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TRAUMA, DISASTERS AND RECOVERY

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DEPARTMENT OF PSYCHIATRY  
F. EDWARD HEBERT SCHOOL OF MEDICINE  
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→ This volume reviews data collected from three different disasters: 1) the Ramstein Air Force Base Flutag Disaster, 2) the crash of a C-141 from Norton Air Force Base, and 3) responses of those who participated in the body identification process of the sailors killed aboard the USS Iowa Naval Disaster. This report presents a description of findings rather than conclusions. From these studies it appears exposure to traumatic events, in particular, death and dismembered bodies, is extremely stressful. Individual and unit recovery can be expected and occurs over a period of months, not hours or days. Supervisors should be alert to "overdedication" which can be a risk factor for increased difficulties. The expression of feelings at unexpected times and in unexpected places is a natural part of recovery following a disaster. Informing disaster workers about the events of the disaster and involving spouses/significant others in the recovery process increases the strength of the recovery environment and is an important aspect of mobilizing the community to support both disaster victims and support givers. Awards and recognition for disaster work are very important to the integration of the experience into the normal pattern of life. Sensitive leadership is critical to individual and unit recovery. *Keywords:*

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# TRAUMA, DISASTERS AND RECOVERY

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**TRAUMA, DISASTERS AND RECOVERY**

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In order to understand the effects of trauma and disaster on our community, the support of a wide array of people and institutions is required. Most important are those individuals who have contributed their time and efforts to participate in these studies by describing their experiences and allowing us a window on their life during a difficult time. We have the greatest respect and admiration for our study participants. Their willingness to share a part of a difficult life experience makes this work possible.

A number of individuals, through their personal support and efforts, have fostered the development of these studies and recognized their importance to both the military and civilian communities. In particular, we wish to thank Drs. Jay P. Sanford, Harry C. Holloway, David H. Marlowe, John M. Mateczun, James A. Martin, and Lt Col James S. Parker, USAF. Their vision of the importance of understanding the effects of trauma and disaster and their personal and administrative support have sustained our work.

We hope that through increasing our understanding of the effects of traumas and disasters, we will be better able to provide aid to those in our community exposed to such tragedies.

## EXECUTIVE SUMMARY

Trauma and disaster are a part of everyday life. It has been estimated that 7% of the U.S. population are exposed to traumas and disasters each year. In the military, traumatic events caused by training, as well as war and combat, are an expected part of life. Understanding individual, unit and community responses to traumas and disasters is critical to our developing better ways to aid the rapid recovery of individuals and groups exposed to the traumatic events of war.

This volume reviews the initial data collected from three different disasters: 1) the Ramstein Air Force Base Flutag Disaster, 2) the crash of a C-141 from Norton Air Force Base, and 3) responses of those who participated in the body identification process of the sailors killed aboard the USS Iowa Naval Disaster. The exposure to such traumatic events -- including the expected chaos of "normal" duties in times of disaster, as well as exposure to death and dismemberment, loss of friends or family, and the terror of near death experiences -- are powerful, emotional, psychological, and behavioral events which require time for recovery. The experience of helplessness and feeling overwhelmed by the inability to "do enough" is part of the psychological experience of dedicated support personnel in the face of disaster. Both individual and unit recovery generally take longer than expected. Sleep disturbance, nightmares, increased alcohol consumption, and anxiety are frequent following exposure to disasters. Such reactions are the norm rather than the exception, and recovery may require months rather than days.

The recovery environment after a disaster, includes the support provided by the community through co-workers, supervisors, spouses, and significant others. The victims of trauma are acutely aware of the support provided, both directly and indirectly through allowed time off. Frequently, it is through the support environment that one normalizes the experience. Recognizing the normality of symptoms following exposure to trauma, maintaining an expectation of recovery, and providing rest and respite are critical elements of the recovery environment. Knowledge about how the disaster occurred and how the disaster workers' efforts fit into the events also appears to greatly help recovery.

This report presents a description of findings rather than conclusions. It includes the words of those who were there at the disasters. Frequently they are poignant, expressive, and descriptive. They also teach us of the experiences and feelings which others will have in future disasters.

These data provide some following guidance for commanders and community leaders:

- \* Exposure to traumatic events, in particular, death and dismembered bodies, is extremely stressful.
- \* Individual and unit recovery is expected and occurs over a period of months, not hours or days.
- \* Supervisors should be alert to "overdedication" which can be a risk factor for increased difficulties.
- \* Time off should be given to those who are involved in disaster work.
- \* The expression of feelings at unexpected times and in unexpected places is a natural part of recovery following a disaster.

- \* Individuals should be encouraged to talk about their experiences and commanders should provide a climate in which discussion is possible.
- \* Informing disaster workers about the events of the disaster and involving spouses/significant others in the recovery process increases the strength of the recovery environment and is an important aspect of mobilizing the community to support both disaster victims and support givers.
- \* Support providers require support. They experience a great deal of distress at being unable to fulfill all of the demands present in the chaos of a disaster.
- \* Recognition for disaster work is very important to the integration of the experience into the normal pattern of life.
- \* Sensitive leadership is critical to individual and unit recovery.

**RAMSTEIN AIR DISASTER:**

**RAMSTEIN AIR FORCE BASE MEDICAL AND DENTAL PERSONNEL**

## SUMMARY

The midair collision that occurred at the 1988 Ramstein Air Force Base (RAFB) annual Flugtag killed 70 and injured over 500. The response by RAFB personnel, resulted in immediate assistance to victims -- first aid, triage, transport, and treatment. In addition to the actions for the living, a temporary mortuary was set up and the dead were identified, a process which took several days. Liaison with local German and American hospitals was established to locate the victims and to provide assistance to families who had killed or injured members. A questionnaire survey of the RAFB personnel who assisted in the disaster response was conducted about two months following the tragedy and again at six months post-disaster. This is an initial report on the first two phases of this planned 18 month study of the responses of the participants in this disaster.

### *Initial Responses*

Most of the sample initially responded between 26-28 October 1988, about two months after the disaster. The modal respondent was a 23 year old, married, white male E-4. However, a wide variety of persons representing all ages, sexes, races, and career fields, answered the survey. Seventy percent (70%) had worked with victims directly and 28% reported that their patients died. Thirty-five percent (35%) worked while worried about the safety of their own families.

Most of the victims were reported to have been burned. Burn victims are among the most stressful for rescuers to handle, because of the pain of the victims, the smell, and the grotesque appearance. Many of the rescuers had never encountered death in any form before this incident. Although people reacted with shock and horror, our respondents indicated that most went to work in spite of the horror around them and continued performing until the job was done, often without knowing the safety or whereabouts of their own families.

The questionnaire asked respondents about problems and complaints they had experienced in the week prior to the survey, about two months following the crash. Respondents indicated a variety of difficulties. The highest frequency of symptoms (over 30%) had to do with being easily annoyed or irritated and critical toward others; back pain and headaches were reported by about 30%. Worrying too much and worrying about carelessness were slightly lower; difficulties with sleep were reported by around 25%, and feeling lonely and blue and experiencing repeated unpleasant thoughts were reported by 20 to 25% of the respondents.

Written comments were freely offered by the respondents and provided a vivid picture of the distress of those days. People worked with whatever skills they brought; most wished they could have done more in spite of heroic actions. The value of training for war was recognized and appreciated by many. The death and disfigurement of children were troubling to many and the death of the U.S. Army helicopter pilot was felt keenly.

People supported each other to a high degree during and following the crash. Much help was also available from outside RAFB: Eighty percent (80%) said they had received support from their supervisor, 79% from friends, 76% from co-workers. Many people were still trying to understand their feelings when the survey was taken. While some reported no discomfort, feelings ranged from angry to confused, tired, and in a daze and numb.

*Six Month Follow-up*

Most of the sample responded to the six month follow-up between April and June 1988 about eight months after the disaster. The modal respondent was a 25 year old married white male, E-4.

Eighty-six percent (86%) of the respondents reported that they still thought about the crash and 24% said they were still involved in some way with the crash, the victims, or the victims' families. For most of those responding, the crash "hit close to home" in that 65% thought "it could have been me." Medical help for emotional problems had been obtained by 5% of the sample since September 1988.

The highest level of support experienced came from family. Sixty-six percent (66%) reported "very supportive" or "highly supportive" families. High levels of support were also experienced from co-workers, supervisor, and friends. Respondents still thought often about the air crash; the reminders were many and varied. Feelings were also varied. Many felt that something positive had come out of the experience for themselves as well as for the Ramstein community; others felt that nothing good could have come out of such a tragedy.

There was evidence from the survey that recovery was proceeding, but sometimes slowly. Feelings of pride in the jobs done by the RAFB personnel were commonly expressed as well as feelings of personal distress resulting from the work. Many individuals had continued professional and personal involvement with the organizational issues of the crash as well as the crash victims and their families.

Handling the dead was extremely stressful. The most difficult bodies for most people to handle are family, friends, and children. The exposure to burned victims (living and dead) was also very stressful, due to the appearance, smell, and knowledge of the suffering that had occurred. The support givers also reported needing support. Recovery generally is occurring over a period of months, not hours or days. The provision of recognition is important to disaster participants as a part of establishing the meaning of the tragedy and their part in it.

## Introduction

On 28 August 1988, Ramstein Air Force Base had its annual air show, Flugtag. During this airshow, a mishap occurred on the Italian team causing a midair collision of three jets one of which crashed into the crowd, estimated at over 300,000. There was an immediate explosion and fireball which carried into the crowd. Spectators suffered extensive burns.

Six aid stations had been set up around the airshow; the north and south aid stations were closest to the crashes. Aid station B, operated by the Otterberg Red Cross was 15 meters from the fireball of the crash. Many of the personnel from the Ramstein clinic who attended the airshow responded immediately to the disaster by reporting to one of the six aid stations and assisting victims. Many performed heroically, and wished they could have done more. Personnel off base were recalled to the base or came on their own, usually reporting to their duty station such as the medical clinic, the dental clinic, environmental health, or other medical activities. Most of the victims were burned, from mildly to completely. Rescue workers provided assistance to burn victims, a difficult and stressful task under the best of circumstance, more difficult in the midst of chaos.

The final death toll was put at 70: the three Italian pilots, four Americans, one person each from France and the Netherlands, and 61 Germans. There were eight children under 14 and four youths between 14 and 18. Forty-six men and 12 women over 18 died of injuries from the disaster (*Stars and Stripes*, 27 August 1989). Thirty were dead at the scene. There were more than 500 reported seriously injured. Over 600 were helped throughout the base.

RAFB personnel were involved in the rescue of victims, retrieval of bodies, first aid to victims (primarily burns), triaging of victims, transport of victims by litter and ambulance to medical facilities, coordination with German hospitals in the Kaiserslautern area and with the American hospitals (primarily the Landstuhl Army Regional Medical Center), ordering and movement of supplies, and the setting up of a temporary morgue. All victims were taken to hospitals or were on their way within 90 minutes after the crash. More than 20 hospitals were utilized. In the week following the crash, the primary task was identification of the bodies although other important tasks were also performed such as a study of the environmental impact from the crash, removal of contaminated clothing and supplies, and accident investigation. Some RAFB personnel went to German and American hospitals to assist living victims, to help identify the dead, and to assist families of the victims.

The press reported a controversy over the emergency care given to the victims. German doctors criticized the rescue operation because the American and German concepts of emergency care were at odds. The German concept is to give immediate care at the scene and then transport patients to hospitals. American military personnel evacuated victims and transported them before giving intensive first aid. It was said that some hospitals were overloaded while others were empty, patients were mistakenly sent to hospitals that did not have the ability to care for them, and some intravenous equipment was incompatible with German equipment (*Star and Stripes*, Tuesday, August 30, 1988). American personnel who participated in the rescue effort were hurt and angry over the press coverage of the event and the "German-American squabbling" over the emergency care. One NCO was quoted in the *Stars and Stripes* as saying "They cannot possibly imagine. We triaged 350 patients in an hour and a half. That is equivalent to a wartime scenario ..." (*Stars and Stripes*, August 30, 1988).

In this summary, we report the reactions of RAFB personnel who responded to the air crash. These reactions were measured through responses to a questionnaire mailed shortly after the incident and again about six months later.

This questionnaire included both open-ended questions and standardized psychosocial and psychiatric instruments to assess the amount of stress felt, support obtained and provided, symptoms of distress, and other reactions and adjustments. This brief overview is meant to give the reader a flavor of the most noteworthy observations of the people involved. A more complete report will be written based on a more extensive analysis of the questionnaire responses. These studies are ongoing.

## **Initial Responses**

### *Summary of Response Frequencies*

Surveys were completed by 100 individuals. Sixty-five percent (65%) of the surveys were completed on 27 October 1988, two months after the disaster. Ninety-one percent (91%) were completed over a three day period from 26-28 October. The age range of the participants in the survey was from 20 to 52 years old with a median age of 28 years. The sample had the following demographic characteristics: 60% males, 40% females; 35% single, 44% married, 72% enlisted with 60% of the enlisted respondents between the grades of E-3 and E-5. A broad range of skills was represented including physicians, dentists, nurses, and personnel from mental and environmental health, optometry, X-ray, logistics, administration, and pharmacy. Almost half the respondents, 42, were from the dental field. The modal respondent was male, married, white, 28 years old, and was enlisted, grade E-4. The educational level was high; 55% reporting having completed at least some college. For 83%, this was their first encounter with a disaster. About half those who were at the airshow were close to the site of impact.

### **THE FOLLOWING IMMEDIATE REACTIONS WERE REPORTED**

- \* Twenty-three percent (23%) reported feeling numb.
- \* Twenty-one percent (21%) reported feeling depressed.
- \* Seventeen percent (17%) reported disbelief, confusion.
- \* Ten percent (10%) reported anxiety.

### **THE EXPERIENCE OF THE DISASTER**

- \* Seventy percent (70%) worked with victims directly. There was a wide variation in the number of victims assisted, from none or a few through over 100.
- \* Sixty percent (60%) worked with burn victims. (who made up almost all the victims.)
- \* Forty-six percent (46%) worked with children.
- \* Thirty-five percent (35%) worked in the emergency room.
- \* Thirty percent (30%) worked with the dead.

- \* Twenty-eight percent (28%) reported having their patients die; many believed that the victims would die later.
- \* Thirty-two percent (32%) had contact with victims' families (an activity also known to be stressful).
- \* Thirty-five percent (35%) of the respondents worked while being very or extremely worried about their own families. Many did not learn that their families were safe until several hours after the crash.
- \* Ten percent (10%) had a friend or family member who was a victim.
- \* Thirty-three percent (33%) reported having a problem providing services. Reasons for this were largely in one of the following categories: (1) difficulty administering first aid because of burns, (2) lack of first aid skills or lack of confidence in these skills, or (3) wanting to do more.
- \* Fifty-five percent (55%) attended some kind of debriefing.
- \* Seventy-one percent (71%) viewed support as adequate.
- \* Respondents generally reported co-workers 62%, friends 60%, supervisors 59%, and family 53% to have been "very supportive" of the disaster.

A wide range of symptoms were reported at two months after the disaster. In the questionnaire, respondents were asked if any of the following symptoms had bothered them in the past week and at what level (on a scale of 0-4, a little to extremely). For this report, we selected the level of 20% of the group that said the symptom was bothering them at the level of "moderately", "quite a bit" or "extremely" (2, 3 or 4 on the scale of 0 - 4). The symptoms responded to and the percentage of the population reporting this level of distress are listed below.

- \* Thirty-three percent (33%) reported feeling easily annoyed/irritated.
- \* Thirty-two percent (32%) reported feeling critical of others.
- \* Thirty-two percent (32%) reported feeling low energy or slowed down.
- \* Twenty-nine percent (29%) reported pain in lower back.
- \* Twenty-eight percent (28%) reported headaches.
- \* Twenty-eight percent (28%) reported being worried too much.
- \* Twenty-seven percent (27%) reported being worried about carelessness.
- \* Twenty-five percent (25%) reported awakening early in morning.
- \* Twenty-five percent (25%) reported feeling easily tired.
- \* Twenty-four percent (24%) reported soreness of muscles.

## *Trauma, Disasters and Recovery*

- \* Twenty-three percent (23%) reported feeling lonely.
- \* Twenty-three percent (23%) reported avoiding thoughts of the trauma.
- \* Twenty-two percent (22%) reported feeling blue.
- \* Twenty-two percent (22%) reported feeling tense or keyed up.
- \* Twenty-one percent (21%) reported repeated unpleasant thoughts.
- \* Twenty-one percent (21%) reported restless or disturbed sleep.
- \* Twenty percent (20%) reported feeling distress if reminded of trauma.

### *Summary of Written Commentary*

The questionnaire allowed respondents to provide written comments. Several questions asked for descriptions of individual reactions and activities undertaken and the stresses felt at various points during and after the disaster. Examples of answers are provided below.

#### **HOW DID YOU FIRST LEARN OF THE AIRCRASH ?**

"Saw it happen."

"Witnessed crash."

"...was working at aid station about 50 yards from the crash."

"Telephone call."

"TV."

"Neighbor."

"...was on duty at Landstuhl."

"...standing under it, using video camera west of hot cargo pad."

"...knocked backward by explosion."

"...was asleep, was awakened by the grass burning."

#### **WHAT WAS YOUR FIRST REACTION TO THE CRASH ? WHAT DID YOU DO AND WHO DID YOU FIRST TALK TO ?**

"Horror. I went immediately to the clinic."

"I was on top of an ambulance and the explosion knocked me back off it. I got up and got blankets out of the back and ran towards the fire. One person was running at me screaming and on fire. I put him down on the ground and put the fire out. After that I took him to the aid station for the nurses and doctors to work on, then went on and worked on other patients."

"Disbelief; reluctant to accept the fact. I briefly discussed with spouse the seriousness of the incident."

**DESCRIBE YOUR ACTIVITIES, IF ANY, RELATED TO CARING FOR DISASTER VICTIMS.**

"I triaged patients, washed burns, helped patients, tried to calm and reassure them."

"I assisted the doctors identifying the bodies with x-rays, prying the mouth open, looking for tattoos, rings, necklaces, etc. I pulled dental records."

"By the time I arrived, I saw mostly walking wounded, minimal injuries. My activity was primarily directing traffic/controlling the flow of persons waiting to help or donate blood." [More than 600 people arrived to donate blood]

"I worked three days preparing bodies for autopsy."

**DID YOU WORK WITH ANY CHILDREN ?**

"I moved a child from barbed wire. He was burned over 95%. I Carried him to doctor because I didn't know what to do for him."

"Carried children on litters who screamed for their parents."

"I tried to comfort children by talking to them."

"Picked up dead children and put them on helicopter."

**DID ANY OF YOUR PATIENTS DIE ?**

"A burn patient who could not be resuscitated."

"All the victims I worked with were dead; I did post-mortem X-ray exams."

"None died right before me, but I thought they probably would later."

"I helped a burned helicopter pilot away from his helicopter. He died a few weeks later."

**DID YOU TALK TO ANY OF THE FAMILY MEMBERS OF THE DISASTER VICTIMS ?**

"I talked to family during the identification process at the morgue."

"People were upset. They wanted information we didn't have."

"Numerous spouses of security police, fire personnel and those who handled the bodies."

**DID YOU ENCOUNTER ANY PROBLEMS PROVIDING THE SERVICES YOU WERE ASSIGNED ?**

"The one thing I couldn't and wouldn't do was touch the bodies to get them out of the body bags."

"Burn patients - it was hard to determine pulses because of thick tissue; chaos made heart sounds difficult to hear."

"Delay in getting medical supplies; poor communication; unable to identify key personnel."

"I was nervous and shaky; couldn't perform too well."

**WHAT WAS THE MOST STRESSFUL OR DIFFICULT EVENT/INCIDENT THAT OCCURRED DURING THIS TIME ? WHY ?**

"I had never seen anybody dead before, so this pretty much shocked me and there was so much blood everywhere in the bags."

"A little boy almost died while we were working on him. I later found out he did die the following day."

"Trying to get through the traffic to get wife to the hospital to give blood."

"No real stressful situations."

"It was all stressful."

"Seeing the child tangled in the barbed wire. I thought of my own daughter, my nieces, nephews and all the children I know and love and thinking that this child could be one of them."

"Initial shock dealing with the bodies. Hard to set your mind, but you knew you had to get the job done."

"Relating to people who had not seen everything. Didn't sleep the first night - kept the TV on. Kept on hearing and seeing the explosion."

"When the family came to identify the body. There was a special section for that and I stood there to assist the family in the event they fainted or became ill. There was nothing I could do to ease their pain; the look on their faces made me want to cry."

"Watching those people I normally work with come back from participating in the disaster relief efforts. They looked as if their soul had been ripped from their body."

"Helping the helicopter pilot because I was afraid the helicopter, which was burning, might blow up before we could pull him away. I'd also never seen anyone so badly burned."

**HOW DID YOU FEEL IN THE FIRST FEW DAYS FOLLOWING THE DISASTER ?**

"Numb. I couldn't sleep or rest."

"Sorrow - dismay."

"Very concerned for the young members of this squadron and their mental state. I personally didn't experience any significant changes in my behavior or mental state. I was concerned about 2 young ladies who had experienced emotional breakdowns the day of the disaster. I spent a lot of my time helping others talk about their experiences."

"Angry - confused - scared."

"Tired, mostly in a daze."

"Very sad, down, depressed."

"Numb - the unrealness of the rest of the world, like the universe expanded and slowly resumed normal time and space."

"I kept wondering when I would feel the full impact of what had happened."

"I put it out of my mind."

"Tired, depressed, overwhelmed by the need to get things done, but didn't seem to be able to get organized."

**DID YOU PARTICIPATE IN ANY COUNSELING/DEBRIEFING AFTER DELIVERING YOUR SERVICES ?**

"We had group therapy at the dental clinic."

"Briefly, one week later. Felt fine at that point and did not want to go back over everything again after feeling secure in my mind."

"Debriefing was an opportunity to know that others were feeling the same way I was; what I was feeling was a normal response."

"Chaplain, in passing."

"One week later by a team from Rhine-Main, a group discussion for 2 hours, several hours one-on-ones with co-workers and one evening with a Vietnam vet. Talked and wrote a lot during the first 72 hours."

"Group counseling, three hours. Felt the counseling helped a great deal, but at work I wanted to keep helping any way I could be was told I'd seen and done enough. I need to help for my own peace of mind, but couldn't."

**DO YOU FEEL THAT THE SUPPORT PROVIDED YOU DURING AND THE FIRST WEEK AFTER THE INCIDENT WAS ADEQUATE AND APPROPRIATE ?**

"I felt overwhelmed by the emotions that were released by the group members - it helped to talk about those feelings during the group process."

"Friends not involved in the accident were always around making sure I was fine. Relatives called to support me."

"Some time was given, but people were also pushed to get back to their normal routine."

"During, there were many people who were leaning on each other. Afterwards, I feel there should've been more follow-up for those who were actually on the scene."

"All agencies tried their best."

"Many people, casual friends, offered emotional support. Every "big wig" came around and said something. Everyone reached out to each other. (Too bad that fades so quickly.)"

*Discussion*

There were many noteworthy themes in the surveys. People worked where they were needed, hours and/or days, sometime heroically. They wished they could have done more, and felt a sense of urgency about their missions. Dedication as well as a sense of helplessness were prominent.

Concern for the safety of one's family, co-workers, and friends at the crash site was high. NCOs were concerned that their people were safe, spouses looked for each other and their children at the site, people were apprehensive about finding family, co-workers or friends among the dead and injured. In addition, concern for each other following the crash was prominent. There was a sense that people supported each other in units and families whether or not they attended a formal debriefing.

Anger at the lack of recognition of what they had done was frequently expressed. The role of recognition and awards as part of the recovery process following exposure to trauma needs further study.

Recognition of the degree of the tragedy - the pain of the burn victims, how they had died, or the painful therapy they would have to endure were frequently mentioned; losses of families who had suffered one or more deaths, feeling the pain of families searching for missing loved ones or identifying the dead were also expressed. Appreciation for the people of Ramstein Air Force Base for its response - pride in the efforts and skill of those who rendered aid, the value of training and the disaster as preparation for a future war were frequent responses.

## Six Month Follow-up

### *Summary of Response Frequencies*

A second survey was mailed six months later, to individuals who had completed the initial survey. Eighty-one (81) were returned. Sixty-seven percent (67%) of these were completed in March 1989. Respondents were between 20 and 52 years old with a median age of 29. There were 47 males and 34 females. Seventy-two percent (72%) of the sample were enlisted and forty-six percent (46%) were between the grades E-4 and E-5.

A broad range of skills was represented including physicians, dentists, nurses, personnel from mental health, environmental health, optometry, x-ray, logistics, administration, and pharmacy. There were 28 respondents (34%) from the dental field. The modal respondent was a married white male, 25 years old, grade E-4 dental lab technician.

Of the respondents, 86% reported they still thought about the crash. The percentage of responses that were endorsed "sometimes" or "often" by the respondents are indicated below.

- \* Forty-three percent (43%) reported "Other things kept making me think about it."
- \* Forty-one percent (41%) reported "Pictures about it popped into my mind."
- \* Thirty-three percent (33%) reported "I thought about it when I didn't mean to."
- \* Thirty-three percent (33%) reported "I avoided letting myself get upset when I thought about it or was reminded of it."
- \* Thirty-one percent (31%) reported "I had waves of strong feelings about it."
- \* Thirty-one percent (31%) reported "Any reminder brought back feelings about it."
- \* Twenty-seven percent (27%) reported "Feeling kind of numb."
- \* Twenty-four percent (24%) reported "I tried to remove it from my memory."
- \* Twenty-four percent (24%) reported "I tried not to think about it."
- \* Fourteen percent (14%) reported "I felt as it hadn't happened or wasn't real."
- \* Twelve percent (12%) reported "Trouble falling asleep or staying asleep."

In thinking about the crash, respondents were asked to rate their present feelings in terms of whether they thought they or someone close to them could be a victim. They rated their feelings on a scale of 1 - 4, from "not at all" to "very much" The following responses were endorsed at a moderate or high level.

- \* Sixty-five percent (65%) said "It could have been me."

## *Trauma, Disasters and Recovery*

- \* Thirty-nine percent (39%) said "It could have been spouse."
- \* Twenty-two percent (22%) said "It could have been son."
- \* Fifteen percent (15%) said "It could have been daughter."

These responses indicate how "close to home" the disaster struck. Some respondents said they were still trying to figure out how it was that they were not killed because they had been standing so close to where the jet crashed.

In the questionnaire, respondents were asked to rate symptoms that had bothered them in the past week on a scale of 0-4, a little to extremely. For this report, we selected the level of 20% of the group that said that the symptom was bothering them at the level of "moderately", "quite a bit" or "extremely" (2, 3 or 4 on the scale of 0-4). The symptoms reported and the percentage of the population giving the response are listed below.

- \* Forty-four percent (44%) reported easily annoyed/irritated.
- \* Thirty-nine percent (39%) reported critical of others.
- \* Thirty-four percent (34%) reported worrying too much.
- \* Twenty-seven percent (27%) reported headaches.
- \* Twenty-six percent (26%) reported worried about carelessness.
- \* Twenty-six percent (26%) reported low energy or slowed down.
- \* Twenty-five percent (25%) reported feeling lonely.
- \* Seventeen percent (17%) reported pain in lower back.
- \* Twenty-three percent (23%) reported feeling tense/keyed up.
- \* Twenty-two percent (22%) reported awaken early in morning.
- \* Twenty-two percent (22%) reported feeling blue.
- \* Twenty percent (20%) reported restless/disturbed sleep.
- \* Twenty percent (20%) reported nervousness/shakiness.
- \* Twenty percent (20%) reported trouble falling asleep.

Twenty-four percent (24%) of the respondents were still involved in some way with the Ramstein crash, its victims, or families of victims. Seventy-three percent (73%) thought something positive had come out of the disaster in spite of the death and destruction. The sample was split about 60:40 on the question of responsibility for the crash. The majority thought that accidents really could not be prevented; another group thought that the Italian pilot or the officials who were responsible for the Flugtag could have prevented it.

Since September 1988, about 5% of the respondents had obtained medical help for emotional or family problems, 28% for physical problems. The highest level of support experienced came from family. Sixty-six percent (66%) reported experiencing the family as "very supportive" or "highly supportive." High levels of support were also experienced from co-workers (60%), supervisors (58%), and friends (57%). When we asked respondents to whom they provided support, the responses were mixed. High levels of support were provided to friends and co-workers, 46% and 57%, respectively, but only 14% to family and 16% to supervisors.

### *Summary of Written Commentary*

The questionnaire allowed respondents to provide written comments. Questions were asked about an individual's continued involvement with the crash or its victims, thoughts about the disaster, current feelings about the disaster, whether anything positive came out of it, thoughts about cause and blame of the crash, reactions to the Pam Am flight 103 crash (Lockerbie, Scotland), and medical care obtained since the crash. Examples of responses are provided below.

#### **DO YOU EVER THINK ABOUT THE RAMSTEIN AIR DISASTER ?**

"It will always be with me, one way or another; the smell of blood burning."

"Hearing aircraft going overhead, all the time, remember the pain and the death of that day."

"When I hear helicopters or see volunteers sign up sheets for large public functions, I get ominous (non-specific) feelings."

"News updates; subject of death or flying; have flashbacks and vivid recall of events."

"Aircraft noise and sirens trigger feelings of doom."

"I feel no emotional distress. I wish people would get over it (their emotions and inadequate feelings). It's all over, let all of us get on with our lives."

"Usually at night when I'm alone and my husband is TDY. I see the victims in the acute care clinic. The thoughts seem to come from nowhere and get my mind and body tense."

"Many departing personnel got awards and mentioned in APRs that they were involved."

#### **THINKING BACK TO THE DISASTER, WHAT ARE YOUR CURRENT FEELINGS ?**

"I try to block it out of my mind."

"It was a terrible tragedy and I feel sorry for the living victims who suffer everyday."

"Fearful of being present at anything similar again."

"Anger - maneuver should not have been performed."

"Seems like a long time ago - like a bad dream. You have no feelings about it, but remember it."

"I wish I knew then what I know now. I recently completed an EMT course. Had this not happened, I wouldn't have taken the course."

"Horrible scene, hard to suppress even now."

"It was hideous. I went very quickly and I accomplished very little. I feel ignorant and impotent."

"More appreciation of life and how fragile it is."

"Depression, helplessness, sadness. I was not at the actual event, only there for the cleanup, but smells trigger vivid recollections of events."

"This has had such a major impact on so many people's lives. I still feel badly when I hear patients describe the accident and how they have had trouble coping since then."

**DO YOU FEEL THAT ANYTHING POSITIVE CAME OUT OF YOUR EXPERIENCE WITH THE DISASTER ?**

"I know that if anything like this or worse happened, I could help out. It's not that I'm cold, but I feel it's helped me get stronger. Knowing we did everything we could."

"Yes, a more mature and rational approach toward offering immediate and sustained grief counseling for many of the health care personnel."

"People learned a lesson in how to handle a major emergency - no one was thanked or rewarded - I lost respect for those in charge."

"No - I pray that it will be the worst thing that ever happens to me."

"Better able to handle problems, especially serious ones."

"More family centered activities."

"It made me realize that I had an inner strength that I could pull from in a crisis, and that I'm a very strong person."

**WHEN YOU HEARD OF THE PAN AM PLANE CRASH IN DECEMBER 1988, DID YOU HAVE ANY REACTION ?**

"Would have been scary; I wanted to help. I felt pain and grief and didn't even know anyone on the plane or on the ground."

"I remembered my feelings and how the victims' families would feel."

"I felt a wave of nausea - enraged to think that someone had caused it."

"I cried thinking of all those involved. I know how they felt."

**HAVE YOU OBTAINED MEDICAL CARE SINCE SEPTEMBER 1988 ?**

"I have trouble sleeping and feel exhausted. If I get 1 or 2 hours sleep in a night, I'm lucky."

"I injured my back during cleanup; a chronic problem. I did not use the mental health clinic, I used the chaplain."

"Have constant back and pelvic pain."

"Ulcer symptoms."

"Pelvic pain, hypothyroidism."

"Atypical chest pain."

*Discussion*

These findings at approximately six months post-crash indicate that many people are still significantly involved with the crash through professional or personal contact with victims or their families, and everyday reminders of the disaster.

Another major finding that is also evident is pride in what the personnel from Ramstein accomplished on the day of the crash. Many people appear to have gained confidence in themselves and gone on to live in a more meaningful way. Even in the face of such a disaster, individuals can experience positive outcomes. In addition to the pride felt, some people continued to be bothered by various complaints, such as experiencing frequent reminders of the crash, easy annoyance, anxiety, depression, and other complaints.

A supportive environment appeared to exist six months after the crash. Friends, co-workers, supervisors and families were seen as providing high levels of support.

**RAMSTEIN AIR DISASTER:**  
**LANDSTUHL ARMY REGIONAL MEDICAL CENTER PERSONNEL**

## SUMMARY

In August of 1988, at Ramstein Air Force Base, Germany, an air show disaster during the Flugtag celebration when the Italian jets participating in the air show collided. The crash left more than 70 dead and was witnessed by a crowd of over 300,000. Shortly after the disaster, a study of the medical personnel who provided care to disaster victims was initiated. This study included individuals at the Ramstein Air Force Base Clinic and the Landstuhl Army Regional Medical Center. Many of these individuals were present at the disaster and, therefore, were also direct victims of the disaster. These studies continued for 18 months following the disaster. This report is a summary of the initial and six months post responses of the Landstuhl Army Regional Medical Center personnel.

### *Initial Responses*

Medical personnel experienced a wide range of emotional responses to the disaster from disbelief to horror. Of the respondents, 30% were very or extremely worried about their family during the time of the disaster and 29% reported some type of problems in providing their services. Many symptoms were reported even at 3 months after the disaster. The meaning of these symptoms is unclear at this time and requires further study. Nearly all participants in the study reported that dealing with the dead, and particularly with child victims, was extremely difficult. Exposure to grieving family members was also a significant stressor. The experience of helplessness was reported by many hospital personnel as the demands of the disaster overwhelmed the available resources. Feelings of wishing to act and to do ran high as individuals responded to the disaster. Many individuals recalled and reported the loss of the army helicopter pilot in the disaster. Clearly, this one individual became symbolic of the tragedy for Landstuhl Medical Center personnel.

### *Six Month Follow-up:*

At the time of the second survey, the majority of respondents (81%) were no longer directly involved with the victims from the disaster. However, many reported they still thought about the event and continued to have strong feelings about it. For some respondents, pictures about the disaster would "pop into their minds". For others, specific reminders would trigger memories of what they saw, heard or felt or how they responded immediately after the crash. Certain odors, the sounds of aircraft, and hearing of other disasters or accidents recalled the Ramstein disaster scenes. Particularly painful for many were their memories of burn victims, and corresponding feelings of horror, sadness, fear and helplessness.

The Pan Am crash of December 1988 reminded respondents of the Ramstein crash and seemed to reinforce feelings of vulnerability and thoughts that "it could have been me or my loved ones". Many of those surveyed continued to report moderate to extreme symptom levels that affected cognitive, affective and interpersonal areas of functioning, although the meaning of these reported symptoms remains unclear and requires further study.

The majority of respondents reported support from family, friends, co-workers and supervisors following the disaster. Many described attempts to come to terms with the air crash, and with their own response and role as part of the medical community. Eighty-one percent (81%) believed that something positive had come out of their experience with this event. Some reported increased pride and staff cohesion, while others redefined their personal values and belief systems.

Commanders must be alert to the stress caused by dealing with the dead. In particular, exposure to child victims is extremely stressful. Individual and unit recovery from providing service and support requires time - weeks and months rather than days. The support givers experience high levels of stress. Understanding the responses of personnel to such tragedies will allow us to better manage the medical consequences of such disasters in the future as well as to maximize the performance of our hospital personnel and minimize the detrimental psychological effects of exposure to such overwhelming trauma.

## Introduction

On August 28, 1988, Ramstein AFB had its annual air show, Flugtag. During the Italian air team's performance of the dangerous "pierced heart" maneuver, three of the Italian jets collided sending two crashing into the runway and nearby woods and one hurtling into the crowd. The subsequent crash left 30 to 40 dead at the scene and approximately 360 injured from a crowd of 300,000. The eventual death toll climbed to 70, as many succumbed to their multiple injuries and extensive burns. These fatalities included 61 Germans, 4 Americans, 3 Italian Pilots, 1 Frenchman and 1 Dutchman, of these 12 were children and 12 women.

Initial first aid at the scene included extinguishing flaming victims, applying dressings, starting IV's and preparing the injured for transport. The majority of these casualties received burn injuries and were transported from Ramstein AFB to the Landstuhl Army Regional Medical Center (LARMC) prior to transfer to local German facilities or to facilities in the United States depending on their need for care. In all more than 40 German and American facilities were used to care for the 166 that required hospitalization.

There were numerous emotional responses to this disaster: stunned disbelief, a pervasive silence among the crowd followed by weeping, and abject horror. In the following, we report a summary of the initial and six month post responses of the LARMC staff. Many of these individuals were present at the crash and delivered care to the survivors on site as well as at LARMC. Through a review of their responses to this tragedy, a better understanding of how people react and cope as individuals and as members of a military unit and health care facility can be gained.

## Initial Responses

### *Summary of Response Frequencies*

Surveys were completed by 154 individuals. The median time for completion was approximately November 18, 1988, three months after the crash. Fifty-eight percent (58%) of the individuals completed the survey on that date. Of the participants, 100 were male (64.5%), 63% enlisted. Seventy-six percent (76%) were white. Age ranged from 19 to 59 with the median age of 32. One-third of the sample were less than age 28 and two-thirds were less than or equal to age 37. Forty-six percent (46%) of the sample were married. Nurses comprised 24% of respondents. This was a highly educated sample, 44% having completed college or having an advanced degree.

### THE DISASTER EXPERIENCE

- \* Twenty-six percent (26%) of the sample reported not having worked directly with any victims. Thirty-five percent (35%) worked with one to ten and 38% reported working with more than 10 victims of the Ramstein Disaster.
- \* Thirty-two percent (32%) of the sample worked in the emergency room, 29% reported having worked with child victims, 49% with burn patients. Twenty-five percent (25%) reported that at least one of their patients had died. Interestingly, 39% said they had talked with families of the victims.

- \* Thirty percent (30%) of respondents reported being very or extremely worried about their own family during the time of the disaster.
- \* Twelve percent (12%) reported having friends or family who were victims.
- \* Twenty-nine percent (29%) reported problems in providing their services.
- \* Thirty-four percent (34%) attended some form of a debriefing after the disaster.
- \* Sixty percent (60%) reported that support was adequate, while 7% felt it was not. The remainder had mixed feelings.
- \* Seventy percent (70%) reported that support from friends, co-workers, and supervisors was reported as neutral to very supportive.
- \* At the time of data collection, 8% of the subjects reported having "moderate" to "extreme" thoughts about death.
- \* Seven percent (7%) felt moderately to extremely hopeless about the future.
- \* Twenty-six percent (26%) expressed a "little bit" of trouble concentrating while 11% were having moderate to extreme difficulties in concentrating.
- \* Twenty-five percent (25%) reported feeling a "little bit" tense or keyed up, while 18% felt moderately to extremely keyed up.
- \* Thirty percent (30%) felt a "little bit" like having to double-check what they were doing, while 15% felt moderately to extremely concerned about needing to double-check things they were doing.
- \* Twenty-five percent (25%) reported a little difficulty in making decisions, while 10% reported moderate to extreme difficulty in decision making.
- \* Fifteen percent (15%) reported a little difficulty in falling asleep, while 12% reported moderate to extreme difficulty in falling asleep.
- \* Twenty-four (24%) felt a little blue, while 18% felt moderately to extremely blue.
- \* Trouble remembering was reported as a "little bit" by 31% of the sample and as moderate to extreme by 16% of the sample.
- \* Twenty-three percent (23%) were slightly worried about carelessness, while 26% were moderately to extremely worried about carelessness.
- \* Thirty-seven percent (37%) felt a "little bit" critical of others, while 30% felt moderately to extremely critical of others.
- \* Nervousness was reported a "little bit" by 28% of the sample, and moderate to extreme by an additional 11% of the sample.
- \* Twenty-one percent (21%) felt a little like everything was an effort and 8% felt moderately to extremely that everything was an effort.

- \* Twenty-three percent (23%) felt a little like they were not given credit for achievements while 19% felt moderately to extremely that they were not given credit for their achievements.
- \* Eight percent (8%) reported being bothered a "little bit" by repeated nightmares. Seven percent (7%) were moderately to extremely bothered by nightmares.
- \* Approximately ten percent (10%) experienced a reliving the trauma "a little bit", while 7% were moderately to extremely bothered by this.
- \* Twenty-five percent (25%) of the sample reported being a "little bit" easily tired, while 11% were moderately to extremely so.
- \* Twelve percent (12%) felt moderately to extremely detached from others.
- \* Seventeen percent (17%) of the sample reported being moderately to extremely less angry.
- \* Ten percent (10%) reported moderate to extreme distress when reminded of the trauma.
- \* Six percent (6%) reported moderate to quite a bit more alcohol intake.

#### *Summary of Written Commentary*

A part of the survey specifically inquired about the participants' role in the disaster including how they were notified, their initial reaction and first actions; role in delivering emergency care in the ER, work with disaster victims' family members, and what they found most stressful. Other questions included: the participants past experience with mass casualties, the quality of support provided in the aftermath by the hospital, their family and the community. Participants were also queried about any work with children, burn patients, any patients that died, or whether they were involved in disaster cleanup, and their degree of worry about their own family's safety at the time of disaster. Representative responses to these items are presented below.

#### **HOW DID YOU FIRST LEARN OF THE AIR CRASH ?**

"Called by unit CQ."

"I was there."

"Watched it occur."

"Heard it on the radio."

"A friend called."

"I saw it."

"Word of mouth in the shoppette at Ramstein after leaving the flight line area."

**WHAT WAS YOUR FIRST REACTION ? WHAT DID YOU DO AND WHO DID YOU FIRST TALK TO ?**

"(I thought) it was part of the show then I started to run away from the area when I saw the fuselage bouncing toward the crowd."

"It was a couple of moments before the reality of the crash was recognized."

"It was a total shock and the first thing I thought about was the personnel who were working at the crash from our unit."

"I stood for a moment and thought of how many people could be involved if the plane went into the crowd. I was stunned by the thought. Then I changed into my BDU's (battle dress uniform) and put a Rosary in my pocket and went into the Hospital....."

"My first reaction was perhaps one of denial. I thought that perhaps the hospital was engaged in a mass casualty exercise although it did not make sense to me that there was so much activity going on with the helicopters and ambulances. I realized it was not an exercise when I walked into the hospital entrance near the ER and saw the first burn patient. The first person I spoke with was the Hospital Adjutant who told me the Family Assistance Center would initially be set up on Ward 5A. I went to Ward 5A, which is co-located with my office and immediately notified 5 additional chaplains since I knew we would need help working with families."

"I watched in disbelief...Accounted for family members.....Found a telephone and called friend to have him call LARMC to alert the ER."

**Two off duty physicians had the following responses:**

"I was on call and no one paged me."

"Turned on the radio for further information."

**Two service members on leave or TDY:**

"Concern for my family who I thought was at the Air show,..(My) Brother-in-law told me everyone was okay,..He heard from my wife."

"Astonishment!! I immediately called my friend who lives on Ramstein Air Base. Next I called the hospital to see if I was needed to help relieve the nurses that had been working the accident."

"I was 200 yards from the impact area...started to walk backwards with my two friends."

"Sitting in a Landstuhl restaurant with three other National Guard members. We knew about the Air show, though we didn't go because we didn't have

time. Ambulances, police and personal vehicles were rushing past our window when the news came over the radio.....We paid for the meal and began walking up to the hospital complex. The first reaction was calm but sad. Our walk became a run up the hill to the hospital."

"I went to the LARMC E.R. and what I saw made me freeze. When the shock was over, I asked a staff member where I could be used."

**DESCRIBE YOUR ACTIVITIES, IF ANY, RELATED TO CARING FOR DISASTER VICTIMS.**

"Yelled 'Roll, Roll, Roll' to our burning pilot and went to put him out. After he was out and moved from the fire area and around our helicopter I assisted in dressing his burns and starting IV's.....I was sent back to Ramstein to get more patients, but when I returned I was forced to have my own burns dressed. By the time this was done, all patients had been transported out."

(Chaplain) "Help primarily centered around working with disaster family members....."

**DID YOU WORK WITH ANY CHILDREN ?**

"Talked with German children in German to try and tell them what we were doing and that they would be ok."

"Assisted in the triage area in helping to unload patients from the initial ambulances upon their arrival at the Landstuhl Army Medical Center Hospital. I also assisted in the transportation of victims from the ambulances into the ER area and the reloading of victims who were subsequently transferred to other facilities".....He reiterated later that transporting "a child of 3-4 years of age that was severely burned" as his most stressful incident.

**DID ANY OF YOUR PATIENTS DIE ?**

"I learned afterwards of a little German girl that died. I told her she was going to be OK and we were going to help her."

"I have no doubt that the patient thrown in my ambulance in addition to my pilot had no chance for survival, but I have no way of finding out what happened. The pilot died in Brooke Army Med Center on 17 September."

"I was helping to carry a very large man up the hill to a chopper. When we got to it, the chopper was already full. While we waited the man went into shock or some sort of spasm and died."

"A man, German I think, who was so badly burned (that) his face and neck were swollen he couldn't breathe. They tried an emergency tracheotomy with no success."

**DID YOU TALK TO ANY FAMILY MEMBERS OF THE DISASTER VICTIMS ?**

"I expressed my condolences to the pilot's wife."

(Nurse) "Brief conversation with the pilot's wife when she came to the SICU to visit her husband. I only comforted her and told her he was stable. At the time he was alert and communicating by giving us a 'thumbs up for OK!'"

(Chaplain) "I spoke with numerous family members not only the day of the disaster but on a daily basis after the disaster took place. As long as there were hospital patients I visited with them on a daily basis."

**DURING THE FIRST 12-24 HOURS AFTER THE DISASTER, WERE YOU WORRIED ABOUT FRIENDS OR RELATIVES WHO YOU THOUGHT WERE AT THE AIR SHOW ?**

Extremely worried: "My son was at the Air Show and my wife and I did not know his status for at least 5 hours." Later this was listed as his greatest stressor as he worked with families of the victims.

"I was tremendously relieved each time I saw a friend the next week."

**PLEASE DESCRIBE ANY ADDITIONAL ACTIVITIES OR LOCATIONS, OTHER THAN THE HOSPITAL, WHERE YOU PARTICIPATED IN DISASTER VICTIM CARE OR DISASTER CLEAN-UP.**

"At the mortuary I went there with the casualty clerk. The first day Mrs. X was there. She was already prepared and in the casket to be sent back to the States. I never saw her only the diagram showing her injuries. The next day we had to return and they had found her son amongst the 45 unidentified at Ramstein gym. They were holding the mother until they found the son to send them together. I was touched by that.....He was only 9 years old. I thought of my own sons and I just wanted to hold and comfort this child because his mother was dead - but he was dead. I hurt for his mother because her child would never run and play again - but she would never know. It was all so confusing....."

"The next morning, my first assigned task was to locate 'reefers' (cold storage tractor trailers) so they could be stationed at LARMC and Ramstein AFB for storing remains of victims prior to identification."

"On scene review of our crashed aircraft at Ramstein. Body parts and a dead Italian pilot were at the scene."

"The most stressful was to pick up the corpses because I have never seen anything in that quantity."

**DID YOU ENCOUNTER ANY PROBLEMS PROVIDING THE SERVICES YOU WERE ASSIGNED ?**

"Every time I went outside to bring in another victim, I had to fight back the urge to cry."

"No supplies, too many of them, and not enough us."

"No mechanism for passing information on to families."

"Not enough supplies, difficult organizing people due to panic."

"Language problems with other providers at the site, delays in arrival of materials, i.e, IV's."

"Absolute confusion by many who were trying to assist."

"Most of the people were unable to speak (English). Arm bracelets (with numbering) could not be placed on burned arms. During the chaos some (admission) packets were lost and we lost track of patients."

"...hard to start IV's on shock patients - even though I start IV's every day."

**WHAT WAS THE MOST STRESSFUL OR DIFFICULT EVENT/INCIDENT THAT OCCURRED DURING THIS TIME ? WHY ?**

"Putting my patient on the bus for air evac, the reality of what happened finally hit me."

"I couldn't do enough."...."The whole event was very stressful because there was not much I could do for these patients.".... "I felt I was not doing enough to help the victims. I felt useless."

As one burn therapist put it, "I knew just how bad off these people really were."

"Hearing people cry out in pain."

"Watching a girl on the bus to Ludswinghafen scream every time we hit a bump."

"Treating a burn patient for 7-10 minutes before I recognized that it was one of our fliers."

"My children's reactions."

"Death of an officer assigned to the unit from burns sustained while performing MEDEVAC standby at the air show..... Empathy for his wife and five children."

"The death of (one of our aviators) because he was a big morale booster at this unit and I felt that I had lost my father over again."

"The grief his (the aviator's) family went through."

(Photojournalist after working in the mortuary) "... I walked out of the room into another office. (The American aviator's) belongings were in a bag and they went through each individual item for me to sign for and give to the 632nd. At that point I had trouble keeping a few tears from falling. When I

returned to the hospital they were preparing to MEDEVAC the four burn patients to BAMC. I had to photograph it. I didn't want to really. I got there but the burn team wasn't notified. They came out, I started shooting and the doctor yelled 'Get her out of her with that camera' and swung his arm pulling a tube from this guy. I wanted to crawl in a hole and hide forever. I felt so guilty. Here I am with this stupid camera again, while they're trying to save a life, I could be causing him more harm....."

"The most stressful was to pick up the corpses because I have never seen anything in that quantity."

"Seeing children injured because I lost my son a little over a year ago."

**HOW DID YOU FEEL DURING THE FIRST FEW DAYS FOLLOWING THE DISASTER ?**

"Numb," "depressed," "angry."

"Not quite all together here. My burned arm didn't feel very good either."

"After the disaster I felt tired, I had trouble sleeping for a couple of nights, would picture in my mind the things I saw going on in the hospital, and generally felt listless. These feelings lasted approximately 2 to 3 days."

"Good, I knew we had done our best."

"We worked so hard that day and you couldn't think about what you were doing, you just had to do it. But that night when I got home I cried for hours for all the people who's lives would never be the same."

**DID YOU PARTICIPATE IN ANY COUNSELING/DEBRIEFING AFTER DELIVERING YOUR SERVICES ?**

(No) "No time (to participate). I had to coordinate the deployment of the unit to Italy for 30 days while caring for the family of the injured pilot. I left two days after accident."

(No) "No, because I've dealt with this for the last 14 years."

The vast majority attended and described benefit from these briefings.

**DO YOU FEEL THAT THE SUPPORT PROVIDED YOU DURING THE FIRST WEEK AFTER THE INCIDENT WAS ADEQUATE AND APPROPRIATE ?**

(No) "Unit's mission and deployment to Italy for 30 days prevented support. The unit healed on its own under the most trying circumstances. My leadership and motivation skills were tested to the fullest. I had assumed command 2 weeks earlier."

(No) "I think there was a good attempt to reach people that may have been deeply affected by the disaster and there were some excellent counselling available but I also think a few more pats-on-the-back could have been passed around."

(No) "I didn't think our unit handled the death of (one of our aviators) well at all. It was more of a taboo to talk about it."

(Yes) "I feel this was based on conversations with people who were counselors or involved in it."

(No) "My commander had to place me in (the injured aviator's) job.....I do not feel that I had adequate time to complete the grieving process."

(Yes) "My wife and chain of command were very supportive."

(Mixed) "It was hard to explain. My emotions felt like they were in a blender. I just dealt with what happened the best I could and drove on."

The vast majority of responses praised the support services provided.

**IF YOU HAVE ANY ADDITIONAL COMMENTS YOU WOULD LIKE TO OFFER, PLEASE USE THE SPACE PROVIDED BELOW AND THE BACK OF THIS PAGE.**

"Because of the circumstances beyond my control, I had to 'fill the shoes' of (the injured aviator). Since this was an immediate thing, I wasn't able to fully grieve for the loss of my friend. I guess the worst of it was how quickly he was sent off to better medical care at BAMC. I wasn't able to say good-bye or to tell his wife how sorry I was for his injury. Then, he was thousands of miles away when he died. I couldn't do anything for his family and I felt helpless. (The injured aviator) was not assigned to be the pilot on duty that Sunday - I was! (Co-worker) and I was on stand-by all weekend. Saturday's practice was uneventful and rather than ruin my whole weekend, (the injured aviator) volunteered to take my place on Sunday so I could be with family. He was there instead of me. I guess that I will always feel guilty about that but some recent counseling by the Chaplain has helped me put my life more into perspective and to enjoy each day to the fullest."

"I'm usually very critical of Landstuhl and the way things usually go around here. I've been disappointed with this institution and its support channels (i.e. personnel, chain of command etc.) since I've been here. But the way the staff came together and responded to the disaster made me proud to say I worked at Landstuhl for the first time in 3 years. Everyone felt good about themselves for about a week, then we went right back to the same old bureaucratic BS I've experienced since I've been here."

"I feel like Landstuhl didn't get recognized at all. All the write-ups talked about Ramstein and Landstuhl was barely mentioned. Landstuhl is Europe's best kept secret! Most of the people at the event were from Landstuhl and they still haven't gotten any credit."

"Yes! A job well done by all who were there to help no matter what their role was!"

"I was on TDY in CONUS at the time of the crash. When I was first notified, I was told my family and friends were okay, then I was told about the crash. When I got back to Landstuhl, the excitement and immediate effects of the crash were over. I don't feel involved emotionally other than to recognize it as a tragedy for those involved."

"If there is a way to send a message to Mr & Mrs (a family's name) and son, I would wish them speedy recovery and let them know I think of them often and keep them in my prayers."

"I thought about when I graduated from the UPT program, I had to wait 8 hours to be picked up. I felt abandoned by my own unit; the people I take care of on a daily basis; even at odd hours of the night when someone gets their face smashed in, and I'm asleep. I thought that after all I went through, and graduating with academic honor's; that I deserved better. At that point after yelling at the ISG!, I broke and cried more than I've ever cried in my life; not caring who saw."

### *Discussion*

Conclusions from this initial review of Landstuhl personnel's responses should be conservative and limited. The modal subject was age 32, married, white, male and enlisted. Nearly one third of the sample worked with children and burn patients. Twenty-five percent (25%) of the respondents reported that at least one of their patients had died. Interestingly, 39% talked with a family member of a victim. Respondents expressed a high level of anxiety and concern about their own families shortly after the disaster. About one-third of the survey responders attended a debriefing. Overall support to these individuals was reported as adequate. Approximately 5%-10% of the sample endorsed moderate to extreme symptoms, however, the meaning of this is not clear. Interestingly, the symptoms related to obsessional thinking (decreased concentration, concern about making mistakes etc.) appeared to be strikingly increased.

The themes of helplessness, denial, need to act, and the meaning of the loss of a unit member occur frequently in the responses on the survey. In the face of the overwhelming human suffering, the feeling of helplessness was prominent. "I couldn't do enough," was a frequent comment and was one of the major stressors for those at the crash site. Health care providers and medics at the scene complained of "too many of them, not enough us" and a "lack of supplies." Many others described great difficulty listening to those "cry(ing) out in pain," feeling they could do nothing, or "watching a girl on the bus to Ludswinghafen scream out every time we hit a bump". The language barrier added to this sense of helplessness, "I just wanted to tell them how much I cared." Some individuals described anger at the German authorities for criticism of the American emergency services.

Initial responses were almost universally "denial", "shock," or "astonishment." "It was a couple of moments before the reality of the crash was recognized." The next response was usually for those emotionally closest who might be at risk from the disaster, "Concern for my family who I thought might be at the air show," "I accounted for my family," and "I thought about my unit personnel who were working at the crash." These initial feelings appeared to give way quickly to the need to take action, ("I was 200 yards from the impact area.....started to walk backwards with my two friends."). The vast majority of our respondents took direct action when confronted with the disaster. One respondent described the flight medic yelling,

"Roll, roll, roll, to our burning pilot and went to put him out." The feeling of needing to act was high. One individual continued to work till "forced to have my burns dressed." Many secondary helpers were drawn to the LARMC. A group of National Guardsman "...walked up to the hospital complex....Our walk became a run up the hill to the hospital." Though not mentioned in this report, the lab section was overwhelmed by blood donors and had to turn people away, requesting that no more volunteer donors come to LARMC.

The need for action appeared to be affected by the 'emotional closeness' to the disaster. Those who were on site or knew someone they thought may have been there were more insistent on acting. Note the contrast between the flight medic's response to his pilot and this response, "I was on TDY in CONUS at the time of the crash. When I was first notified, I was told my family and friends were okay, then I was told about the crash. When I got back to Landstuhl, the excitement and immediate effects of the crash were over. I don't feel involved emotionally other than to recognize it as a tragedy for those involved."

The relationship of training to action requires further study. Responses varied by rank and command status. Those of higher rank or having command responsibility reported taking early direct actions in notifying their units of the accident and initiating a recall. Usually after attending to their families' needs, their response was to their organization: a pharmacist who called the ER at LARMC and later got a ride there to handle supplying the ER; the CO of the helicopter unit initiated a recall of his unit from home.

Training may also have affected how the health care providers came to view their efforts and to measure their emotional responses after the disaster. Many of the physicians responses to this disaster were "I knew we'd done our best." In contrast, many of the technical staff felt "my emotions were in a blender," others described mild sleep disturbances, reactive nightmares and feelings of listlessness.

The number and intensity of the responses that specifically mentioned the loss of the US Army helicopter pilot were striking. The pilot was remembered by name not only by his unit but also by many others that came in contact with him, i.e. a nurse and the photographer. We can postulate what factors made him more memorable than other burn patients. These might include the feeling that he was "one of us" - an identification. In addition he was known to people. There was a high degree of identification by his fellow aviators, especially with the loss his family felt. One aviator described a survivor guilt making his adaptation to the stresses of deployment and flying even more difficult. This loss also appeared to have special significance to several of his unit members who either witnessed his injury or tended to his wounds after it. A medic described his most stressful event as "treating a burn patient for 7-10 minutes before I recognized that it was one of our fliers." One unit member described the reactivation of old losses, "It felt like I lost my father over again."

### Six Month Follow-up

#### *Summary of Response Frequencies*

A second follow-up survey of the Landstuhl Army Regional Medical Center hospital personnel was completed approximately eight months after the air crash at Ramstein Air Force Base in August 1988. The sample included 114 participants, reflecting 74% of the original sample of 154 individuals. This sample size was reasonable, and the sex, age, rank and occupational distributions was similar to the sample of initial respondents.

Surveys were completed by 114 individuals. The median date of completion was April 3, 1989, about eight months following the air crash. Sixty-nine of the respondents (60%) were male, and 45 (40%) were female. Fifty-five percent (55%) of the sample were enlisted, with ranks from E-2 to E-9. Forty-two percent (42%) were officers. The sample ranged from 20 to 56 years of age with the median age of 34. Three-fourths of the sample were between 20 and 40 years of age. The most representative occupations for the sample were nurses, who comprised 22% of the respondents, and psychiatric and laboratory technicians, who comprised 17%.

#### **THE EXPERIENCE OF THE DISASTER AT THE SIX MONTH TIME POINT**

- \* Nineteen percent (19%) of the respondents reported they were still involved with victims or families of the victims from the disaster; 81% reported they were no longer involved.
- \* Eighty-two percent (82%) of the sample reported they still think about the disaster.
- \* Eighty one percent (81%) believed that something positive had come out of their experience with the disaster.
- \* Sixty-two percent (62%) believed that accidents such as the Ramstein air crash can be prevented; 38% believed not.
- \* Eighty-eight percent (88%) reported a reaction to the Pan Am plane crash of December 1988.
- \* Thirty-three percent (33%) of the sample reported obtaining or feeling in need of medical care for physical, emotional or family problems since the time of the disaster.
- \* Fifty percent (50%) of respondents reported going out with a good friend or with their spouse to do something relaxing one or two times "in the past week"; 30% reported going out three to five times; 13% reported not at all.
- \* Fifty-nine percent (59%) reported their families had been fairly to very supportive for them since the disaster; 5% reported their families as fairly to very unsupportive; 29% reported family support as "neutral".
- \* Forty-four percent (44%) reported their friends as fairly to very supportive; 50% reported fairly to very supportive co-workers; and 41% reported fairly to very supportive supervisors.
- \* Forty-eight percent (48%) of respondents claimed to have provided support to friends who were upset by the disaster; 47% provided support to co-workers; 17% provided support to supervisors; and 33% provided support to their families.
- \* At the time of data collection, 44% of the sample felt very much that the victims "could have been me"; 18% of the sample believed this moderately, and 23% believed this somewhat.

- \* Sixty-two percent (62%) felt very much that the victims could have been their spouse; 43% felt the victims could have been their son; and 36% that they could have been their daughter.

**RESPONSES TO THE DISASTER REPORTED AT THE SIX MONTH DATA COLLECTION TIME.**

- \* Thirty percent (30%) of respondents reported avoiding getting upset when they thought about the disaster.
- \* Twenty-seven percent (27%) reported that any reminder brought back feelings about the disaster.
- \* Twenty-seven percent (27%) reported pictures about the disaster sometimes or often popped into their minds.
- \* Twenty-five percent (25%) of the sample reported they sometimes or often thought about the disaster.
- \* Twenty-four percent (24%) reported that other things kept making them think about it.
- \* Eighteen percent (18%) reported they sometimes or often tried to remove the disaster from memory.
- \* Eighteen percent (18%) claimed they sometimes or often had waves of strong feeling about it.
- \* Eighteen percent (18%) claimed they sometimes or often felt as if the disaster hadn't happened or wasn't real.
- \* Eighteen percent (18%) claimed their feelings about the disaster were sometimes or often numb.
- \* Fifteen percent (15%) reported they tried not to think about it.
- \* Fourteen percent (14%) reported they tried not to talk about it.
- \* Twelve percent (12%) reported they stayed away from reminders of it.
- \* Ten percent (10%) claimed they had a lot of feelings about the disaster that they hadn't dealt with.
- \* Nine percent (9%) reported they sometimes or often had dreams about it.
- \* Forty-four percent (44%) of the sample reported trouble remembering things; 16% reported moderate to extreme trouble, while 29% claimed "a little bit" of trouble.
- \* Forty-four percent (44%) of the sample reported feeling blocked in getting things done; 39% reported difficulty in making decisions; and 24% reported trouble concentrating.

- \* Forty-four percent (44%) of the sample felt tense or keyed up; 17% felt moderately to extremely tense, while 27% felt a little tense.
- \* Thirty-one percent (31%) of respondents reported feeling moderately to extremely easily annoyed or irritated.
- \* Twenty-nine percent (29%) of respondents reported uncontrollable temper outbursts; 14% to a moderate or extreme degree, and 15% "a little bit".
- \* Nineteen percent (19%) of respondents reported they felt a little nervous, while 14% felt moderately to extremely nervous.
- \* Forty-three percent (43%) of respondents reported feeling easily tired; 7% reported feeling easily tired to a moderate or extreme degree, while 36% reported "a little bit".
- \* Thirty-one percent (31%) of the subjects reported trouble falling asleep; 40% of respondents reported early morning awakening; and 43% reported restless and disturbed sleep.
- \* Twenty-one percent (21%) claimed they were moderately to extremely low in energy or slowed down.
- \* Fourteen percent (14%) claimed they had repeated unpleasant dreams or nightmares.
- \* Twenty-two percent (22%) reported weight loss.
- \* Eleven percent (11%) reported drinking more alcohol.
- \* Forty percent (40%) of respondents claimed they felt lonely; half of these reported feeling "a little bit" lonely, while half reported feeling lonely to a moderate or extreme degree. Twenty-nine percent (29%) of the sample reported feeling lonely even when they are with people.
- \* Thirty-three percent (33%) of the sample felt that most people cannot be trusted; 20% felt this "a little bit", while 13% felt this to a moderate or extreme degree. Thirty-seven percent (37%) of the sample felt that people will take advantage of you if you let them.
- \* Thirty-four percent (34%) of respondents reported feeling moderately to extremely critical of others.
- \* Fifteen percent (15%) reported feeling moderately or extremely detached from others; 18% reported feeling a little detached.
- \* Thirty-five percent (35%) of respondents reported feeling less interested in activities that were once important; 30% reported feeling less angry about things that once caused anger; and 30% claimed they felt less happy about things that once caused happiness.
- \* Fifty-five percent (55%) of the sample claimed they worried too much about things; 27% reported moderate to extreme worry, while 28% reported "a little bit".

- \* Thirty-four percent (34%) of the sample claimed they felt down-hearted and blue; 26% felt this way some of the time, while 8% felt this way a good part or most of the time.
- \* Thirty-five percent (35%) blamed themselves for things, from "a little bit" to "quite a bit".
- \* Twenty-three percent (23%) of the sample reported feelings of guilt.
- \* Twenty-two percent (22%) of respondents claimed they felt hopeless about the future; 17% felt a little hopeless, while 5% felt moderately or quite hopeless.
- \* Nineteen percent (19%) of respondents reported crying spells.
- \* Twenty-five percent (25%) of respondents had thoughts of death or dying.

#### *Summary of Written Commentary*

The survey included items that asked about the participants' personal experience since the disaster. Current memories, thoughts and feelings about the air crash and ongoing involvement with its victims were surveyed. Participants were also asked whether they felt anything positive had come out of their experiences with the disaster, who they thought was responsible for the crash, and whether they believed such disasters can be prevented. An item asking about reactions to the Pan Am crash in December 1988 was included.

#### **ARE YOU STILL INVOLVED WITH THE RAMSTEIN AIR CRASH, ITS VICTIMS, OR FAMILIES OF VICTIMS IN ANY WAY ?**

"I'm the wife of the deceased unit aviator."

"I'm involved in planning the upcoming dedication of the new operations building at Landstuhl to Cpt. X. (Medivac pilot who was killed in the crash). His family will return to Landstuhl for the dedication."

(Chaplain) "If you consider victims to include medical staff who worked with those who were injured, or with family members who had loved ones killed or injured, then I am still involved."

(Medic) "I work in the plastic surgery clinic and we still see a couple of follow-ups."

#### **WHAT MAKES YOU REMEMBER THE DISASTER AND WHAT THOUGHTS DO YOU HAVE ?**

"When jets go overhead and I hear European sirens on emergency vehicles. The thoughts that go through my mind are of people running in panic."

"When I hear helicopters coming in, it immediately reminds me of that day. Certain odors also bring back vivid memories of all the burned people."

"I drive past the Ramstein exit nearly everyday. I sometimes think of those who drove on Base, who took that exit for "Flugtag", and then were killed."

"Locations - the ER, the tree line from which I observed the crash. The music I was listening to. All recall scenes of loading and moving the victims of the crash."

**THINKING BACK TO THE DISASTER, WHAT ARE YOUR CURRENT FEELINGS ?**

"Sad, scared, angry."

"Wishing I could have done more."

"I did what I was trained to do, and that lifts my spirits, but I also get depressed sometimes too."

"How close I came to losing everything I care about."

"The mentioning of the "Flugtag" draws my attention. The feelings are subdued and numb, but I'm aware that it bothers me to a degree still."

**DO YOU FEEL THAT ANYTHING POSITIVE CAME OUT OF YOUR EXPERIENCE WITH THE DISASTER ?**

"The feeling of being able to function in a stressful situation and make a difference in somebody's life."

"I make a conscious effort to be more responsive and loving. I am more compelled to volunteer my time to assist others."

"An appreciation of how fragile life is, how quickly our lives can be changed forever."

(Photographer) "In a sense, I'm glad I got to see some of the casualties and the way they looked. It makes you aware of what can happen to your body when something like this occurs. If the time ever comes (when) I will have to serve in combat, I hope this has helped prepare me for what I might see."

**WHAT DO YOU THINK CAUSED THE RAMSTEIN AIR CRASH ? WHO, IF ANYONE, DO YOU FEEL WAS RESPONSIBLE ?**

"It should not be blamed on any one person but taken as a part of life."

"The element of *risk* always causes some unforeseen accident to happen at one time or another."

"*Pilot error*. And that gives me something to think about, being I fly in helicopters almost everyday."

"It was God's plan."

**CAN SUCH ACCIDENTS BE PREVENTED ?**

(Yes) "Stop air shows."

(Yes) "If people are careful."

(Yes) "Safety measures for the viewers."

(No) "Air shows will never be risk free."

(No) "The only way to prevent a disaster is not to fly. That is not realistic."

(No) "An accident will happen, no matter what precautions, if it was meant to happen."

**DID YOU HAVE ANY REACTION TO THE PAN AM CRASH IN DECEMBER 1988 ?**

"Some of it made me think about the people I either helped or saw rescued out of the fire (at Ramstein)."

"I was shocked and scared. I was scheduled to go on leave one month later flying Pan Am into Dulles airport. I could have been on the plane."

"Shock, fear, sorrow. It made me feel vulnerable and fearful as an American."

"I felt sorry for the families because it was close to Christmas and they will always think of this event from now on at Christmas."

*Discussion*

In the six month follow-up -- now eight months after the air crash -- 81% of the respondents reported no longer being involved with any victims from the disaster. However, 82% reported that they still thought about the event and 88% reported a reaction to the Pan Am crash in December 1988. Eighty-five percent (85%) of the sample felt somewhat to very much that the Ramstein air crash victims "could have been me". Eighty-one percent (81%) of the sample believed that something positive came out of their experience at Ramstein. The majority of the sample (59%) rated their families as fairly to very supportive to them since the disaster.

Many reported symptoms were rated moderate to extreme by approximately 15 - 20% of this sample. These results are difficult to interpret since they are not correlated with exposure, or compared with pre-disaster symptom levels for the sample or with a control group. However, several interesting clusters of symptoms representing cognitive, interpersonal and affective areas of functioning are rated in the moderate to extreme range by 15 - 25% of this sample.

In the cognitive area, moderate to extreme symptom levels were reported by 16% of respondents for trouble remembering, 19% for worried about carelessness, and 23% for feeling blocked in getting things done. In the interpersonal area, symptom levels in the moderate to extreme range were reported by 34% of the sample for feeling critical of others, 31% for feeling easily annoyed and irritated,

and 14% for uncontrollable temper outbursts. Sixteen percent (16%) reported feeling easily hurt, 15% reported feeling detached from others, and 13% felt that most people cannot be trusted.

In the affective area, 17% of the sample reported feeling tense and keyed up and 14% reported feeling nervous. Symptoms reflecting depression were reported by 27% of respondents for worrying too much, 21% for feeling low in energy or slowed down, 20% for loneliness, and 18% for feeling blue. Twenty-five percent (25%) of the sample reported thoughts of death and dying; 22% felt hopeless; 19% reported crying spells; and 14% had repeated unpleasant dreams or nightmares. Forty-three percent (43%) of respondents reported restless and disturbed sleep. Approximately one third of the sample claimed to have less interest in formerly important activities, and less anger and happiness than they usually felt.

Although the vast majority of the sample (81%) were no longer involved with the victims of the Ramstein air crash, many continued to remember and think about the event eight months later. For many respondents, memories were triggered by the sight or sound of aircraft. For others, driving on the base itself or entering the hospital recalled disaster scenes. Several mentioned "certain odors that bring back vivid memories of all the burned people"; one respondent mentioned "the music I was listening to at the time".

News of other disasters or accidents also recalled the Ramstein crash. One item on the survey asking about reactions to the Pan Am crash in December 1988 elicited such responses, although the causes and outcomes of the two events differed. The respondents focused on a global sense of loss, grief, pain, and the sheer magnitude of the number of dead as similar for both events: "I thought of the people that were hurt and of the mangled bodies of human beings". Many reactions reflected the feeling that "it could have been me": "I could have been on that flight if I left to go home for Christmas". Many also reacted with initial fear and dread that someone they knew had been on the Pan Am flight.

Anger at the terrorists implicated in the Pan Am crash, a generalized fear of flying, and feeling vulnerable as an American in Europe or as a soldier in general, were also common themes: "Life is dangerous and military service leads to possible death." Whether these reactions were reinforced as the result of direct experience with the Ramstein victims is unknown. However, it seems reasonable to expect a decreased ability to distance from the news of such events, having been exposed to the immediate impact in similar circumstances.

When asked for current feelings about the Ramstein disaster, many respondents expressed their attempts to come to terms with the event and put it behind them. "It's over. Time is healing the emotional trauma" and "I try not to think about it" reflected some responses. However, for others, feelings of sorrow, fear, anger and helplessness continued to predominate: "I'm still scared. I could have been one of the victims." Several individuals also noted their "shock at the return of thoughts and feelings. The feelings went deeper at the time than I thought." Many described a general sense of sadness: "There is sort of an empty feeling -- an indescribable void which is difficult to put into words."

Several themes emerged in response to the survey item asking whether anything positive had come out of experience with the disaster. Respondents expressed pride in their medical community and in their individual contributions at the crash site or hospital. Many used their experiences as an incentive to acquire additional medical training or to organize triage and disaster training seminars. Working together as a team, increased self-confidence in "handling an actual disaster", and evaluating one's behavior to determine "how to do it better the next time" reflected many respondents' attempts to discover positive outcomes in an apparently meaningless and tragic event. For some, the experience touched their lives in a more global way: "You reassess your feelings, priorities and goals". Others

noted a greater appreciation of life, "enjoying each day as you go", a re-evaluation of spiritual beliefs, and a better understanding of and compassion for others.

**NORTON AIR FORCE BASE C-141 PLANE CRASH**

## SUMMARY

In February of 1989, a C-141B Starlifter Cargo jet based at Norton Air Force Base, California crashed in Florida. Such crashes are not uncommon in the flying community. However, little is known about the recovery process: how military units and their families recover following such events. The members of this unit were unique in being willing to contribute their time and energy to help understand this process. A survey was completed by the squadron members approximately two months after the crash. Feelings about the crash continued to be high at that time. The squadron felt that group morale was greater than before the crash. Most Air Force members felt the stress on their spouses had been moderately high to high. Nearly all reported a supportive environment both at work and at home.

Spouses and significant others were very much involved with the crash, experiencing high levels of distress and concern for their active duty members. Most felt supportive of their spouses and expressed a high level of concern for them at the time of the survey. Nearly 90% wanted to talk to their spouse active duty member as soon as they heard of the crash. One-quarter (1/4) of the spouses indicated that at least one child experienced a significant degree of distress due to the crash. Over half of the spouses reported that their active duty members were under greater than average stress following the plane crash. The memorial services were reported to be very moving and important by nearly all respondents.

Commanders are faced with difficult decisions following the loss of one of their planes and crew. The recovery process is not short in duration. Even after two months, the effects of such a crash are still prominent. Although recovery from these events takes time, it does appear to proceed when there is a supportive environment. A crash is a community event, affecting family members (spouses and children) as well as active duty members.

## Introduction

The loss of a plane and its crew is a terrible tragedy that can affect an entire military base, and most directly the squadron and families of the lost airmen. How our military community recovers from such losses is important to both the health of military members and their families and to operational readiness. Little is known about the recovery process -- what helps and what gets in the way -- despite the fact that plane crashes and crew losses are an expected tragedy at any operational base. In times of combat, recovery from the loss of fellow fliers is critical to mission readiness. How long this takes, however, is not known. Certainly, in times of all out war, recovery matters little, everyone flies. However, in the more likely scenario of limited conflict, the commander may be able to select which units to fly at what times. In this case, the commander's ability to know how long recovery takes and how to identify when it is complete will aid his decisions.

In 1988, Norton and twelve other U.S. installations achieved a safety milestone after flying 676,000 hours in the 1988 fiscal year without a major plane crash. It was the first time the Military Airlift Command had completed a year without a Class A or Class B accident since it was formed in 1941. On Monday night, February 20, 1989, a C-141B Starlifter Cargo jet based at Norton Air Force Base, crashed near Hurlburt Field in Florida with eight aboard during a lightening storm with gusty winds. There were seven crew members and one passenger. The C-141B had left Norton Air Force Base on Monday headed for Howard Air Base in Panama on a routine re-supply mission. It stopped to refuel at Peterson Air Force Base in Colorado Springs where the passenger, a retired Air Force captain, came aboard. At 3:18 PST, the crew left for Hurlburt, where they were to spend the night before proceeding to Panama. About 6:00 p.m., air traffic control at Eglin Air Force Base near Pensacola, Florida lost all communications with the plane as it was preparing to land at Hurlburt.

U.S. Army Rangers from a nearby training camp reported hearing an explosion three to four miles north of Hurlburt field shortly after 7:00 p.m. It was extremely dark, there were no roads to the accident, and the weather conditions were very bad. Rescuers reached the site in a remote part of Eglin AFB in Army UH-60 Blackhawk helicopters about 10:30 p.m. and rappelled to the ground to look for survivors. There were none.

The crew's relatives in the San Bernardino area learned of the crash Monday night and a casualty response team and clergyman visited their homes to relay the news. Over 900 individuals attended the memorial service at the Norton Air Base Chapel which seats only 300. Many were obliged to stand outside the church to hear the memorial service. The memorial service was closed to the public and the media. The unit was gathered as a family to mourn the loss of its brothers.

This report is the initial summary of a survey of the squadron which suffered this loss and of their spouses and significant others. Through the dedication and selfless willingness of the commander, the fliers of this group and their spouses to share their experiences with the study team, we have been helped to understand the recovery from this tragedy. Through their human sensitivity and dedication to the USAF mission, the squadron has served as a model for other groups faced with a similar tragedy.

## Active Duty Members

### *Summary of Response Frequencies*

Of approximately 200 members of the flying squadron who were surveyed, 70 returned completed questionnaires. The median date for the returned questionnaire was April 16, 1989, two months after the crash. Thirty-four respondents were enlisted in grades E-3 through E-9 and thirty-four were officers in grade O-1 through O-5. The median enlisted grade was an E-5. Among officers, the median grade was O-3. Of the respondents, 15 were Captains, 23 were pilots, 3 copilots and 19 flight engineers. Sixty-five (65%) percent felt that they were flying about the same amount of time as at the time of the plane crash. Twenty-seven percent (27%) reported that their flying time had increased since the crash. The median age of all respondents was 28 1/2 years. Twenty percent (20%) of the population were under age 25 while 10% were over age 40. Ages range from 22 to 47. Ninety-five percent (95%) of responding subjects were male. Fifty-five percent (55%) had completed at least a Bachelor's degree; 65% were married at the time of the survey, and 34% in their first two years of marriage. A little more than 50% of the respondents had at least one child. Eighty-one percent (81%) of respondents were white and 19% black or Hispanic. The median number of flying hours was 2500. With ten percent (10%) of the population having completed 300 flying hours and approximately 10% having greater than 7000 flying hours.

- \* Only 7% of the respondents from the squadron felt that squadron morale was lower since the accident. Nineteen percent (19%) felt that it was unchanged while 75% felt that the morale was higher since the accident.
- \* Ninety-four percent (94%) were confident to very confident with their ability to perform in an air emergency while 76% expressed the same high levels of confidence in the ground crew.
- \* Approximately 20% of respondents were not at all acquainted with any of the crew members that died in the crash, while 3%-5% reported being good to best friends with at least one member of the lost crew. Sixty percent (60%) of respondents were unacquainted with any of the spouses or significant others of the crew members.
- \* Sixteen percent (16%) of respondents had previously lost a close friend in an air crash. Sixty-one percent (61%) of respondents reported hearing the 21 gun salute during the memorial service.
- \* Fifty-three percent (53%) of respondents reported that their spouse or significant other had expressed concern about their flying since the crash while nearly 20% said both their spouse or significant other and their children had expressed concern. Only 26% reported no expressed concern about their flying by family members.
- \* Forty-seven percent (47%) of respondents rated crash related stress experienced by their spouse as moderately high to high while 13% rated the stress experienced by at least one of their children as moderately high to high. Fifty-six percent (56%) of respondents reported stress on their commander as being high.

- \* Eighty-seven percent (87%) of respondents reported feeling fairly or very supported by their spouse or significant other. Seventy-three percent (73%) reported feeling fairly to very supported by co-workers and a similar percentage by their supervisors.
- \* Eighty-six percent (86%) reported that at the time of the survey they were still having thoughts about the crash while only 31% were still actively involved with the crash.
- \* Eighty-eight percent (88%) reported that such accidents are preventable.
- \* Seventy-one percent (71%) felt that something positive had come out of the experience.
- \* Forty-three percent (43%) of respondents rated "it could have been me" as very much while 59% rated "it could have been my friend" very much.
- \* Forty-four percent (44%) of respondents reported talking first to their spouse about the crash while 38% spoke first to their peers.
- \* Seventy percent (70%) of respondents had attended the memorial service.
- \* Eighty percent (80%) of respondents had flown with at least one member of the lost crew.
- \* Compared to other items within the squadron, 46% of the respondents felt that rumors had increased since the crash and that safety were felt to have been increased by 30% of the respondents.
- \* Forty-two percent (42%) of respondents reported having increased their time spent with spouse and children since the crash.
- \* Forty-four percent (44%) reported an increase in the amount of time at work.
- \* Nine percent (9%) reported drinking more alcohol.
- \* Twenty-three percent (23%) reported often having thoughts of death or dying.
- \* Twenty-five percent (25%) often felt restless.
- \* Thirty-four percent (34%) reported often having thoughts about the crash.
- \* Seventeen percent (17%) reported often having trouble sleeping.

*Summary of Written Commentary*

**HAVE YOU EVER BEEN INVOLVED IN AN AIR CRASH ?**

"Prior to joining the Air Force I worked as a flight instructor. While flying at night, in the weather, in a single engine airplane, with a student, I lost the

engine and could not restart it. I made a emergency landing in a heavily wooded area. The airplane was destroyed but no one was hurt."

**HAVE YOU EVER BEEN IN COMBAT ?**

"Grenada."

"12 months, Viet Nam."

"Viet Nam, 1972-73."

"Thailand 1973."

**HOW DID YOU HEAR OF THE CRASH ?**

"T.V. and radio."

"Read about it in the newspaper."

"A phone call from a friend."

"My sister, called and said she heard about crash the night it occurred. The next day I went into the squadron and found out more details."

"During a mission I was flying in the Pacific, a couple of other crew members told us."

"I went to the squadron to fly a local and was told of the crash."

"Through the grape vine."

**HAD YOU FLOWN WITH ANY OF THE LOST CREW ?**

"Many times."

"I went to Hawaii with one of the engineers."

"Flown with pilot and loadmaster."

"I flew with the AC (aircraft commander) and one of the engineers."

"I had flown with all of the crew except the co-pilot. The three engineers were also in my last squadron and I had flown with them many times."

**PLEASE DESCRIBE YOUR RELATIONSHIPS WITH THE CREW/PASSENGERS THAT DIED AND THEIR FAMILIES.**

"Good friends with all of the enlisted crew."

"The instructor engineer was my instructor for about 125 flying hours, very close friends."

"(Name) was my best friend of eleven years...."

"I talked with and enjoyed the company of the three engineers and had roomed and hung out with them on flying trips. One loadmaster I talked to and liked really well.

"I knew the AC and his family very well. We worked together fairly closely."

"(Name) and his wife were very dear friends. I had only known them for a short while, but we became very close. (Name) was my resource manager also. (Name) and (Name) were good acquaintances. I had flown with them before."

"Fishing Trips, squadron functions (social), close working circles."

**DID YOU ATTEND ANY OF THE MEMORIAL SERVICES ?**

"The most gut-wrenching, painful emotional experience of my life."

"I was selected as a honorary pallbearer for (Name)'s funeral."

"I was one of the ushers at the on base memorial service."

"I served as escort for family members."

"The service was done nicely but it was a very sad occasion."

"It was nice. but it didn't do the dead any good."

"I thought the ceremony was very sad. The ceremony almost ended on an up note; until the twenty-one gun salute was fired. Then, many of the people began to cry."

"...Startled emotionally by abruptness of 21-gun salute."

"...The only problem was the 21-gun salute at the end...."

"My wife and I attended the 1st memorial service given for the entire crew. The turnout was tremendous and the emotion level was high."

"I was unable to attend the service as I was scheduled out on a 2-week trip the morning of the memorial....(had option to stay, but chose to go)....I put up with 2 weeks of questioning by curious aircrews that I really didn't expect (I probably should have). If I could do it over again, I would go to the memorial. I almost feel guilty for not going."

**DID YOU TALK TO ANY OF THE WIDOWS OR FAMILY MEMBERS OF THE DECEASED CREW ?**

"One called while I was the squadron duty officer and wanted to know when her husband's body would get to Norton."

"My wife and I spent a lot of time with the (Name)'s wife right after it happened."

"I talked to the (Name)'s wife, and I continued with the purchase of their house."

"Talked with Mrs. (Name) and Mrs. (Name) and offered name of close friend who is aircraft crash widow."

"It was hard to face her. Knowing that you are alive and he was dead."

"Went to farewell gathering for a couple of the wives."

**DID YOU HEAR OR PARTICIPATE IN THE 21-GUN SALUTE ? PLEASE DESCRIBE HOW YOU FELT.**

"I can't."

"No emotional significance."

"Proud and honored to be a part of this establishment."

"Strong, elated, proud, aggressive."

"Empty."

"Hurt."

"Sad and somewhat helpless."

"Saddest moment of all."

"Saddened. I know several of the crew members were not Christians. I doubt they will spend eternity in peace but instead torment."

"It brought tears to my eyes. A catharsis."

"I had to fight myself to keep from crying."

"Overwhelmed with emotion. I still get choked up just thinking about it."

"It seems like a harsh expression of the finality of death."

"Hard on the families."

"It was all of a sudden and then the family member started crying. It made me want to cry too."

"It was too loud."

"I did not like it."

"Too close to the door. Chapel sounded like it was exploding."

"Had at memorial service and felt this was not proper place to have it. Too loud, too close, too emotional an atmosphere."

"I hated it!! It was unnecessary, down right rude. I will never have one if I should die in an AC. It's in my will."

"It was the dumbest thing that I have ever witnessed in 18 1/2 years of service...."

"Guilty, that those men were married and had children, and myself being single it should have been me."

"I wasn't around for the salute, I'm glad there was one."

**HAVE YOU EVER LOST A VERY CLOSE FRIEND IN A PLANE CRASH ?**

"My father, in a mid-air plane collision, and (Name) as a result of a sail plane accident, and (Name) in the 141 accident."

"Have lost several friends in plane crashes. Also have had a friend permanently injured in plane accidents."

"Lost very close friend in helicopter crash in 1986. Lost close friend in A-10 crash in 1979."

"(Name), C-141B crash at McChord AFB WA 1975."

"Roommate at AF Academy."

"My crew was killed in the Sondestrom C-141 crash, based out of McGuire. I had gotten off at Frankfurt, Germany."

**AFTER THE CRASH, DID YOUR SPOUSE/SIGNIFICANT OTHER OR CHILDREN EXPRESS ANY CONCERNS ABOUT YOUR FLYING ?**

"My parents. They worry anyway and this didn't help at all."

"Wife said I could just as easily be killed in my car on the way to work and I agree."

"Wife and all family members."

"Spouse. Wanted me to watch other crew members more closely."

"Spouse. Slightly apprehensive."

"My wife is extremely afraid of losing me in a plane crash. She is very stressed about me being gone so much."

"Kids said they didn't want me to fly."

"Both wife and son had bad dreams and worried while I was on a mission."

"Both spouse and children. Normal concerns about how I felt, especially since I left on a 10 day mission 8 hours after hearing the news."

"My wife doesn't want me to fly, but our financial situation will not allow me to quit. I also would like to stop flying!"

"Wife doesn't want me to fly after the service."

**AT THIS TIME DO YOU EVER THINK ABOUT THE PLANE CRASH ? IF YES, PLEASE DESCRIBE WHAT MAKES YOU REMEMBER THE DISASTER AND WHAT THOUGHTS YOU HAVE.**

"They never knew what killed them. They weren't ready for death (except (Name)--devout Christian). I approach my job with a sense of fatalism, although not pronounced. And I've made my peace with the Lord."

"Sometimes I remember the faces of the dead crew members."

"Try to relive the thought processes the pilots were having and their decision-making."

"For no reason. I think of what happened after they knew they were going to die."

"I was moved to take (Name)'s job."

"Flying in marginal weather conditions or near thunderstorms."

"Just think about it."

"The continued message traffic and attention focused on the event during briefings and meetings."

"Fellow crew members talk about it."

"Everywhere you turn we are being briefed on the accident."

"The safety reports are coming out now. They bring up discussion."

"Moments arise whenever I talk to certain people, or hear about the accident reports."

"Faults found in the accident report."

"1. Remembering fish trips with the guys. 2. Walking through the cargo compartment. 3. Imagining the sound of the explosive impact."

"1. When I fly. 2. When I see a white Nissan Pick-up like (Name)'s. 3. When I see (Name)'s old desk where I work. 4. When people who find out what I do mention the crash."

"I wonder about my daughter, friends and family and how they would react if I were involved in a similar accident."

"Any aircraft noise or pictures make me think of not only our crash but of the others which have happened or will happen. I'm very concerned for my life and the problems and pain it would cause to my family."

"Why? What was going through their heads? It could happen to anyone. I don't like rumors about the crash from individuals outside of the squadron or wing or safety board members!"

"I want to know what happened so that I can protect against it. Sometimes I think about the horror the crew felt as they impacted the trees."

"1. Loss of crew members. 2. Wanting to know what caused it so I won't repeat the same mistake."

"I want to analyze why they did what they did and understand the situation."

"I have read the crash investigation findings and it appears that a well qualified crew flew into the ground and it makes me wonder if it could happen to me."

"When I'm having a good time or see families together. I think of the families that lost their husband/father. I feel guilty."

**ARE YOU STILL INVOLVED WITH THE AIR CRASH, OR FAMILIES OF THE VICTIMS IN ANY WAY? PLEASE EXPLAIN.**

"Official duties."

"I've been tasked with summarizing the report that has been released and providing a learning mechanism for others."

"I occasionally come across their files in our section."

"Continued moral support."

"(Name of wife of dead) still needs support and some questions answered."

"Only that we have opened our home to them and offered to help in any way possible."

"(Names of two wives of dead) occasionally come into the squadron and visit or need help in some way."

"Still close friends with (Name)'s wife."

"Reading the accident report and preparing a dissenting opinion."

**WHAT DO YOU THINK CAUSED THE RECENT AIR CRASH? WHO, IF ANYONE, DO YOU FEEL WAS RESPONSIBLE?**

"Complacency."

"The report has been released so I have knowledge of who the A.F. will blame. I feel the A.F. leadership is the primary cause. Our crews are tired, we seem to be on the road or working all the time without relief."

"I don't believe the accident investigation report. I believe that mission focus probably contributed a great deal. The unwritten motto of MAC is 'Move the Mission'."

"A typically very long MAC crew duty day coupled with lousy weather. Also, the emphasis on mission completion. All of those things add up. Whoever routinely schedules max or near max crew duty days."

"Weather was a major factor but I think it was pilot error. However, an error that any pilot could make."

"No one person is to blame--we fly as a crew (team)."

"Pilots, some took their attention away from their job, situational awareness."

"The pilots."

"Fixation by pilot on one aspect of the approach. Co-pilot probably responsible."

"Pilot error. AC did not follow his approach close enough and was probably looking outside for the runway environment."

"The aircraft is still a crew airplane, everyone is responsible for safety. Although the loadmaster has no control over flight operations, we just instill our trust in pilots. I believe the crash occurred because the pilots became complacent, and lost all trust in instruments."

"Unknown at this time, possibly fate."

"Don't know."

"No comment."

**IN YOUR PRIVATE THOUGHTS, DO YOU FEEL THE CREW COULD HAVE HANDLED THE IN-FLIGHT EMERGENCY DIFFERENTLY ? PLEASE EXPLAIN.**

**YES:**

"Don't fly into the ground."

"They could have been more aware of instrument warnings."

"They had plenty of experience and could have handled any emergency. I believe they were unaware of the problem until it was too late."

"They should not have crashed."

"Pilot should have saved the aircraft."

"I don't know all the contributing factors but they probably could have."

"There is always something that [they] could have done. Hind-sight is 20/20."

**NO:**

"They didn't know what hit them."

"Happened too quickly to react."

"There was no emergency."

"There was no inflight emergency--they crashed!!"

"I don't know."

"No comment."

**DO YOU THINK THAT ACCIDENTS SUCH AS THE RECENT AIR CRASH CAN BE PREVENTED ?**

**YES:**

Better weather updates."

Don't fly in bad weather."

Better awareness."

"Know your altitude (AGL)."

"Use a good cross-check! And speak up! If something looks wrong, it probably is!"

"No alcohol consumption by crew members within 24 hours of flying. Less tolerance of thunderstorms and bad WX (weather) on TRNG (training) LEGS or positioning LEGS."

"Emphasize the importance of one pilot flying the approach in weather and the other pilot looking outside and etc."

"Better understanding of disorientation and its causes is a big factor."

"I believe attitude has everything to do with it. Becoming cocky or complacent with an aircraft, weather, abilities, is dangerous."

"Reduce pressure from HQ staff for long crew duty days when multiple stops and WX are factors."

"Don't push it. Be safe in peacetime, maybe even to the extreme."

"During peacetime, we should not be so "GO" oriented that we put ourselves and others in unsafe situations just for the sake of completing "The Mission" or making some colonel's reliability numbers look good."

**NO:**

"As much as we fly, a plane will eventually crash. Accidents are inevitable in aviation."

"We are trained as extensively as possible but no one is perfect."

"It was a fluke. Sometimes in our job we get distracted. You have to recognize the conditions, try to avoid them, and always - fly!

**DID ANYTHING POSITIVE COME OUT OF THIS EVENT ?**

**YES:**

"AFSC message may bring changes in "cockpit" crew member training on the ground proximity warning system--GPWS."

"I realized how quick it could happen, and to prepare yourself and family members."

"Learned something new."

"Learned what happened to a strong crew, made me more aware of the danger of accidents so I can be more aware of my situation."

"A reminder to be ready and not be complacent. (I am not suggesting that the crew was complacent, just that none of us can be.)"

"Pilots need better training not to be so complacent in the cockpit."

"Flyers can be as human as anyone else. Pay attention to detail."

"On a personal level, it teaches us how precious life is. On a professional level, it illustrates how vulnerable we are."

"Every accident, especially the closer to you it is, will remind all pilots/crew that; Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect."

"Squadron, wives have all grown closer to one another. Pilots have learned a lot."

**NO:**

"What positive thing can result from loss of life?"

"A lot of families lost important people and no one benefitted."

"Nothing positive can come from the deaths of others. Maybe it will make some people think a little more about situational awareness."

"At least not yet--All they're doing is blaming the crew."

"This accident should have never happened, yet it did. There must be a higher purpose unknown to us for it to have happened. There is a positive and negative to everything. Perhaps heightened awareness by other pilots and crew members may be a positive result, but the price paid was not worth it."

"I don't know yet."

**ADDITIONAL COMMENTS:**

"The loss of the people on this crew was terrible and very unfortunate. I will miss the ones I knew. The AF lost some good people as did their families. I feel for them (the families) and will remember the people on that unfortunate crew, but---life goes on."

"The Air Force continually covers up crew fatigue in accidents and will not let up on the constant stress put on the crews. Accidents don't just happen, they are caused by policy decisions of the leadership."

"Concentration cannot be taught. It must be learned by experience. That alone will not make up for lack of knowledge about one's MSN (mission) and aircraft."

"I liked seeing this survey and hope it will be used for the benefit of others. I liked seeing the 'rap' session held at the squadron to help the spouses and I would like to see this incorporated into the squadrons before an accident happens so they can express their feelings and fears about their spouses flying and being gone."

"We don't choose our death, it chooses us. Be ready, the Bible says 'Death will come as a thief in the night'."

"I was in a C-130 SQDN that lost an AC but I had a good friend survive. We stopped almost all air operations for a week then and I left for SOS (squadron officer school), so I 'left' it behind me. This time I had to deal with it and I felt it took a few weeks to get over the sorrow and grief for the victims. And it hit me harder that it could be me next time."

"...Although the co-pilot was a close friend of mine, I am adjusting well. However no other person's death has affected me quite this way, I now think about death more often, but it seems to be in a religious context that frightens me, and maybe frightens is not the right word. It's tough to analyze yourself!!....But because of this, I think I am becoming a better pilot. I have a lot more at stake than just my job when I fly...."

"Immediately after the accident, when I thought it was caused by weather, I was a little nervous in heavy turbulence. After reading the findings, I was very angry, but no longer nervous."

"...At times when I approach the flight line I feel like I really don't like what I'm doing anymore. I plan to look for a non-flying job within the A.F.. I'm not totally dissatisfied with the job, it's just that I'm not totally at ease with the job."

"It should never happen. And if it had to happen, it should have been someone like me. No spouse, and I have no kids."

### *Discussion*

Respondents in general felt that the morale of their squadron had increased since the disaster. Since the crash, 3-5% of this sample reported being good to best friends with members of the lost crew. More than half of the respondents said that their spouse or significant other had expressed concern about their flying since the crash, and nearly half rated the stress on their spouses moderately high to high. At the time of the survey, approximately two months after the crash, 86% of respondents were reporting they were still having thoughts about the crash. Identification with the lost crew members was high. Most individuals reported the memorial service as quite painful although important. Talking to the widows or family members was also felt to be highly stressful. Many ideas about the cause of the crash were proposed. Some individuals reported some positive events following the crash such as a reminder to be ready or a more acute awareness of the preciousness of life.

Responses to and a heightened awareness of the crash were still present two months after the crash. Such events are not easily forgotten and appear to remain prominent in perception as well as experience for weeks and months rather than days.

### **Spouses/Significant Others**

#### *Summary of Response Frequencies*

The mailout packets to every active duty member included a questionnaire to be given to their spouse/significant other. Forty-nine spouses and significant others returned the survey questionnaire. Twelve percent (12%) of these were also active duty members. Twenty-five percent (25%) reported their primary occupation as homemaker and 75% were employed. The median age was 29 years. All but two of the respondents were females. Median education was some college with 22% of the group having completed college. Nearly 50% had been married four years or more and approximately two-thirds had at least one child.

#### **RESPONSES TO DISASTER**

None of the spouses had previously had experience with a crash. Nearly 75% reported having three or more friends and three or more close relatives. Sixty-three percent (63%) were active in some social group. Seventy-one percent (71%) reported a major life event in the past six months with 50% reporting that as a moderately stressful event.

- \* Nearly 70% of the respondents felt that a member of the crew was at least an acquaintance while 34% described at least one of the crew as a friend or best friend.
- \* Thirty percent (30%) described themselves as a friend or good friends with one of the spouses of the lost crew members.
- \* Sixty-three percent (63%) had attended the memorial service and 52% had talked to a family member of the deceased.
- \* Fifty-eight percent (58%) of spouses reported that their active duty spouse had experienced greater than average stress as a result of the loss.
- \* Twenty-five percent (25%) felt at least one of their children had experienced greater than average stress due to the crash.
- \* Ninety-five percent (95%) felt the crash was above average to high stressful for the commander.
- \* Eighty-five (85%) described their spouses as supportive to them during this tragedy.
- \* Eighty-five percent (85%) said that they still had thoughts of the crash at the time of the survey although only 30% had any continued involvement with the crash or the spouses of the deceased crew members.
- \* Seventy-three percent (73%) felt accidents could be prevented and 73% reported that something positive had come from the crash. Sixty-seven percent (67%) reported feeling very intensely "it could have been my spouse".
- \* Ninety percent (90%) reported wanting to talk to their spouse first after they heard of the crash.
- \* Forty percent (40%) reported feeling tired sometimes during the week after the crash and 45% reported feeling lonely and blue "sometimes" in the week after the crash.
- \* Forty-seven percent (47%) reported having some difficulty sleeping "sometimes" during the week after the crash.
- \* Forty-eight percent (48%) had strong feelings about the crash "often" during the week after the crash.
- \* Sixty-four percent (64%) reported thoughts of the crash coming to mind.
- \* Twenty-three percent (23%) of respondents reported feeling quite a bit or greater slowed down or with decreased energy.
- \* Thirty-seven percent (37%) reported a similar intensity of "worrying too much."

## Spouses/Significant Others

### *Summary of the Written Commentary*

#### HOW DID YOU HEAR OF THE CRASH ?

"Telephone and television."

"On the radio."

"Phone call from a friend."

"Sister-in-law heard of crash on news and called to confirm that my husband was not involved."

"Newspaper."

"My husband."

"Commander of our squadron called our home."

"Husband received a call from the squadron. I knew by his reaction."

"Word of mouth."

"I received a phone call from (Name)--she heads the NCO wives meetings and is the wife of (Name)--asking me to come down to the squadron as soon as possible. When I met with her and the other wives, we were told that a plane went down."

#### HAVE YOU EVER LOST A CLOSE FRIEND IN A PLANE CRASH ?

"Husband's roommate: groomsman."

"One of the crew members was my husband's supervisor."

"No, but my husband lost a very close friend on the C-141 that went down in Florida, 2/20/89 (this crash)."

"This incident."

#### PLEASE DESCRIBE YOUR RELATIONSHIPS WITH THE CREW/PASSENGERS THAT DIED AND THEIR FAMILIES.

"The Aircraft Commander and I have flown on a couple of missions, he had a really good outlook on life itself, was a good pilot and very respected....(Name) and I had flown together only once but had worked together in the office quite often, we had a lot of respect for each other."

"I knew the aircraft commander, his wife and children. In addition to being friends we were in the process of buying their home."

"Friends with (Name of spouse) through SQ (squadron) wives get together."

"(Name) was the pilot on the Volant Spouse mission the week before. Met (Name of spouse) there also. Very nice people--I thought (Name) was very funny but a tad too overconfident in his flying."

"My husband's friend died in that plane crash. He served with him in Germany and was a good friend....He was easy going enjoyed a good party now and then. A free spirited kind of person. He used to wear the craziest shorts."

**DID YOU ATTEND ANY OF THE MEMORIAL SERVICES ?**

**YES:**

"It's terrible!!!"

"Memorial services and funeral were all very respectfully given...."

"Attended memorial service held at Base Chapel for all crew members."

"...Upsetting to think of all the families - spouses and young children who will never have their loved ones with them again."

"Very moving. Messages by Chaplain and Squadron Commander were very comforting. Wailing of the families during the military honors was heartbreaking."

"I attended the memorial service that was held at the base Chapel."

"My husband left on a trip that morning. It was a tough day."

"It was very emotional. I've never experienced a death of a friend or family member. Never been to a funeral or service."

**NO:**

"My husband was TDY at Altus (He's returning to flying after 6 years). My children were having enough problems with the move and readjusting and having to live without their dad that I just couldn't bring myself to attend. They are really too young to understand without a lot of confusion. It wasn't necessary to involve them at this time."

**DID YOU TALK TO ANY OF THE WIDOWS OR FAMILY MEMBERS OF THE DECEASED CREW ?**

**YES:**

"I met just about all the families either in their own homes or at the memorial/wake/funeral services. There's been a tremendous loss and we've all felt it."

"The pilot's wife had an 'open house' the day before she left to go back home to New York."

"Spoke with the AC's widow at service and on the phone."

"Talked with (Name of spouse) about (Name) and the spouse flight, and what her plans were."

"Talked with (Name of spouse) and offered any assistance needed."

"The night when we were told about the plane going down, they asked if any of the wives would volunteer to go out with the crisis action team. I elected to go and stay with one of the crew's wife."

"Difficult to find words to express to involved families."

"I helped deliver food to two families. One wife was very emotional--tried to talk with her about her unborn baby being a part of her husband; by taking care of herself she would soon feel their baby moving; that she did make her husband happy in their short time of marriage and I hugged her and held her....Major concern of most families was that bodies be returned on 141, not commercial cargo."

"I spoke with AC's wife and her children. I asked her to call me if she needed to talk--I lost a husband before so I thought I could offer support, and she did call."

"(Name of spouse) and I went out together for dinner after she came back from New York. We discussed the funeral and the memorial service. She felt angry about the memorial service. She was shoved in the back of the room and she felt as an AF wife she should of been up in the front with her family. She felt better after (husband)'s body was returned to her to take home."

" 'My condolences.' "

NO:

"Didn't feel I knew them well enough."

"Being new here I didn't know any of them."

"I couldn't control my emotions enough to talk to pilot's wife. I know that was wrong."

**DID YOU HEAR OR PARTICIPATE IN THE 21-GUN SALUTE ? PLEASE DESCRIBE HOW YOU FELT.**

"Sad."

"I felt very proud."

"Extremely emotional. A tribute greatly deserved by all 8 men."

"Felt full honors were in order, but it needs to be explained or announced so that everyone understands what will happen. Perhaps it would be less emotional to go outside at the close for 141 pass by and Taps."

"I felt it was a nice tribute to the friends we lost--it seemed to make the plane crash a finality--no hope was left--no miracles would occur now--they were gone."

"It was over."

"It marked the end of the service. It felt like it was very real and over and symbolized these peoples' lives being final and done and over."

"Very patriotic, emotional. I cried uncontrollably. I felt much better after I did. I was so final when I heard it."

"Absolute panic, grief, fear."

"I felt it was good. It made the deaths real--a jolt into reality. Grief accelerated and released to crying. I was glad it was done and done loudly."

"Startled me--when I heard the wives of the men who died begin to cry, I busted out in tears and cried with them and for them."

"Stunned by the noise, didn't expect it."

"Knew it was coming, but felt it was too close."

"Could not believe it had really happened until the 21-gun salute."

"I felt it was too loud, that it startled the families, upsetting them even more. It was upsetting to me to see them in such a state of hysteria. Between the guns firing and the emotional outburst of sorrow caused by it seemed to intensify the distress felt by all."

"I didn't see it coming and it scared me. It seemed as if everyone started to sob after the guns went off."

**AFTER THE CRASH, DID YOUR SPOUSE/SIGNIFICANT OTHER OR CHILDREN EXPRESS ANY CONCERNS ABOUT YOUR FLYING ?**

"My husband and I both fly. My emotions ran so deep that I didn't want to talk about my concerns of him flying, he definitely didn't talk about his concerns of my flying. We both just understood."

"No, but my husband was hit hard by the crash and said he wanted to turn in his wings. It frightened him. I explained to him that we were all going to die one way or another. He re-analyzed the situation and realized it was just a reaction."

"I told him to fly safe."

"My girls were apprehensive for my husband to fly. I also was fearful for him to fly."

"I was OK the evening before my husband left, but when it was time for him to leave I got upset. Our daughter had some nightmares."

"...My oldest expressed the reality of it being possible for the 141 to crash. After several flights the children feel comfortable about Daddy flying."

"15 year old did not want his dad to fly the following morning. He wanted to know what went wrong before he should fly. If there was something wrong with the planes or something."

"Our son was quite upset--my husband left the next morning for a 16 day trip and our son kept thinking his father's plane crashed--he didn't realize he saw his father after the crash happened."

"I am very, very concerned about my husband flying. I definitely am more stressed when he is gone for a few days or more."

"I am concerned for my husband every time he flies."

"I still consider C-141 aircraft one of the safest--I have more concerns for the commercial flights."

**AT THIS TIME DO YOU EVER THINK ABOUT THE PLANE CRASH? IF YES, PLEASE DESCRIBE WHAT MAKES YOU REMEMBER THE DISASTER AND WHAT THOUGHTS YOU HAVE.**

**YES:**

"With each report that has come out about the crash more and more personnel have become open to conversations concerning the crash whether on or off of the aircraft. As for myself, Yes I think about the accident because I try to keep in contact with all of the wives, whether by phone, letters or visitation. With each time I step foot on an aircraft I pray to God for our safety."

"Since we have purchased the AC's home things here remind me of him and his family."

"Talking with others. I feel sad for the families."

"A little girl screamed 'I want my daddy back' during the service and I think of her a lot and how hard it must be to lose a parent."

"I think of the loved ones left behind, and realize that it could be me just as easily left behind. My heart aches for them."

"I mainly think about the pilot's wife a lot. I wonder how she is coping and if she is alright."

"I often think of that moment of fear the crew had before the crash."

"When I see something on the news about airplanes, when I see pictures of us together. When my husband is out on a trip. It scares me to think I could end up like (Name of spouse), alone."

"That it could have been my husband."

"Widows and families (children)--husband flying."

"The great sense of loss. I keep thanking God it was not my husband--but feel guilty that it was (Name of spouse)'s husband."

"What makes me remember the disaster is that we all can have accidents, that no body is immune to death. I don't feel that my husband is as safe as before the accident. (I just have these feelings)."

"I don't fly at all. I just think and wonder if they know they were going to crash and if they had any pain."

"My husband flies a lot because of his job. I think about the plane crash and pray he comes home safely--but I also know he enjoys his job and I'm very proud of him."

"Whenever my husband goes out to fly, whenever I hear of an air crash - particularly military....In the back of my mind I worry each time that he might not come back."

"...Every time my husband flies; and when the weather is bad here I wonder if it is in any way comparable to the weather at the time of the crash."

"My husband hasn't flown since the accident. I am a little worried about the first time he goes up."

"Every time I see a C-141 fly over thought of plane exploding in the air or crashing to the ground."

"Whenever I see a 141 it reminds me and I think about the people I knew who were on board and their families."

"Similar disaster; praying for the families."

**NO:**

"It has pretty much sunk into the back of my mind. I'm very busy with a new business, school, a job and my children. I don't take the time to think about it anymore. Sometimes that bothers me."

**ARE YOU STILL INVOLVED WITH THE AIR CRASH, OR FAMILIES OF THE VICTIMS IN ANY WAY? PLEASE EXPLAIN.**

"Visit with the wives and try to help if needed."

"Support (Name of spouse) whenever I see her."

"Still in contact. Always in the back of my mind."

"(Name of spouse) and I are keeping in contact by phone and letters."

"Close worker."

**WHAT DO YOU THINK CAUSED THE RECENT AIR CRASH ? WHO, IF ANYONE, DO YOU FEEL WAS RESPONSIBLE ?**

"Complacency."

"I like to believe it was due to the weather."

"Wind shear."

"Extreme bad weather. No one at fault."

"No one particular. I think it was an act of God."

"I think there are things that happened that no one knows and will never know. Pilot (Name) and co-pilot (Name) were both good at their jobs. I don't believe you can place blame on anyone. It was a great 52nd crew."

"Plane, weather problems."

"Preoccupation with weather and fatigue. (Fatigue will remain a problem until doctors convince the generals and Congress that either fewer missions must come down or more pilots and other flying personnel.) I figured weather originally. The investigation report is out and it explains all."

"I think the pilot was responsible."

"Pilot error."

"I just heard it was pilot error, but before that I thought it was weather and poor conditions."

"I heard it was bad weather....could have been a lot going on and somebody didn't follow their checklist."

"Combination of circumstances--weather, crew response and coordination."

"I do not know, but my confidence still lies with the AC."

"Overconfidence and ignoring safety precautions."

"I feel it was a human error--but I also feel that these eight men were chosen by God to fulfill a need in another place--we never do find the answers--in the loss of a loved one."

"I have no opinion."

"Don't care to speculate."

"That's not for me to know or even guess at."

**IN YOUR PRIVATE THOUGHTS, DO YOU FEEL THE CREW COULD HAVE HANDLED THE IN-FLIGHT EMERGENCY DIFFERENTLY ? PLEASE EXPLAIN.**

**YES:**

"If not fatigued, they probably would not have been so wrapped up in watching weather and concentrated more on the aircraft."

"Shouldn't have flown into such bad weather."

"There was enough fuel on the plane to divert to another base because the weather was bad in the Eglin area."

"Instruments were not used as they should have been."

"Interpreted a warning signal correctly."

"Accidents are avoidable--forget the alibi."

"Yes, but that's something I can't explain. I wasn't there. My husband keeps reassuring me that it will not happen to him, quote: 'I follow my check lists, and I plan ahead.'"

"I am not qualified to answer seeing as I am not involved in active duty flying."

**NO:**

"I don't have any knowledge of what could or could not have been done."

"Usually there is so little time to respond to emergencies."

"I wish somebody would have realized that something was wrong. I tend to think that the instruments on the plane were inaccurate. I can't believe as knowledgeable as (Name) was with emergencies in the SIMS that he would run the plane into the ground."

"Unable to answer since I don't know the circumstances of accident."

"I don't know enough about it."

"I don't know--I wasn't put in their shoes, they must have felt they were doing what was necessary--they were all at the top of their field."

**DO YOU THINK THAT ACCIDENTS SUCH AS THE RECENT AIR CRASH CAN BE PREVENTED ?**

**YES:**

"By providing more flying personnel or fewer missions."

"Avoid extreme weather."

"We've got to have more restrictions on what kinds of variables we let our pilots fly in. I don't think that crew should have been in that stormy area at all."

"Don't take a chance."

"Never get relaxed in the aircraft and shift from total professionalism."

"Aircrews need to remember crew coordination."

"The pilot could have been more alert, maybe he needed more crew rest before flying."

"I think all accidents can be prevented if caution is administered and everyone is alert and doing their jobs."

"Constant vigilance on the approach especially is critical but it does not start there. It must start with the approach briefing and how the crew prepares for the approach and landing phase of the flight."

"Better training of flight engineers and loadmasters of pilots. Tasks and requirements for the various types of approaches we fly. It's hard to challenge a pilot if you don't really understand his job."

"Do they have to go down with the plane--would parachutes have saved them?"

**NO:**

"I don't think so. Weather seems to be the factor in a lot of accidents."

"No, because sometimes no matter how much you plan and how many precautions you take accidents still happen."

"Just an unfortunate combination of time and circumstances--a lot depends on leadership in cockpit however."

"I really can't say."

"I don't know--it was an accident!"

"I do not know since to my knowledge the actual cause has not been either determined or made public--without that information can this be answered?"

"Who knows, really? We had an outstanding record here at Norton before this accident."

**DID ANYTHING POSITIVE COME OUT OF THIS EVENT ?**

**YES:**

"The best we have can fly into the ground therefore we must all do our best on every flight or it could be our last!"

"Those of us left behind take details more seriously and realize that flying is dangerous."

"A recent change to the TOIC-141B-1 has reiterated the importance of the aircraft GPWS."

"I hope that the training that the crew received will be evaluated and improved. I also hope that the weather standards be reevaluated and possibly be tightened up."

"The realization that the crew needs more rest before flying."

"I feel the AF is recognizing that crashes do happen. It took a disaster to happen to realize that the crew members do get tired and can have a lot going on."

"I found out how supportive the squadron is in a time of crisis."

"Close bonding of the military family."

"For myself, being very new to the military ways, I felt such comfort and closeness from all the people that participated in the memorials, taking food to the families, being there for the families if they needed anything or just needed to talk with someone."

"I feel in my heart, that if my husband is ever in a plane crash, I won't look for any miracles--I'll know that when a commander or officer comes to my home--It will be all over for my husband. Through this crash, I've learned that death is fast and final, I pray I never see it happen to my husband, what else can we do--I know he is good."

"Renewed recognition of the value of our lives, relationships with others etc., and the importance of making the most of each day."

"I made my will. I checked my insurance to make sure the children's future would be secure if same happened to me. I realized life can be over so quickly to leave anything to chance. It has brought my relationship with my husband closer. It has helped me make some positive changes in my life."

"As stated before, I don't think that death is always a negative thing on lives. It makes me realize even more how precious life really is and how we should appreciate every minute. It brings families close. It also gets people who have put things off (like making a will) to get busy--not wait since we never know what will happen."

"Maybe a lesson we will not forget."

"Yes, makes people closer to the Lord."

"This questionnaire and the desire to be better prepared for disasters such as these."

**NO:**

"I don't see any positive out of the deaths."

"How can the death of men and or women anywhere be a positive thing?"

"Death is the end and for the remaining people they probably wish they could have died with them and it's hard to find positive in that."

"Well, it was a sad occasion, and the family members are without their loved ones. I don't see that any lesson could be learned from this incident."

"I don't know."

"I hope so!"

#### **ADDITIONAL COMMENTS**

"...So may of your questions seem subjective and unimportant...."

"A friend of mine just came over...we started talking about the crash....they flew into the ground and it wasn't the weather. You people need to follow up on this and let the public know what has happened. I wouldn't have known but my friend told me. A lot of people in this area like and support the military and NAFB and they are curious and get involved in tragedies like this and they need to know the cause."

"The squadron could of at least waited a week or 2 before sending out more crew to fly. My husband had to fly 2 days after the crash. It did not bother him that much, but it sure did make me angry at the squadron."

"There was a 'psych rap session' held at the squadron, which I found most helpful. I wish they had conducted several for the month following the crash. A mandatory session (private) for spouses and flyers would have been valuable--at least to pass on information of where to get help for any new problems generated by the stress of the crash. I have hopes that this survey will show the need for a tighter support system for the flyers and their families. The 52nd was a real tight group in this incident and I hope it can serve as a model for other military units in facing a disaster. Concerning my present instability, I am trying to get an appointment to find out if it's medical (i.e. normal) or psychological. I am quite concerned for my mental health, but am unsure of how much the crash had to do with it...."

"I have found that since working as an x-ray tech for 14 years, seeing death has become part of the 'normal' routine. I feel sympathetic for the survivors, but somewhat detached or indifferent towards the deceased. I didn't realize this 'reaction' until the air crash occurred and the squadron had a grieving session for the spouses. After seeing and listening to the other wives and how the crash affected them and their families, I was troubled by my lack of reaction or grief. I spoke with the Flight Surgeon at the end of the session regarding this and found out the medical professional will deal with death differently than those who do not see death on a regular basis."

"I do think of the pilot's wife even when I don't mean to be thinking of her. Tonight I was cooking dinner and I just thought about her."

"Four days prior to the crash my wife and I separated, so some of my feelings are a bit confused over where they come from."

"I had a very stressful reaction to the crash and I didn't know why. Later I felt guilty about this reaction, since I was not directly involved. I kept thinking about the wives and how hard it would be for them to cope. My husband was TDY and I knew that I would not be OK until he came home...because he is my significant other and I needed a really good friend to talk it over with. But this friend had to be him. The 52nd MAS crash completely hit home for me. The Hawaiian Airlines crash that killed nine people later that week was a shame to me but I really had little feeling because I didn't know anyone involved. The fact that I even felt that way bothered me. I felt two-faced because I felt everyone should have felt something about our disaster. I felt betrayed by the news media. My mind kept saying 'Why aren't they making a big deal out of this?'"

"As a Christian, my religious faith supports me in a crisis like this because I believe God is sovereign, loves me, and is in perfect control of my life. Consequently, I do not have to fear what tomorrow brings because 'all things work for the good of those that love' the Lord!"

### *Discussion*

This is a limited group of spouses/significant others eg: 49, who are highly educated. Most felt a close connection with at least one crew member or family or crew member's family. Most also described their spouses as having been supportive following the crash. Nearly all wanted to talk to their spouses after immediately hearing of the crash. Sleep difficulties were common the week after the crash as well as strong feelings. The memorial services were felt to be powerful events and very moving. Concern for their flying spouses universal. Many reported some positive events as a result of the crash such as a closer bonding with their family or feeling more a member of the military community. Many reported the "psych rap session" (debriefings with mental health personnel) after the crash to have been very helpful. Spouses and significant others reported a high level of distress in themselves and their active duty spouse or significant other. It appears to be common for at least one child to be upset by a crash. These respondents felt supported by their families. The time of the first flight for the active duty member after a crash appears to be a particularly stressful time.

**USS IOWA NAVAL DISASTER:  
DOVER AIR FORCE BASE BODY HANDLERS AND  
SPOUSES/SIGNIFICANT OTHERS**

## SUMMARY

In April 1989 gun turret number 2 on the USS Iowa exploded killing forty-seven crew members. Body identification became the task of the Dover Air Force Base Department of Defense Mortuary. A number of servicemen volunteered to assist in this process. A study was initiated to follow these servicemen. The study included the spouses or significant others of the volunteers. The study was designed to assess perceptions, attitudes and involvement during the time the volunteers worked in the mortuary. The study continued for one year following the explosion. This report is a summary of the initial responses from those who worked in the mortuary and their spouses/significant others. These initial data were collected approximately one month after the accident.

The volunteer body handlers anticipated the arrival of the dead at the Dover mortuary, before it was clear when they would be arriving. Their initial reactions to the disaster ranged from disbelief and shock, to sorrow for the victims and the bereaved. For spouses and significant others reactions included feelings of anxiety and foreboding about their spouses' potential role in the mortuary work.

Of approximately 72 volunteer body handlers, 54 completed responses to the survey. All were enlisted U.S. Air Force members and ranged in age from 19 to 48 years. Ninety percent (90%) were male. A large percentage of this group had participated in previous disaster responses. Their experiences ranged from the autopsy room to embalming and casketing. Most of the group worked for the entire three days of the body identification process. In general, they felt that their families, friends, co-workers, and supervisors had been highly supportive. Half talked with spouses or significant others concerning their work in the mortuary. The feeling that "It could have been me" was very common. Individuals volunteered for a wide range of reasons, but most often for patriotic reasons or "because I was needed". The stress of the sights and smell of dead bodies was reported by all volunteers. Taking breaks, talking to others, and not thinking about the bodies as being human were all felt to relieve the stress of working in the mortuary. In general, individuals felt that they would volunteer again for this duty. Many reported feeling a sense of pride or a reorientation to life following their work in the mortuary.

Spouses and significant others' perceptions suggested that the volunteers experienced above average to high stress. Many claimed the volunteers had expressed initial concerns about working in the mortuary, fearing they would not be able to handle the situation. The majority of respondents (68%) reported their spouses frequently discussed their work in the mortuary and that they had provided extra support to them in the days following their work. Many in the sample expressed pride in their spouses' patriotism, dedication and concerns for fellow servicemen, claiming they had discovered new and positive qualities in them over this period. In addition to concerns for the mortuary volunteers, spouses and significant others described a heightened awareness of the possibility that the victims could have been their spouse or a close friend or relative in the military. Many of their initial reactions to the accident indicated relief that their own families were safe. Some comments reflected increased sensitivity to "the fragility of life" and the high risk and danger inherent in the military lifestyle, even in peacetime. Although these respondents had not been in immediate contact with the dead, they still thought about the event and the victims one month after the accident. News of other military accidents recalled the USS Iowa explosion, and many comments about continued feelings of involvement with the victims reflected respondents' perceptions of being part of the military family -- "No matter what branch of the service, when there is a tragedy, it's like something has happened to one of 'us'."

## Introduction

On April 19, 1989, north of Puerto Rico, on board the USS Iowa, gun turret number 2 exploded killing 47 of the 1500 sailors on board. The death and destruction were quick, but the legal and emotional battles over how and why this tragedy occurred continue to be fought today. The explosion was touched off in the number 2 gun turret where the gun crew carries out their work surrounded by 17 inches of steel, keeping potential enemy fire out but also entombing those caught in the internal mishap. Accidents in gun turrets are historically common but rare in modern warships such as the Iowa. Although originally commissioned in 1943, the USS Iowa was modernized and recommissioned in 1984 during President Reagan's build-up of the armed forces. Following the explosion, there was much legal and editorial comment concerning the responsibility for the devastating tragedy. These discussions continue today. The ongoing debate about the cause and, in particular, the implications of wrongdoing by fellow sailors and/or culpability of the USS Iowa's Captain create a climate in which the disaster of the USS Iowa persists long beyond the day of the explosion.

The bodies of the sailors from the USS Iowa were taken to Dover Air Force Base for identification. They arrived at Dover late at night in 51 transfer cases. Only 47 of the cases were removed from the planes while they were visible to reporters and the public. The remaining four were removed later. Approximately 20 professionals from the Armed Forces Institute of Pathology went to Dover to carry out the identification process. In addition, the FBI was present. Approximately 70 volunteers from the USAF community served as body handlers during the identification process. Approximately twice this number actually volunteered.

Body handlers moved the bodies through the identification process on gurneys, keeping track of the pieces of property and the body parts. Some assisted in autopsies, embalming, casketing and/or administrative duties. Nearly all spent many hours surrounded by death and dead bodies. The volunteers were split into two groups by the senior NCO volunteer who had worked previously on several different body identification missions. He selected them based on "the look in their eyes." He kept the remaining volunteers as a reserve group to be called up should additional help be needed if the identification process continued for an extended period of time. In fact, nearly all the bodies were identified within a 3-day period and few of the reserve volunteers were called upon.

When the bodies arrived at Dover Air Force Base, the Uniformed Services University of the Health Sciences/Walter Reed Army Institute of Research (USUHS/WRAIR) trauma research team went to Dover and initiated on site participant observation studies through liaison with the Family Services offices. The research team continued observational studies over the following three days until the final bodies were in the last stages of identification. In contrast to the Gander Newfoundland disaster, most of the dead were intact, with many fully clothed, appearing very normal. This was often commented upon by the volunteers. The processing proceeded smoothly with few impediments. At one point, there was a back-up due to the slow processing of bodies through the x-ray station. This turned out to be an area where a number of the volunteers could sit and chat. Frequently, the research team returned to this area to talk to the volunteers. Those volunteers who had difficulties were spoken to by the Family Services personnel and by the research team.

The research team returned to Dover two weeks later. Debriefings lasting approximately 1 1/2 hours were held for all the volunteers, who had participated in the body identification process. Groups were kept to about ten people each.

Approximately one month after the volunteers participated in the body handling experience, a questionnaire was mailed out to them who participated, and to their spouses/significant others. In this report, we summarize the initial responses of the volunteers and their spouses/significant others.

### Dover Mortuary Workers

#### *Summary of Response Frequencies*

The surveys were completed by 54 volunteer workers. The median date of completion was 12 May 1989, approximately three weeks after the disaster. All respondents were enlisted Air Force members with the exception of one who was a civilian. Of the population, 24% were E4's and 31% were E5's. Age ranged from 19 years to 48 years with the median age being 28 years old (11% of the group were age 24). Of the volunteers, 90% were male and 70% were married. Seventy-two percent (72%) had completed some college. Approximately 83% were white while 17% were black or other minority.

#### DISASTER EXPERIENCE

- \* Forty-one percent (41%) had participated in previous disasters.
- \* Forty-eight percent (48%) had worked with dead bodies before.
- \* Seventy-two percent (72%) of the group worked as body handlers (escorts). The number of bodies escorted by a given individual ranged from one to thirty with the median being five bodies.
- \* Sixty-seven percent (67%) of the group worked in the autopsy room; 35% with embalming and approximately the same with casketing. Approximately 7% worked in supervisory positions.
- \* Most of the group worked for the entire three days (approximately 80%).
- \* Eighty-nine percent (89%) had attended an initial orientation prior to beginning work and 83% had an initial "walk-through" of the mortuary.
- \* Eighty-one percent (81%) observed the first body being removed from the transfer case.
- \* Eighty-seven percent (87%) participated in an outbriefing at the end of their mortuary work.
- \* Twenty-three percent (23%) reported having had some problems in accomplishing their assistance work.
- \* Seventy-five percent (75%) felt their families had been supportive.
- \* Sixty-two percent (62%) felt their friends had been supportive.
- \* Ninety-six percent (96%) felt their co-workers and supervisors had been supportive.

- \* Twenty-eight percent (28%) had at least one friend or relative in the Navy.
- \* Ninety-six percent (96%) reported they would work in the mortuary again.
- \* Ninety-three percent (93%) reported this to have been a positive experience.
- \* Few medical problems were reported in the intervening month from the time of the mortuary work to the time of completion of the questionnaire. Approximately 95% of the volunteers reported having had no physical or emotional problems during that time.
- \* Fifty percent (50%) of the volunteers talked with a spouse or a significant other concerning their mortuary work.
- \* Fifty-seven percent (57%) talked with a co-worker.
- \* Twenty-six percent (26%) provided support to others.
- \* Forty-nine percent (49%) of the volunteers felt moderately to very much that "it could have been me," while 26% felt the victims reminded them (moderately/very much) of a close friend.
- \* Fifty-five percent (55%) reported feeling moderately/very sad when they saw the victims, while only 15% reported feeling angry.
- \* In the first two or three days after their experience in the mortuary: 17% often felt irritable, 14% spent time with friends, 18% felt energetic, 28% felt tired, 11% felt lonely/blue, 5.6% reported often having difficulties sleeping, 2% reported often drinking more alcohol, 19% reported often avoiding getting upset, 20% often tried to remove the disaster from their mind, 7% reported often having dreams about the disaster, 24% reported thoughts of the disaster often surfacing in their mind.
- \* During the week of the survey, the volunteers reported: (moderate/quite a bit/extreme) headaches, 11%; critical of others, 22%; worried about carelessness, 20%; annoyed, irritated, 26%; slowed down, 17%; poor appetite, 8%; crying easily, 5%; blamed self for things, 12%; pain in lower back, 10%; feel must get things done, 20%; lonely, 13%; worrying, 31%; nausea, 3%; avoid things that remind them of the trauma, 2%.

### *Summary of Written Commentary*

Included on the survey were questions about the respondents' first reactions to the disaster and responses to the mortuary and the dead bodies. They were asked whether their spouses or significant others had concerns about their working in the mortuary. Additional items included reasons for volunteering to work in the mortuary, prior participation in mass casualty events, sources of support during the mortuary work, feelings about volunteering again for mortuary work, current thoughts about the disaster or its victims, any positive outcomes from the experience with the disaster, thoughts about causes of the disaster and any feelings of involvement with the dead bodies. Representative responses are presented.

**HAVE YOU EVER PARTICIPATED IN A MASS CASUALTY/DISASTER EVENT BEFORE ?**

"Jonestown bodies--worked reefers and ID for 4 days; Gander crash - in charge of volunteers-34 days."

"Recovery mission from Gander air crash with 101st Airborne Division. Approximately three years ago. My role was removing transfer cases from vehicles, bringing bodies into the mortuary, folding flags from off the cases, then moving transfer cases out of the refrigerator trucks."

"USS Stark, Dover AFB. Complete cycle through the morgue. The Jim Jones Massacre (same as above). All included the identification process."

"Ceremonially--as a member of the base honor guard: Stark incident and Iranian rescue attempt."

"In 1983 South GA Medical Center I was employed as an X-Ray technician for murder/suicide victims. I X-rayed the bodies and assisted during coroner's exam and autopsy of one of the victims."

"Gander, Lebanon bombing, Grenada mission."

"Lubbock, Texas tornado clean-up assistance; Aviano, Italy, earthquake clean-up; assisted with moving of bodies and locating missing persons; Dover AFB, Gander crash, keeping track of remains, body escort; assisting X-ray work, autopsy room, and prep room."

"Gander, USS Stark, Challenger. I worked at the Family Assistance Center and provided services in mortuary."

**BEFORE YOUR WORK IN THE MORTUARY WITH THE IOWA VICTIMS HAD YOU EVER WORKED WITH DEAD BODIES ?**

"I'm one of Dover's many people who answer all calls to all disasters regardless of the requirements."

"I'm one of Dover's honor guards."

"In May of 1987 I tried to help someone with a heart attack. Unsuccessful, (as) individual died 1 1/2 hours later."

"I had patients die during the procedures. I also X-rayed bodies in the morgue and sometimes post-mortem films in the OR and E.R."

"As adolescent, assisted USAF Pathologists with post mortem."

"Vietnam, numerous times. Also Jonestown and Gander."

**HOW DID YOU FIRST LEARN OF THE IOWA DISASTER? WHAT WAS YOUR REACTION ?**

"Television news. I wondered how long it would take for them to arrive at port mortuary"

"On the news. I felt for their families and thought I should help if they came to Dover."

"Supervisor briefed us that the mortuary was in need of volunteers."

"By radio; on the way to work 20 April. My very first reaction was a bit of sadness for the families. That was quickly replaced as I noted that the remains would be coming to Dover."

"Very shocked."

"Great sadness."

**WHY DID YOU VOLUNTEER TO WORK IN THE MORTUARY ?**

"Because I was asked to by Mr. X."

"I knew what to expect, wasn't afraid of the work, and wanted to help in the situation."

"It's my job as a US service member."

"Because they needed help and I would want someone to help me and my family. To help get them to their family as soon as possible."

"Because I felt like it was the right thing to do to help in any way I could. I have also had a long time curiosity concerning that type of work. I expected it to be very interesting."

"I have had an interest (plus I had to kill a fear of the dead) in bodies, and especially to the science, or consistency, or the why, how, etc. of dead bodies. I wanted to pursue a medical career but had been unable. Thus I took the chance."

"(I didn't). I thought I was volunteering to set up chairs in the hangar for the ceremony, which is what I was told initially from my squadron orderly room."

"Had considered working in funeral home after retirement."

**DID YOUR SPOUSE/SIGNIFICANT OTHER EXPRESS ANY CONCERNS ABOUT YOUR WORKING IN THE MORTUARY? IF YES, EXPLAIN.**

"She was being admitted to hospital on Friday and was concerned I would not be there."

"How long can I keep the 12+ hours of work and get everything done."

"My wife was concerned about the ramifications about working with dead bodies and how I would handle it."

"She could not deal with the fact that I'd be touching or simply be around bodies, especially after the description of the effect of the (accident) incident."

**BRIEFLY DESCRIBE YOUR FIRST RESPONSES TO THE MORTUARY AND THE DEAD BODIES.**

"Doubled up on surgical gloves."

"This is their last trip and now they're home."

"I felt sad for them and thought about how that could have been me."

"Dead bodies did not appear real."

"At first, I thought I couldn't handle seeing them, but had no problem with it."

"I hoped I wouldn't see the dead bodies (and) I didn't see any."

"I felt sorry for the families more than anything, especially when I would see the wedding ring on a young man's hand. Initially, the bodies were shocking, but I became very involved and interested in the processing."

"Initially, I was more focusing and wondering what was going to happen rather than thinking it was a different world."

"No problem what-so-ever, my fear of the dead, the caskets, the rooms, was gone."

"Pretty quiet."

"I wasn't shocked."

"I was concerned with the reactions of the other who witness the bodies."

"They looked like they were sleeping."

"Clinical type interest/state of bodies, how others would act/more of an appraisal type response than emotive."

"That the bodies didn't look as bad as I had expected them to. The movies prepared me for it."

**DID YOU ENCOUNTER ANY PROBLEMS IN DOING YOUR MORTUARY/DISASTER ASSISTANCE WORK ?**

"The smell bothered me at first, but after awhile I became accustomed to it."

"Nightmares, kept smelling the smell of the mortuary even a few days afterward. Had the threat of obtaining AIDS on my mind because of the blood on some of the bodies."

"No real problems, just physically and mentally drained each night due to the long hours."

"I smoked more and that made it hard to sleep."

"Had just lost my father in January and I initially had to deal with resurfacing feelings."

**WHAT DID YOU DO THAT HELPED YOU WHILE WORKING IN THE MORTUARY ?**

"Concentrated on the work and only looked at bodies when necessary."

"We told a lot of jokes, that most on the outside, or even some new on the inside would consider to be in poor taste."

"Talked to people and thought about just getting them home to their families."

"Talked to a lot of other individuals working. Tried to leave it behind at the end of the day."

"Joked a lot, not to be rude, but I felt better when we as a group did this. I also talked a lot and made a lot of new friends. I also ate far too much."

"I tried not to think of the sailor's life or family. Sometimes, I thought of a body as a store mannequin, or made up for a horror film."

"Kept a clear mind, talked with other individuals, and took Saturday off as a family day."

"Treated them as bodies and not humans per se."

"Took breaks and talked to another person."

"Went outside during breaks."

"I didn't watch any news broadcasts. I didn't want to see pictures of the victims given by the families. I didn't remember the names."

"Tried to maintain a detached feeling and to look at what was happening as if it was any other assigned duty."

"Read magazines."

"I thought of it as a learning experience."

"Remembering that I was helping out and feeling that I actually belonged in the military."

"Think about family."

**SUPPORT GIVEN BY SPOUSE/SIGNIFICANT OTHER/FAMILY. PLEASE DESCRIBE.**

"My wife and family know I feel the work there is something that has to be done and I want to insure it is done right."

"Always checking on me."

"We worked at the mortuary together."

"My spouse is also a military member and he is very supportive of everything I do."

"They were supportive, but unsure as how to help me cope with it."

"She didn't ask any questions about it. I didn't talk about it."

"Didn't like the long hours."

"I think that I was lucky compared to most. My wife is a registered nurse who used to work in an operating room. I was able to describe what and how I felt--in seeing and working with the bodies."

**SUPPORT GIVEN BY FRIENDS. PLEASE DESCRIBE.**

"Most of my friends know that I work there every time I'm available and they strongly support me in those efforts."

"Most of my friends work for fire companies and have dealt with dead bodies before and offered advice."

"Had no idea of what I was doing."

"Listened, asked questions."

"I don't have any friends I can relate or relay the experience."

"They made some fun of the detail and thought I was stupid for volunteering."

**SUPPORT GIVEN BY MORTUARY CO-WORKERS. PLEASE DESCRIBE.**

"They worked very hard and most were very motivated, so as a supervisor I felt good."

"Some of us became close and we talked to each other a lot, found that most of our thoughts were alike and not really abnormal."

"Worked well together, helped each other, talked, laughed."

"Rarely."

**SUPPORT GIVEN BY MORTUARY SUPERVISORS. PLEASE DESCRIBE.**

"We could talk about anything and resolve most issues."

"They would watch out for us and get us anything we need, personal or professional, and ASAP."

"Very helpful when asked questions."

**SUPPORT GIVEN BY CO-WORKERS, SUPERVISORS AT YOUR USUAL JOB. PLEASE DESCRIBE.**

"My assistants did my job while I was at the mortuary and the operations officers fully supported my efforts."

"Mostly curious. Their priorities for the 'day to day' mission seemed quite different from mine immediately after returning from the recovery mission."

"I've been able to talk to them a little."

"Were understanding, offered me time off."

"I requested Monday the 24th off and my supervisor said, 'Why? Didn't you volunteer for this?' and (that) I was the second person to ask that question. I did get Monday off after explaining the situation."

"Very unsupportive--SGT would crack jokes about the bodies (he wasn't there)".

"Very unsupportive. Very unconcerned. Distasteful attitude. Thought it was 'just another thing'."

**SUPPORT GIVEN BY OTHERS. PLEASE DESCRIBE.**

My commander.

"He visited the mortuary and saw first hand what we do. He couldn't express his appreciation and support enough."

"If you can eat while you work you'll be fine in the end."

Chaplains, Psychiatrists.

"They were constantly talking to and checking on people."

Children.

"Daughters were curious."

People in general.

"Asked a lot of questions."

"Questioned why I was not present at volunteer recognition on Friday--totally out of touch."

**DO YOU HAVE ANY FRIENDS IN THE NAVY OR ON THE USS IOWA ?**

"I have a couple of friends in nuclear subs and a few others in various jobs."

"I have a friend in the Navy station at Norfolk. I knew he was stationed on the Iowa. It was an uneasy feeling until Thursday night when I got a call from home and found out that he was OK."

"Brother-in-law and sister-in-law were in the Navy."

"My brother is stationed in Norfolk, Hawaii, etc."

"The priest that married my wife and I is the Catholic chaplain on the Iowa."

**WOULD YOU VOLUNTEER TO WORK IN THE MORTUARY AGAIN ?**

**YES:**

"I do it every time."

"I enjoy the teamwork and the quality of the work that will surface in adverse circumstances."

"Because it didn't really bother me that much. I didn't or tried not to think about it and to help the families out by getting the men and women home as soon as possible."

"If I could help in any way and be there for the people who couldn't handle the situation."

"I really would like to get more involved, such as helping in the autopsy room, embalming room, and even casketing."

"Yes, but it would probably depend on how the people died and how many bodies."

"Yes, however, I do not think I could do it very easily if I knew the person(s) involved or if children were involved."

"Yes, (but) only after the curious and 'in the way' people leave and there is a clear need for my help."

**AT THIS TIME, DO YOU EVER THINK ABOUT THE DISASTER OR ITS VICTIMS ?**

"When I see a naval ship, it reminds me of the Iowa. It serves as a reminder that disaster can strike anytime or anywhere."

"Burnt meat, barbecued chicken or ribs, watching the turret on TV blow up time and time again, anything NAVY related. It doesn't bother me too much, but I wonder how the families of the victims can deal with seeing the turret blow on TV day after day."

"When people talk about it or I see something on the news."

"But only to what went on in the mortuary."

"I just occasionally think about the whole experience. I guess sometimes, if I see something gory, I may remember it."

"Whenever I see Navy tags, shirts, etc. it remind me of the incident."

"Although it doesn't bother me, I still think about the work I did and I'm proud of it. I am also in the process of making a scrapbook of the incident."

"Whenever I hear or read about other disasters and (it) causes me to think about what I've seen and about the frailty of human life."

"Nothing particular. Mind wonders and I think about it for no reason at all or other accidents such as the USS White Plains accident."

"Whenever I hear the words "dead" or "death".

"Flag-draped casket."

"I don't single out the victims. I remember certain positions the bodies were in."

"Along the same lines as visiting a funeral home for a deceased fourth cousin that I had no real contact with."

"Seeing someone who looked like one of the victims or hearing of a death because of a fire. I think about some of the expressions on the victims' faces."

"I hadn't though much about it until this questionnaire."

**DO YOU FEEL THAT ANYTHING POSITIVE HAS COME OUT OF YOUR EXPERIENCE WITH THE DISASTER AND ITS VICTIMS ?**

"I feel pride in helping ease the pain of loved ones by getting the remains home quickly."

"I feel now that if some(thing) was to happen I wouldn't freeze and could do something to help."

"Only in the respect that I now know that I could work in any kind of environment."

"I believe I have a greater appreciation for life and how short it can be."

"I feel more relaxed in dealing with the dead. This could also help me with my criminology course."

"Better understanding of life and death."

"It showed me how much respect I actually have for my country and countrymen."

"A better understanding of a mortuary and mass casualty operation."

"I have never lost someone close to me. This will help me, I suppose."

"Helped me deal with my father's death. I did not feel anymore that I was the only one who had lost someone."

**WHAT DO YOU THINK CAUSED THE NAVAL DISASTER? WHO, IF ANYONE, DO YOU FEEL WAS RESPONSIBLE ?**

"Just a guess would be static electricity."

"Failure to follow proper procedures while completing a routine task. Operator error by not following safety procedures, by having unauthorized articles in that area."

"I think it was a freak accident. No one at fault."

"Either equipment malfunction or human error--it's hard to decide. I have never been worried about who is responsible--let the facts tell any tales."

"I don't know."

"I don't feel I am qualified to answer this."

"Probably an act of 'not thinking.' Sometimes I think it was sabotage, especially when I see clippings of the video that a sailor took at the precise time."

"Accidents happen, they can't be helped. God said, 'Come on home!'"

"Lack of quality training and good supervision. Supervision and management responsible."

**HAVE YOU OBTAINED ANY MEDICAL CARE SINCE THE IOWA DISASTER (20 APRIL) ?**

"Possible inflammation -- I had a vasectomy about a year ago and had a sperm count done. High WBC count that was abnormal. The problem was present before Iowa."

**SINCE YOUR WORK IN THE MORTUARY, HAVE YOU PROVIDED SUPPORT TO OTHERS WHO WERE UPSET BY THE DISASTER OR THE MORTUARY WORK ? (FOR EXAMPLE: CO-WORKERS, SPOUSE, SIGNIFICANT OTHERS).**

"During debriefs both at the mortuary and afterwards."

"Co-worker."

"Spouse, in that we talk to each other."

"Spouse and co-workers."

"Talked to others from mortuary and ventilated feelings."

**DID YOU HAVE ANY OTHER FEELINGS OF INVOLVEMENT WITH THE DEAD BODIES YOU WORKED WITH ?**

"Some graduated in the same class (year) that I did according to class rings."

"If you got to go, let it be quick and I hope that it wasn't that painful for them because suffering and then going would be even worse."

"The bodies that still had wedding rings on. I felt sorry for their spouses."

"Thought about how my wife and children would suffer had it been me."

"These were fellow countrymen, their death was tragic and untimely."

"Why God would allow something like this to happen."

"Gander and Stark."

"It's hard to describe feelings you normally don't have. It's like a numbness."

"I got very upset and angry when some of the victims were buried without any strip or award just because they had just joined the NAVY and didn't get any."

**MAJOR LIFE EVENT REPORTED BETWEEN SEPTEMBER AND DECEMBER 1988.**

"Spouse had torn rotator cuff in shoulder."

"Birth of child."

"Death of grandparent."

"Moved into an apartment and out of dorm."

"Marriage."

"Adoption of child. husband returns after 5 months absence (TDY)."

"Fiancee and I separated."

**MAJOR LIFE EVENTS REPORTED BETWEEN JANUARY 1989 AND THE IOWA DISASTER.**

"Spouse had surgery on shoulder."

"Marriage separation."

"Uncle had heart attack."

"Aunt died of cancer."

"Father died."

"Sister-in-law miscarried. Mother-in-law died."

"Management problems at work."

**MAJOR LIFE EVENTS REPORTED SINCE THE IOWA DISASTER.**

"Three of my patients died."

"Married in June."

"Separation."

"Death of a family member."

"Management problems at work."

"Mother had nervous breakdown requiring my aid to family."

**IF YOU HAVE ANY ADDITIONAL COMMENTS ABOUT YOUR REACTIONS TO THE DISASTER OR THOUGHTS YOU WOULD LIKE TO OFFER, PLEASE USE THE BACK OF THE PAGE.**

"I feel strongly that the pre-brief, immediate mass debrief and the group debriefs were very useful for everyone."

"I wish I could have had more support from my spouse at the time of the Iowa incident...I think spouses should be briefed on the impact of an incident such as this one can have on an individual."

"Also, briefing volunteers on the experiences to be faced with can help by explaining to them this body is now lifeless, no blood pumping, no breathing, and usually no facial expressions. This helped me in dealing with the dead bodies, especially when I did not see blood that usually makes people squeamish."

"I think allowing a person to work in this environment for only three days is a good idea. I think as a general standard people who have worked should be given a few days off...supervisors don't realize the difficulty in doing an operation of this magnitude. Wives...and children...should be debriefed. My wife felt very uncomfortable when I touched her. Now that more time has passed I sleep much better and do not think too much about what happened."

"I was real pleased with the smoothness of the operation. Much better than the Gander operation. I have separated from the service. I would gladly answer or help in any way."

"..It could happen to any of us with the lack of proper equipment and tools that the military provides in this money crunch time. Too much is being overlooked or shortcut for the numbers to say we have."

### *Discussion*

This sample of volunteers had extensive exposure to the mortuary over a three day period of time. Many of them had previous experience in working with the dead of a disaster. Many reported that their spouses and significant others were concerned. Most volunteered for patriotic reasons or because they felt needed, but reasons ranged widely.

In general, these volunteers felt supported and overwhelmingly viewed their experience as positive. Seventy-five (75%) of the sample reported some experience of feeling "it could have been me," while 35% experienced this "very much." The stress of the sights and smells of the dead bodies was universally reported as stressful. Bodies that were in tact often caused distress because of the ease of being reminded of the victim as alive, married, like a friend, like themselves. Talking to others, taking breaks, not looking at the bodies, and not thinking of them as human or having families all helped the workers with their tasks.

In the first few days after the mortuary work, 60%-75% of the volunteers, at least at some time, felt irritable, felt energetic, tired, lonely, had thoughts about death or dying, avoided getting upset, and/or felt numb about the dead bodies.

Overall, these data indicate that the volunteers did quite well, however, they also reported a high number of symptoms. Symptoms were commonly experienced immediately after the mortuary experience. The number of symptoms reported at the one month time was smaller. Many volunteers felt some positive things came out of their experience, usually a new appreciation of life, family or pride in their work.

### **Dover Mortuary Worker Spouses / Significant Others**

#### *Summary of Response Frequencies*

Forty spouses or significant others of the volunteer mortuary workers completed and returned the first survey between 9 May and 5 June 1989. The median time for completion was 16 May, approximately one month after the accident, with 59% of the sample completing the survey by that date. Thirty-five respondents (85%) of the sample were female and five were male. The sample ranged from 19 to 43 years of age. The median age was 26 and 81% of the respondents were between 19 and 32 years old.

Seventy-one percent (71%) of the sample were married; 27% were single or divorced but had a significant other. Fifty-four percent (54%) of the married respondents had been married for five years or less, and 22% were in their first year of marriage. Fifty-nine percent (59%) of the sample had between one and four children.

Eighty-eight percent (88%) of the sample had either graduated from high school or completed some college. Forty-four percent (44%) were in medical or service-related occupations. Eighty percent (80%) of the sample were White; 10% were Black; and 10% were Oriental or Hispanic. Ninety-three percent (93%) of the sample's spouses who had worked in the mortuary were enlisted, ranging in rank from E-2 to E-9.

#### DISASTER EXPERIENCE

- \* Fifty-one percent (51%) of the sample reported their spouses expressed concern about volunteering to work in the mortuary.
- \* Fifty-nine percent (59%) reported their spouses experienced above average to high stress during the period of time they worked in the mortuary. Fifteen percent (15%) claimed they themselves experienced above average to high stress.
- \* Sixty-eight percent (68%) indicated their spouses talked about the disaster and their mortuary work "above average" or "a great deal".
- \* Forty four percent (44%) said they had spent extra time with their spouses in the two or three days following their work in the mortuary.
- \* The majority of respondents described supportive relationships with their spouses or significant others.
- \* Eighty-eight percent (88%) claimed their spouse or significant other comes to them for emotional support.
- \* Eighty-five percent (85%) claimed their spouse or significant other comes to them with problems or for advice.
- \* Eighty-eight percent (88%) reported they can rely on their spouse or significant other for emotional support.
- \* Eighty-eight percent (88%) reported their spouse or significant other gives them the support they need.
- \* Eighty-five percent (85%) reported they feel appreciated by their spouse or significant other.
- \* Eighty-three percent (83%) claimed they have an open relationship with their spouse or significant other.
- \* Eighty-eight percent (88%) reported they have a deep and sharing relationship with their spouse or significant other.
- \* Eighty-three percent (83%) of the sample reported they themselves had never participated in a mass casualty or worked with the dead before.

- \* None of the respondents had a friend or relative on the USS Iowa at the time of the disaster, although 20% had friends or relatives in the Navy.
- \* Fifty-four percent (54%) felt "moderately" to "very much" that the victims could have been their spouse or a close friend or relative.
- \* Sixty-eight percent (68%) of the respondents reported they had watched the memorial service for the victims on TV.
- \* Approximately one month after the accident, 66% of the sample reported they still thought about the disaster and 81% claimed they felt "moderately" to "very" sad when they thought about the victims.
- \* Despite the stress experienced and the concerns expressed for spouses or significant others who worked in the mortuary, 59% of the sample reported their belief that something positive had come out of the disaster.

#### **RESPONSES REPORTED ONE MONTH AFTER THE DISASTER**

- \* Thirty four percent (34%) of respondents reported moderate to extreme worrying too much.
- \* Thirty-two percent (32%) reported moderate to extreme feelings of being easily annoyed or irritated.
- \* Twenty-two percent (22%) reported feeling moderately to extremely lonely.
- \* Twenty-two percent (22%) reported moderate to extreme worry about carelessness.
- \* Twenty percent (20%) reported moderate to extreme feelings of being easily tired.
- \* Twenty percent (20%) reported feeling "a little bit" hopeless about the future, while 5% reported feeling extremely hopeless.
- \* Twenty percent (20%) reported moderate to extreme discomfort from thoughts of death or dying, while 12% reported "a little bit" of discomfort from thoughts of death or dying.
- \* Twenty percent (20%) reported feeling moderately to "quite a bit" restless, with disturbed sleep.
- \* Fifteen percent (15%) reported moderate to extreme trouble falling asleep.
- \* Fifteen percent (15%) reported "a little bit" to "quite a bit" of discomfort from repeated unpleasant dreams or nightmares.
- \* Seventeen percent (17%) reported "quite a bit" feelings of being easily hurt, while 10% reported feeling easily hurt to a moderate degree.

- \* Fifteen percent (15%) reported moderate to extreme experiences of crying easily.
- \* Fifteen percent (15%) reported "quite a bit" of discomfort from headaches, while 17% reported moderate discomfort.

### *Summary of Written Commentary*

Included on the survey were questions about their first reactions to the disaster and questions about their spouses' or significant others' concerns about working in the mortuary. Additional items asked whether they still thought about the disaster or its victims, and if so, what caused them to remember and what thoughts they had. The survey also included questions on whether anything positive had come out of the disaster, what they thought caused the accident, who they believed was responsible, and whether they had any other feelings of involvement with the victims. Representative responses are presented.

#### HOW DID YOU FIRST LEARN OF THE DISASTER ?

"Morning news/ television."

"Radio on the way to work."

"My husband told me on the phone that morning."

#### WHAT WAS YOUR FIRST REACTION ?

"My reaction was anxiety and sadness. Both feelings were due to my immediate thoughts of the injured parties themselves, and a brief amount of anxiety was also expressed because I knew the bodies would be flown to Dover and that my husband would most likely be helping with the crisis."

"Sadness for the families. Then I knew the remains would be coming to Dover."

"Oh no. Not again. More death for our fellow servicemen."

"I felt sorry for the families and thought about my family members in the service."

#### DESCRIBE YOUR FIRST RESPONSES TO THE DISASTER.

"I thought to myself, why did it have to happen? These were our people."

"I talked with my husband about it and asked him some questions about how it had happened. We talked over his volunteering to work in the mortuary."

"Dread, foreboding, and concern for the stress on my spouse and secondarily, on his ability to participate in family life."

## *Trauma, Disasters and Recovery*

"I was shocked at so many deaths. I became quieter and extra concerned that I could lose my fiance at any time in a freak accident."

"Thank God it's not my husband or his brother!"

### DESCRIBE YOUR SPOUSE/SIGNIFICANT OTHER'S CONCERNS ABOUT VOLUNTEERING TO WORK IN THE MORTUARY.

"He was concerned that he wouldn't be able to handle the situation in the morgue."

"He said it was difficult at first, but something that had to be done and, with a sense of responsibility, was part of his job."

"My husband was very eager to help where needed at the mortuary. He had helped once before in a mass casualty and knew how much his help would be appreciated."

"He did not want to volunteer because I was going into the hospital that weekend and he felt his place was with me. But he ended up helping as much as he could."

### DESCRIBE WHAT MAKES YOU REMEMBER THE DISASTER AND THOUGHTS YOU HAVE ABOUT IT TODAY.

"I remember the disaster every time I go in the main gate of the base because there is a billboard there and at the time it said: "Our thoughts and remorse are with the families and victims of the USS Iowa". I also think of the images that J. described of the mortuary in a curious way."

"Sometimes I just think back on what happened. I think of how young some of the victims must have been and I wish none of them would have died. I pray their families have strength enough to get through this."

"Now if I hear about a military death it reminds me of the tragedy."

"Watching the news, or hearing anything that has to do with the military that is upsetting. It could have been my husband or someone I know."

"I think about it because I lost my previous husband last June to suicide, and watching the memorial service made me experience the hurt and total helplessness all over again."

### HAS ANYTHING POSITIVE COME OUT OF THE DISASTER ?

YES:

(Yes) "Both me and my husband realize how fragile life can be. He is no longer afraid of death."

(Yes) "I believe that I have been able to get to know another side of my husband's emotions and personality. I have come to understand his thoughts, feelings, and his reasons for volunteering and working 14-16 hour days in the mortuary (on weekends too) for 4 1/2 days straight. I feel positive about my husband's heroic abilities and talents which he used and was able to demonstrate during that time."

(Yes) "That the military, even in peacetime, is subjected to high risk and danger."

(Yes) "In a way, you can see the pride and loyalty in the military. It brings out the best in people."

(Yes) "It's hard to think that something positive could come out of something so terrible. One thing positive is how the disaster brought people together - the caring, the sharing, and the desire to lend a helping hand."

**NO:**

(No) "If they can increase the safety margin, then something good could come out of it. But not enough to make up for all the deaths."

(No) "How can anything positive come out at the expense of someone's life? someone's husband, daddy, fiance, boyfriend, son, etc..."

(No) "I can't feel that a disaster can be positive. It was a terrible waste of human life."

(No) "Many lives were lost. Families and relatives have to be still mourning the losses that can never be replaced."

**WHAT DO YOU THINK CAUSED THE DISASTER ?**

"I don't know what caused it and look upon it as an 'Act of God.'"

"I believe it was just an accident and that you really can't blame anyone."

"Carelessness appears to be a leading factor."

"Powder failure."

"Mechanical malfunction."

**WHO, IF ANYONE, DO YOU FEEL WAS RESPONSIBLE ?**

"All are partially responsible, but mainly the supervisor and possibly the Captain."

"Even though I don't know the facts, I feel a lot had to be human error. I don't think one single person is responsible. Everyone involved is responsible."

"Blaming anyone will not change the outcome of the disaster."

**DO YOU HAVE ANY OTHER FEELINGS OF INVOLVEMENT WITH THE VICTIMS ?**

"I think, being an Air Force wife, any time there's a tragedy involving military members it strikes a little close to home. Somehow, even if you didn't know them, you feel in a way you do."

"I sometimes hear that the military are one big family. I think its true in a way. No matter what branch of the service, when something happens, when there is a tragedy, it's like something has happened to one of 'us'."

"Just the feeling of losing someone you hardly knew. When another military member is killed, you always feel some involvement."

"What the children will be like when they grow up. Will they want to serve their country like their dads?"

*Discussion*

The forty spouses and significant others of the volunteer mortuary workers comprise a relatively small sample. Respondents were nearly all female spouses of enlisted men. In general, the respondents were young, married for five years or less, and had several children. The majority (88%) had either graduated from high school or completed some college. About half of them worked outside the home in medical or service-related occupations; the other half described themselves as housewives.

It is unknown how representative the typical respondent in the sample is with regard to the population of military spouses. This, in conjunction with the small sample size, suggest that conclusions from the initial review of data should be conservative and limited.

More than 80% of respondents described relationships with their spouse or significant other as extremely supportive, open, sharing, and appreciative. When asked about reactions to the mortuary experience, 68% indicated their spouses had talked about their work above average or a great deal, and 44% claimed they had spent additional time with their spouses in the days following this work. The majority (59%) reported their spouses had experienced above average to high stress during the period of time in the mortuary and had expressed concerns prior to volunteering.

Only 15% of respondents claimed that they themselves had experienced above average to high stress during this period. However, 54% felt moderately to "very much" that the victims could have been their spouse or a close friend or relative. One month after the accident, 66% of the sample still thought about the victims.

Several symptoms were noted to fall in the moderate to extreme range for 20 - 30% of respondents. The significance of these findings remains to be determined since there are no pre-disaster symptom levels for the sample and no control group. Additionally, the respondents had no direct exposure to the mortuary and no immediate contact with the dead victims. Their "exposure" was mediated primarily through their spouses' reactions and experiences.

At the time of data collection, symptom levels in the moderate to extreme range appear related to depression. Worrying too much, loneliness, feeling easily tired, thoughts of death and dying, and restless, disturbed sleep were reported by

20 - 30% of respondents.

Concerns for spouses and significant others, as well as friends and family who are military members were recurrent themes in the survey responses. "Thank God it's not my husband or his brother!" and "More death for our fellow servicemen to endure" reflected the sample's first responses to the disaster. Dread, foreboding and concern for the mortuary workers, and anxiety about the bodies arriving at Dover were also expressed. Reports of their spouses' concerns about the mortuary work ranged from fears of "not being able to handle it" to a patriotic sense of "helping his fellow servicemen".

Despite their lack of direct exposure to the mortuary or to the dead victims, the respondents reported frequent thoughts of the disaster often triggered by other military accidents, articles in the news, or simply driving past the mortuary on the base. Thoughts at this time reflected the theme "It could have been my husband or someone I know", as well as sorrow for the families of the victims, "I pray their families have strength enough to get through this." Most respondents believed something positive had come out of the disaster. Many comments expressed pride in their spouses' dedication, commitment and patriotism. Some comments reflected the couple's increased awareness of death and "the fragility of life".

Many respondents related anecdotes of how the disaster brought people together, and noted the pride and loyalty in the military as they responded to the event. Similarly, as they described their own feelings of involvement with the victims, their comments reflected "the military as one big family". One respondent noted: "...Any time there is a tragedy involving military members it strikes a little close to home. Somehow, even if you don't know them, you feel in a way you do."

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