



Shock Trauma Center  
CNS Center  
Traumatology  
Critical Care Medicine  
Critical Care Nursing  
Hyperbaric Medicine  
Medical Engineering  
Research & Development  
Operations Research/  
Systems Analysis  
EMS Systems  
Education  
Training  
Communications  
Transportation  
Administration  
Evaluation

June 16, 1978

RECOMMENDATIONS FOR A NATIONAL PLAN

1.0

PROPOSAL

Recommendations for consideration of a national plan for the management of burn and multiple trauma victims at a mass casualty incident.

2.0

BACKGROUND

"The entry of the jumbo, or wide-bodied, jet into commercial air transport operations has posed potential emergencies of a magnitude requiring comprehensive planning that will link effectively the airport facilities with coordinated support from the resources of the surrounding communities.

Besides carrying far more passengers than the conventional jets, the wide-bodied aircrafts are expected to have a higher percentage of survivors of crashes. In view of the possible increased number of injuries, the question of alternative medical assistance is of utmost importance, and should be considered." (1)

"The real lesson of Tenerife is that there is no national plan or international plan to deal with the aftermath of such a disaster - and we need one." (2)

"... a recent informal AMA survey of the nation's ten largest commercial air terminals suggests that the vast majority of the U.S. airports have not done sufficient planning for such mass medical emergencies." (3)

"... one could even consider evacuation by air if the regional hospitals are swamped (this point is of particular interest to burned persons, who must be sent to specially equipped centers). (4)

"When the emergency department facility is less than 60 miles from the specialty burn center, the patient should be transported by ambulance. Fixed wing air transport using a commercial airline is accomplished when the distance between the burn center and the

emergency department is greater than 60 miles. The ground or air transport vehicle should be equipped as a mobile advanced life support unit with specifically trained staff." (5)

3.1

DISCUSSION:

The exercise, "Emergency Management at an Airport Catastrophe", held by the Maryland Institute for Emergency Medical Services in conjunction with the Baltimore-Washington International Airport on May 12 and 13, 1978, illustrated the need for a national plan to transport victims of a mass casualty incident to specialty referral centers for definitive care.

The scenario of "Emergency Management at an Airport Catastrophe" (EMAC) was developed so that the victim injuries would require evacuation to definitive care outside the Metropolitan Baltimore area.

As an example, the eighty (80) burn victims exceeded the capabilities of the Baltimore Burn Centers, and the following beds were available in adjacent states:

- Medical College of Virginia (Burn Center), Richmond, Va.	12 beds
- Norfolk Medical Hospital (Burn Center), Norfolk, Va.	3 beds
- Philadelphia Crozer Burn Center, Philadelphia, Pa.	15 beds
- University of Virginia (Burn Center), Charlottesville, Va.	3 beds
- Washington Hospital Burn Center, Washington, D.C.	4 beds

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TOTAL 37 beds

The above beds available in adjacent states, coupled with the Baltimore Burn Center facilities and local hospitals would have been adequate for these burn victims. The problem then became one of transportation availability to transport these patients to the definitive care centers.



## REFERENCES

1. "Emergency and Disaster Plans and Associated Problems Concerning Major Aircraft Accidents.", James T. Childs, National Transportation Safety Board, Bureau of Accident Investigation, Washington, D.C. 20594
2. "Disaster at Tenerife", William J. Reals, M.D. American Medical News, January 30, 1978.
3. "A Guide to Planning Airport Emergency Medical Services.", The American Medical Association.
4. "Disaster Planning at Major Airports", George P. Bergot, Medical Department, Orly Airport, Paris, France, "Aerospace Medicine," April 1971, pp. 449-455.
5. "Emergency Department Treatment, Triage and Transfer Protocols for the Burn Patient.", Edlich, R.F., Haynes, B.W., et.al, Journal American College of Emergency Physicians, April, 1978.

"FEASIBILITY STUDY OF SATELLITE  
TECHNOLOGY UTILIZED IN 'BURN PATIENT'  
ASSESSMENT OVER LONG DISTANCES"

Hypothesis: Physician presence consultations will be more accurate than those via one-way color television/2-way audio. The latter will provide a more accurate assessment than one-way black & white slow-scan television/two-way audio; which in turn will yield a higher assessment accuracy than two-way audio only.

Treatment Groups:

- Group A - 1 physician on-site assessment at B/WI Airport assessing patients
- Group B - 2 physicians at Brooke Army Medical Center, San Antonio, Texas, assessing patients via CTS Satellite in one-way full motion color/two-way audio
- Group C - 2 physicians at Boston Logan Airport assessing patients via ATS-6 Satellite in one-way B & W slow-scan video plus two-way audio.
- Group D - 2 physicians at Chicago O'Hare Airport assessing patients via ATS-6 Satellite in one-way B & W slow-scan video plus two-way audio.
- Group E - 1 physician at Baltimore, Maryland assessing patients via two-way audio only.

Nine (9) patients were pre-selected with predetermined injuries which were "certified" by one Burn Specialist Physician on-site at Baltimore/Washington International Airport.

There were 4 stations:

1. Full Motion Color
2. B & W Slow-scan
3. Two-way Audio only
4. Physician Physical Presence

The nine (9) patients were randomly rotated through all four stations.

Stations of:

1. Full motion color
2. B & W Slow-scan
3. Two-way Audio only

were manned by one Maryland CRT, or Cardiac Rescue Technician (200 hours plus 81 hours U.S. DOT Emergency Medical Technician training). The CRT transmitted patient related information and vital signs, as described in the Primary and Secondary Survey required in the U.S. D.O.T. Emergency Medical Technician training module. This included:

1. Check for Adequate Breathing
2. Check for a Pulse
3. Check for Severely Bleeding Injuries
4. Check the Scalp for Lacerations and Contusions
5. Check the Skull for Depressions
6. Check Ears & Nose for Fluid and Blood
7. Check the Neck for Fractures
8. Check the Chest for Movement or Fractures
9. Check Abdomen for Spasms and Tenderness
10. Check the Pelvic Area for Fractures
11. Check the Extremities for Fractures
12. Check for Paralysis of Extremities
13. Check the Buttocks for Fractures or Wounds

The patients were numbered with a tag such as 1-S, 2-S, and so on. The physicians doing remote assessments and the physicians on-site at BWI were utilizing a "Patient Assessment" form; documenting patient data, location of injuries, his estimate of total percentage of 2nd and 3rd degree burns, other injuries such as fractures, etc., and recommended treatment at the scene.

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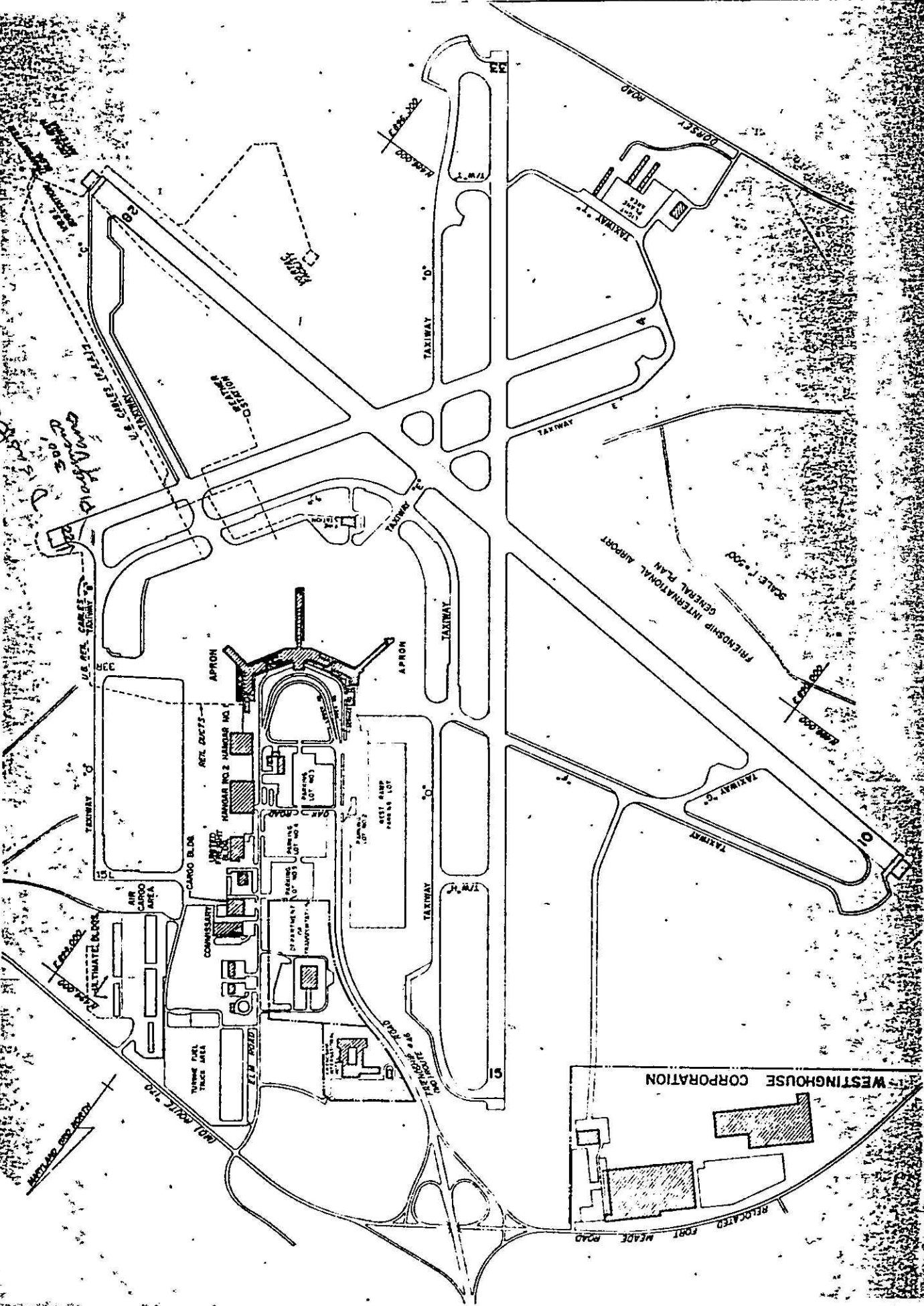
Scenario/Schedule

- 9:00 Press briefing at hangar located on airport grounds.
- 9:30 Transport via shuttle to disaster site.
- 10:00 Disaster exercise begins with smoke bombs set off around airplane and fuel truck. 180 victims are placed around aircraft while smoke is being released. The victims will be moulaged (made-up) to simulate various severe injuries, primarily severe burns (similar to those at Tenerife). Moulage techniques have reach a point of sophistication such that the injuries will appear real. Satellite transmission begins.
- 10:05 Airport fire/rescue responds to scene, removes victims behind fire line and proceeds to put out fire. Airport paramedics will begin to assess injuries and triage victims (separate by degree of injury) and then carry them to assigned triage area 300 feet from aircraft.
- 10:10 Additional fire-rescue equipment is dispatched to scene.
- 10:20 Fire suppression ends. Ambulances arrive from outlying jurisdictions
- 10:30 Initial assessment/tagging of victims begins, Medical Command Post is set up at location, clearing station is established.
- 10:40 "Evacuation" of victims to helicopters (see map), "hospitals" (victims will not actually be transported during this exercise because of medical/legal requirements) and to airport clearing station (for walking wounded, etc.)



WESTINGHOUSE CORPORATION  
RELOCATED  
FORT MEADE ROAD

FRIENDSHIP INTERNATIONAL AIRPORT  
SCALE 1"=500'



*Handwritten notes:*  
1000' 1000' 1000'  
1000' 1000' 1000'

