

Michael A. Clark, Ph.D.,¹ M.D.; Dean A. Hawley,¹ M.D.; Joni L. McClain,¹ M.D.; John E. Pless,¹ M.D.; Donnell C. Marlin,² D.D.S.; and S. Miles Standish,² D.D.S., M.S.D.

Investigation of the 1987 Indianapolis Airport Ramada Inn Incident

REFERENCE: Clark, M. A., Hawley, D. A., McClain, J. L., Pless, J. E., Marlin, D. C., and Standish, S. M., "Investigation of the 1987 Indianapolis Airport Ramada Inn Incident," *Journal of Forensic Sciences*, JFSCA, Vol. 39, No. 3, May 1994, pp. 644-649.

ABSTRACT: On October 20, 1987, a military reserve aircraft lost power during a trans-continental flight and attempted an emergency landing at The Indianapolis International Airport. The pilot ejected and the disabled and pilotless aircraft struck a bank building. It then skidded across the street and entered the lobby of The Airport Ramada Inn where it exploded. This incident was unusual in that the fatal injuries occurred in individuals on the ground and not in the occupant of the aircraft. Seven people were killed in the lobby area and two were trapped in a laundry where they died of smoke inhalation. A tenth person died of burns ten days later. Minor injuries were reported among four hotel guests, two firefighters and the Air Force pilot. A multiagency mass disaster-plan had been formulated and rehearsed in preparation for the Panamerican Games, which had been held in Indianapolis in August 1987. A number of volunteers arrived before a security perimeter was established. They began an undocumented removal of the bodies from the scene and were about to remove valuables for "safekeeping" when stopped by coroners' office personnel. Fatalities resulted from smoke inhalation, burns or a combination. Bodies were identified by a combination of dental records, personal effects and visual means within 24 hours. The problems encountered in managing this disaster scene will also be compared with previously reported incidents.

KEYWORDS: pathology and biology, mass disaster, autopsy, identification, thermal injuries, inhalational injuries

The management of mass fatality disaster scenes as well as methods for the autopsy and identification of large numbers of burned and otherwise altered human remains are topics that are frequently addressed at national and international scientific meetings. The Armed Forces Institute of Pathology with its extensive corporate experience in mass fatality disasters has recently published a disaster plan that is easily modified for use by most coroners' and medical examiners' offices [1]. There have been several recent reports in the literature of major aircraft disasters in which the uniqueness of each event as well as event-specific methods for the processing and identification of large numbers of human

Received for publication 6 July 1993; accepted for publication 18 Oct. 1993.

Presented, in part, at the 41st annual meeting of The American Academy of Forensic Sciences held in Las Vegas, NV February 13-18, 1989.

¹Professor of Pathology; Associate Professor of Pathology; Formerly Fellow in Forensic Pathology; and Culbertson Professor of Pathology; respectively.

²Assistant Professor, Dental Diagnostic Sciences; and Professor Emeritus, respectively.

remains have been stressed [1,2,4,5]. What is apparent from these reports is that each event is a unique entity and that any pre-existing mass disaster plan as well as standard published methods may need to be modified to fit an individual situation [2,4]. It is the purpose of this report to describe our experience with a 10-fatality aircraft mishap in which none of the victims were occupants of the aircraft and to discuss how an existing mass fatality disaster plan was initially circumvented by volunteers who arrived before official personnel.

Description of The Event

On October 20, 1987, a U.S. Air Force Reserve A-7D Corsair II aircraft left Pittsburgh for Las Vegas on a routine training mission. About 15 miles south of Indianapolis, the pilot experienced mechanical problems and put out a distress call at 9:12 A.M. An F.A.A. controller directed him to an emergency "dead stick" landing at The Indianapolis International Airport. While on final approach, the aircraft apparently lost all electrical and hydraulic power and the pilot ejected. The left wing landing gear and front wheel assembly of the aerodynamically unstable and pilotless aircraft struck the roof of a bank at 9:15 A.M. without injuring any of the building's occupants. The aircraft remained intact after striking the ground and skidded across Bradbury Street. It then traveled up a grassy embankment and under the front entry portico of The Airport Ramada Inn where it exploded with the resultant fuel fire engulfing the front of the building (Fig. 1). The aircraft began fragmenting as it penetrated the building and the majority of the wreckage came to rest in the lobby, which was engulfed in the fuel-fed fire (Fig. 2). Airport fire crews, who had been placed on alert for the emergency landing, were able to bring the fire under control within 8 to 10 minutes. There were approximately 120 people attending a sales meeting in a room adjacent to the lobby and all escaped out a rear door without injury. Many of these people were not hotel guests, but were from the central Indiana area. Most of the attendees left the area and returned to their homes or places of employment. No record was made of the people who fled the scene and it was not until later in the day that the local media broadcast pleas for the individuals to report their whereabouts to an emergency telephone number. Three hotel guests and, subsequently two firefighters, as well as the pilot were transported to local hospitals where they were treated and released. An additional individual presented himself at a local emergency room claiming to have been injured at the crash site. A single victim, who was not a hotel guest, was in a parking area outside of the building at the time of the crash. He was hospitalized with 95% body surface area third degree burns and died ten days later.

The Marion County Coroner's Office was notified within minutes of the event and two deputy coroners and two forensic pathologists arrived at the scene while the fire was still burning. A multiagency mass disaster plan which included Marion County and its seven surrounding counties had been implemented and rehearsed in preparation for the Panamerican Games, which were held in multiple locations in several of these eight counties in August of 1987. This plan called for the immediate establishment of a perimeter at any disaster site by law enforcement personnel. Before a perimeter could be established, a group of volunteers had removed two unburned bodies and one burned body to the parking lot prior to the arrival of deputy coroners and forensic pathologists. They were about to begin removal and commingling of such valuables as hotel employee name tags from the bodies (for "safekeeping") when their activities were stopped by a forensic pathologist. At this point, further body removal was supervised by the forensic pathologists. The relative locations of the bodies are illustrated in Fig. 2. Before removal from the scene, the locations of the bodies were charted and they were photographed *in situ*. The bodies were consecutively numbered, tagged with their numbers and placed in numbered body bags; they were transported in pairs to The Marion County Coroner's Office morgue approximately six miles from the crash site.



FIG. 1—Front of building after the fire was extinguished. Note that the burn pattern from the fuel/air fireball extends to the top of the building.

Processing and Identification of Remains

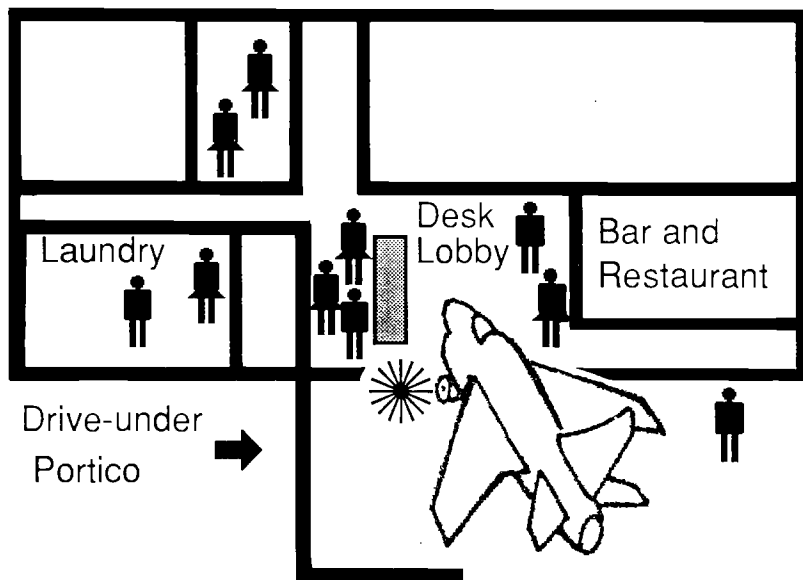
By 5:00 P.M. on the day of the crash, all bodies had been transported to the morgue and listed as “Body #1” through “Body #9” and assigned consecutive accession numbers, for example, body #1 was 87-XXXX, body #2 87-XXXX+1 etc. These designations were retained in all records and the names of the victims added to the body tags and permanent records after the identification process was complete. For example, “Body #2” was listed as “Body #2-, 87-XXXX+1, John H. Doe” after the identification process was completed. Remains were processed in the following sequential fashion:

1. Accession number assigned, height and weight recorded.
2. Whole body X-rays including A/P and lateral skull films for dental identification purposes.
3. Photography of bodies “as is” before and after removal of personal effects.
4. Fingerprinting.

5. Dental examinations (see below).
6. Complete autopsies with photographic documentation and collection of specimens for toxicology and microscopic examination.
7. Storage of remains until completion of identification process.
8. Release of remains to funeral directors.

The crash received continuous "special coverage" on most local radio and television stations as well as being the subject of numerous "special bulletins" on the national broadcast media services. Uninjured survivors as well as families looking for survivors were directed to report to a nearby hotel or to call an emergency telephone number. With the use of this plan, local law enforcement authorities were able to compile a list of 122 survivors by 5:00 P.M. A list of 69 people known to have been at the hotel, but "accounted for" was also produced. Four people in the latter group were at local hospitals where they were being treated for minor injuries. Comparison of the various lists with hotel employee and guest records yielded a list of 16 "missing" hotel employees.

The fact that all "missing" people were hotel personnel who lived locally facilitated the establishment of putative identities, which were needed to begin the search for dental records. A forensic pathologist contacted the families of the missing employees and learned that seven of the "missing" were now at their homes. A list of the nine "missing and presumed dead" hotel employees was prepared and their respective dentists were contacted and asked to have the records available for immediate pick up. All dentists were able to have the records available within an hour of being contacted and deputies from the Marion County Sheriff's Office picked up the records and brought them to the morgue. A dental team consisting of three faculty dentists and two senior dental students from The Indiana University School of Dentistry began the dental identification process at 5:00 P.M. the day of the crash. Postmortem dental records were generated for com-



Not to scale.

FIG. 2—Diagram showing the relative locations of the victim's bodies inside the building. The victim outside the building on the lower right in the illustration died ten days after the crash.

parison with antemortem charts, and morgue personnel took A-P and lateral skull X-rays to serve as postmortem films. Dental records provided by local dentists were quite satisfactory and all contained legible written records as well as at least one set of properly processed bitewing films; two sets of records also contained panoramic films. When the comparison of records resulted in a positive identification, this was reported orally to the forensic pathologist who performed that autopsy. This identification was checked by two dentists and the pathologist before the remains were labeled with the correct name and released to a funeral home. By 9:00 P.M. on October 20, four positive identifications had been made. The remainder of the dental identifications were performed the following morning. Autopsy and toxicology results showed that in all cases death resulted from smoke inhalation, burns or a combination of these injuries. The autopsy findings are summarized in Table 1.

Discussion

An existing and rehearsed mass disaster contingency plan may be easily circumvented by volunteers who arrive before official personnel as is illustrated by this report and other published cases [3]. The first problem usually encountered at mass fatality disaster scenes is that of "Who is in charge?". In Indiana, the coroner is designated by law as being in control of human remains. Despite the existence of a well publicized and rehearsed mass fatality plan at the time of this incident, firefighters and police stood idly by and allowed volunteers to begin the undocumented removal of bodies from the scene.

The first priority at any mass disaster scene is always the rescue, evacuation and treatment of survivors; once this is accomplished then the on site handling of fatalities can begin. The safety of personnel working at the site is of utmost importance, meaning that the site must be certified as "safe" by a fire marshal or other safety authority and appropriate protective gear provided for search personnel [3]. A perimeter must be established and a systematic search conducted for any survivors overlooked by the initial search and rescue operation, human remains and physical evidence. Record keeping as well as photographic and videotape documentation of the scene during all phases of the operation are also essential. Our experience with the present case, as well as that of Malone [3], would indicate that once a perimeter is established that nonauthorized personnel should be removed from the site. The problem of continued access to the site as well as the autopsy area is also of concern; this problem was solved with the Gander crash by issuing special passes to authorized personnel. These passes indicated those areas where an individual was permitted as well as authorizing only official photographers in the autopsy and body recovery areas [1]. Malone [3] describes the problems caused by physician impersonators who arrived at a British crash site in 1989. Further

TABLE 1—*Causes of death and methods of identification.*

| Location and Number of Victims | Cause of Death | Methods of Identification | Blood Carboxyhemoglobin |
|--------------------------------|------------------------|----------------------------------|-------------------------|
| Front desk (3) | Smoke inhalation/burns | Dental | 21%; 26%; 77% |
| Lobby (2) | Smoke inhalation/burns | Dental | 42%; 0% |
| Office (2) | Smoke inhalation/burns | Dental | 74%; 47% |
| Laundry (2) | Smoke inhalation | Personal effects; visual; dental | 72%; 67% |
| Lobby—escaped (1) | Burns | Survived 10 days; conscious | N.P. |

N.P. = not performed

confusion and congestion were also caused by the appearance of numerous volunteers whose presence obstructed the work of official personnel. Our experience at a recent 6 fatality aircraft crash was that well meaning agencies from many different jurisdictions converged on a scene in numbers so great that our personnel could not reach it. This suggests that an official vehicle and a badge are insufficient authorization to enter a disaster site unless the presence of that individual or agency is a part of a pre-existing plan.

On the day of the Airport Ramada Inn incident, the county emergency V.H.F. radio network as well as the telephone lines of the coroner's office were paralyzed by innumerable calls. The only usable communications lines at the scene were the cellular phones in the private vehicles of a funeral director and sheriff's department chaplain as well as the pay telephone at a nearby service station. This problem has been subsequently alleviated by a new county wide U.H.F. radio network along with the increased popularity of cellular telephones. The volume of telephone calls to the coroner's office was so great that it was virtually impossible to make outgoing telephone calls or to receive essential incoming calls. It is also of interest to note that there have been many days where the number of bodies received and processed by our staff in a single day exceeded 20. Since these deaths were due to unrelated events receiving minimal public attention there were never any offers of additional assistance from the public or official agencies.

A mass fatality contingency plan is an essential part of the standard operating procedures of any medicolegal agency—regardless of size. This plan should be rehearsed prior to an event and each participating agency should carry out their assigned function and no other. The authority who is legally entrusted with responsibility for death investigation must be in charge. A security perimeter should be established as soon as possible and agencies and individuals not a part of the plan must be removed from the area. After the event, participating agencies must meet and identify problems that occurred so that corrective action may be taken before a future occurrence.

References

- [1] Clark, M. A., Clark, S. R., and Perkins, D. G., "Mass Fatality Aircraft Disaster Processing," *Aviation Space Environmental Medicine*, Vol. 60, No. 7 (Suppl.), July, 1989, pp. A64-A73.
- [2] McCarty, V. O., Sohn, A. P., Ritzlin, R. S., and Gauthier, J. H., "Scene Investigation, Identification and Victim Examination Following the Accident of Galaxy 203: Disaster Preplanning Does Work," *Journal of Forensic Sciences*, Vol. 32, No. 4, July 1987, pp. 983-987.
- [3] Malone, W. D., "Lessons to be Learned from the Major Disaster Following the Civil Airliner Crash at Kegworth in January 1989," *British Journal Acc. Surgery*, Vol. 21, No. 1, Jan. 1990, pp. 49-52.
- [4] Randall, B., "Body Retrieval and Morgue Operation at the Crash of United Flight 232," *Journal of Forensic Sciences*, Vol. 36, No. 2, March 1991, pp. 403-409.
- [5] Salomone, J., Sohn, A. P., Ritzlin, R., Gauthier, J. H., and McCarty, V., "Correlations of Injury, Toxicology, and Cause of Death to Galaxy Flight 203 Crash Site," *Journal of Forensic Sciences*, Vol. 32, No. 5, Sept. 1987, pp. 1403-1415.

Address requests for reprints or additional information to
 Michael A. Clark, Ph.D., M.D.
 Dept. of Pathology
 Indiana University School of Medicine
 Room 157 Medical Science Bldg.
 635 Barnhill Dr.
 Indianapolis, IN 46202-5120