnel arrived on scene without proper, cold weather clothing. Furthermore, the triage tags used to indicate injury-severity could not be used because their strings became entangled and frozen together. To make matters worse, those tags that remained usable could not be written on because pens malfunctioned owing to frozen ink. Such happenings should catch the attention of disaster-response planners.

Medical service at a disaster-site will be greatly enhanced if ambulances have the same interior and/or a common plan – perhaps involving a colour-code – for storing drugs and equipment. Such pre-planning by those in emergency medical services will expedite finding what is needed, when it is needed, at the disaster-site. Emergency medical service will also improve if ambulance-attendants at the scene stay with their ambulance. This practice will both facilitate and accelerate the evacuation and keep traffic lanes open.

The victims of the disaster judged in triage to be among those who will profit most from hospitalisation are not only dispatched first; they are also assigned to the nearest hospitals. However, before being dispatched, a record is made in the triage station of every victim's name and address, the evaluation made, the treatment provided, and the hospital to which he or she has been assigned. Each of the injured should of course be assigned to a medical facility capable of providing a level of care to his or her needs. These assignments should be made by medical personnel and a communications officer at the triage station who maintains continuous contact with all area hospitals through the hospitals' emergency radio network. As a result, victims will be assigned to a hospital both by reason of their needs and by reason of that particular hospital's capacity,

3 Overview of the crash site the morning after the Continental plane crash in Denver, showing the position of the remaining emergency response vehicles.



capability, and staff at a given time. Accordingly, hospitals should be informed immediately of each victim assigned to them, the nature of the injury, and the expected arrival time.

It should not go unobserved that following the Delta disaster in Dallas, USA, August 2, 1985, Parkland Hospital – about 12 miles from the airport – was the first hospital to be advised. However, by the time the trauma team from Parkland arrived, about 35 to 40 minutes after the accident, the majority of the injured had been transported to nearby hospitals. Approximately ten minutes after Parkland Hospital was advised, John Peter Smith Hospital in Fort Worth was notified. However, the Hurst-Euless-Bedford and Northeast Community Hospitals, which were closer to the airport, were not alerted although both received victims from the crash. According to government investigators none of the hospitals at any time received advanced notification of victim status or intended destinations.

To ensure efficient and co-ordinated care, pre-hospital and hospital providers must develop consistent triage formats and non-redundant emergency procedures. This means the disaster-response plan must require an in-depth dialogue between pre-hospital and hospital providers and definite agreement on the responsibilities of each. The plan would also be greatly enhanced by a resource manual describing the physical and personnel resources available at area hospitals and the number and types of injuries each emergency room/hospital can handle.

Dr. Dennis S. O'Leary of the George Washington University Medical Center, Washington, DC, has commented that in 1970, "The emergency room at George Washington was located not in its present location right out on Washington Circle, but rather at the back of the hospital next to the trash compactor, where it enjoyed equal status." Emergency medicine has come a long way since then. However, extra training in the treatment and care of mass-casualties is still required.

At the hospitals involved, as at the disaster-site itself, security is a prime necessity; traffic and crowd control needs to be enforced, pre-planned procedures for the release of information must be observed, and help and appropriate accommodations have to be available for the grieving families and friends of the victims. In addition to administering every level of medical care, major trauma centres during a disaster must stand prepared to rapidly mobilise manpower and supplies requested at the disaster-site. However, it should be emphasised that any physician assigned to the rescue must be trained in emergency medicine. Furthermore, all medicines, supplies, and equipment sent there have to be ready for immediate use. If an apparatus needs to be assembled, it should not be sent with a manual of instructions – it should be assembled before it is sent.

The Public's Need for Information

The designation of a Public Information Officer will enable the centralisation of all communications with the media by establishing a focal point for the release of information. Unfortunately, no such focal point was established at the site of the Air Florida disaster in Washington, DC, USA. Consequently, there was no central information source in the early stages of the emergency from which the media could obtain accurate information. As a result, interviews were held with all types of people, whether or not they had direct knowledge of events. Thus, substantial amounts of inaccurate information were initially released.

It is advisable that the Public Information Officer be hired and designated far in advance of any incident, thus facilitating an ongoing contact with agency and media members. This prior contact can enhance the credibility so critical at the time of a disaster. In the event of such a major emergency, the Public Information Officer should establish a press site outside the disaster area to minimise interference with and from response operations and, also, to reduce the possibility of media members becoming victims of the accident.

4 The extent of the wreckage of the Delta aircraft following the crash in Dallas, Texas, August 22, 1985, is clearly illustrated here.



The credibility of the Public Information Officer will not only affect how media representatives perceive him or her, but also how they perceive the airport and its response to the disaster. Furthermore, owing to television, the credibility of this officer will do much to determine the attitude of the general public, both nationally and internationally.

The disaster-response plan must emphasise that in all press conferences and interviews, the Public Information Officer must avoid all speculation and discuss only facts. Though, in general, press releases are the responsibility of the involved airline, any message released to the media must be accurate, exact, and well-written. Loosely worded sentences have no place in dealing with matters so sensitive.

The list of fatalities and survivors, always eagerly sought by the media, should not be released until, in close co-operation with the airline, it is known to be absolutely correct and the immediate families of the passengers and crew have been notified. The fact of the matter is this may take several days, if not longer. The time of release is usually determined by the airline. When the list is finalised, extreme care must be exercised to make certain it is released simultaneously at all necessary points.

Given the almost inestimable impact of the pain, sorrow and grief caused by a disaster, crisis intervention may well be needed during the disaster and in the post-disaster period. It should be made available for survivors, the bereaved, and rescue-personnel as needed. It should be available at the disaster-site, in the airport, and at the hospitals. Hence, crisis intervention has to be included in the airport's disaster-response plan. Furthermore, especially for those rescue-workers who may not encounter post-traumatic stress until weeks later, the plan should identify the mental health resources available in the community.

Conclusion

When a disaster-response fails, it is usually because of one of the following reasons or a combination of them:

- 1 Those responsible for following the plan did not know it.
- 2 Though the plan was known, those responsible for enacting it were unable to establish command, control, and/or communications.
- 3 Adequate routes to and from the scene for emergency vehicles were not opened or, if opened, could not be secured.
- 4 Those responding could not overcome a lack of planning, training, and/or practice.
- 5 The facilities and/or the means of caring for survivors were both insufficient and inadequate.

Even in the absence of other considerations, legal liabilities alone would demand and justify airports making every preparation to respond quickly, effectively, and professionally in the event of a disaster. For an airport to do less is not only irresponsible but also indefensible. However, the right motivation for disaster-response is not fear, nor is it desire to gain professional approval. The only right motivation for disaster-response is to save lives – the lives of the men, women, and children unfortunate enough to be on the ill-fated plane.



Far too often the human tragedy of a major air-disaster is translated – in a matter of moments – into statistics, diagrams, maps, charts. The injured and the dead become little more than numbers. After a few days, the whole story is buried in the middle of the newspaper. The tragedy of what has happened is lessened. Its power to motivate is weakened.

Hence, if those responsible are going to work as hard as they should to keep disasters from happening and be as prepared to respond as they should be if and when a disaster occurs, it is indeed vital that the human dimension of these events be kept continuously in focus.

The importance of careful planning, the necessity of effective disaster-response – and the human dimension here discussed – have never been more succinctly summarised or more powerfully stated than by a survivor of the Delta crash in Dallas, USA, August 2, 1985. After crawling free, the man started to stumble, to walk through the rubble in search of help. Finding an abandoned ambulance – the crew was out searching through the wreckage – he sat on a step of the ambulance and waited. When the responders returned, they of course saw the man sitting there covered with mud, grease, ash, and blood. As they drew closer, the survivor looked up at them and softly asked, “Am I dead?”

5 This photograph shows the tracklines through the grass as the Delta aircraft crashed down.