Chapter Three

Hospitals and Clinics

Introduction

The attack on the Pentagon killed 125 Department of Defense (DoD) personnel outright, including 33 Navy and 22 Army active-duty deaths. Seventy civilians, including nine contractors, also lost their lives. No construction workers were among those killed because they were all working in another area at the time of the crash. Of the many injured survivors who made it out of the building, 125 sought medical care at area hospitals and clinics on 9/11. Approximately 64 were treated and released, and about 61 had physical injuries serious enough to be admitted to medical facilities. Dozens more sought treatment for minor injuries during the remainder of the week. Military and civilian hospitals treated and admitted both military and civilian casualties. By 15 September, only 20 patients remained in local hospitals. (See the discussion of discrepancies in official casualty counts in Chapter 1.)[1(p314),2(pB-15),3–8]

Immediately after American Airlines Flight 77 crashed into the Pentagon, area hospitals with previous agreements to work together in a crisis contacted one another. Walter Reed Army Medical Center (WRAMC) communicated with military and civilian support hospitals in Northern Virginia; Washington, DC; and Maryland. WRAMC's emergency room staff had been meeting monthly with emergency personnel from hospitals in the DC Hospital Association, and communications had been tested every day regarding bed availability and other contingency concerns. In Northern Virginia, the Arlington County Emergency Communications Center notified area support hospitals, including Virginia Hospital Center–Arlington, Inova Alexandria Hospital, Inova Fairfax Hospital, Washington Hospital Center, and George Washington University Hospital.[2(pB-1),9]

In preparation for receiving mass casualties, regional hospitals established emergency operations centers, reviewed disaster plans, postponed nonessen-

TABLE 3-1

DISPOSITION OF 9/11 PENTAGON PATIENTS

Facility	Patients Received	Treated/ Released	Admitted
Andrew Rader US Army Health Clinic	4	3	1*
Arlington Urgent Care Center	10	7	3†
DeWitt Army Community Hospital	13	5‡	7
George Washington University Hospital	3	3	
Georgetown University Hospital		1§	
Inova Alexandria Hospital	23	4	19
Inova HealthPlex Emergency Care Center	3	2¥	
Inova Fairfax Hospital		1¶	
Northern Virginia Community Hospital	6	6	
Virginia Hospital Center–Arlington	44	26	18**
Walter Reed Army Medical Center	4	1††	3‡‡
Washington Hospital Center	13	5	8§§
TOTALS	**125**	**64**	**61**

*Transfer to Virginia Hospital Center–Arlington
†Two transfers to Virginia Hospital Center–Arlington; one transfer to Walter Reed Army Medical Center
‡One transfer to Virginia Hospital Center–Arlington
§One transfer to Washington Hospital Center
¥One transfer to Inova Fairfax Hospital
¶Transfer from HealthPlex
**Two transfers to Washington Hospital Center; one transfer to Walter Reed Army Medical Center on 9/12
††One transfer to Washington Hospital Center
‡‡One transfer from Arlington Urgent Care
§§One transfer from Georgetown University Hospital; one transfer from Walter Reed Army Medical Center; two transfers from Virginia Hospital Center–Arlington on 9/12
Data source: Titan Systems Corporation. *Arlington County After-Action Report on the Response to the September 11 Terrorist Attack on the Pentagon*. Arlington, VA: Titan Systems Corporation;

tial surgery, cleared operating rooms, moved emergency room patients to secondary treatment areas, and discharged patients able to go home. Hospitals augmented staffs and assembled medical supplies. Emergency room personnel organized to systematically receive, sort, and treat large numbers of patients, or prepare them for surgery or other medical procedures, within a short time.[2(pB-12),10–12]

Army Medical Facilities

Walter Reed Army Medical Center

Major John Lewis Thurman, an operations research analyst in the Army's Office of the Deputy Chief of Staff for Personnel, entered WRAMC suffering from smoke inhalation. After the attack, he had crawled out of his Pentagon office on the second floor of the D-ring, taking 10 minutes to find his way to safety in the outer ring. Minutes earlier, he had helped pull out coworkers Chief Warrant Officer 4 William Root and Lieutenant Colonel Karen Wagner from under debris and told them to follow him. His colleagues, however, were more injured than he was and never made it out of the building. Two people in the outer ring assisted him down a corridor to the DiLorenzo Clinic, where he received oxygen. He was then taken by gurney to the north parking lot and the grassy area on Boundary Channel Drive, near the Pentagon Officers' Athletic Club, where triage was being conducted. Because there were no ambulances, he was placed in a minivan whose back

Walter Reed Army Medical Center.
Photograph: Public Affairs, Office of the Surgeon General, US Army.

benches had been removed and evacuated to Virginia Hospital Center–Arlington. The hospital's staff called his parents in California to let them know their son had survived and was in the hospital.[13]

After hospital staff inserted a tube into his larynx and gave him intravenous (IV) fluids, Thurman was anesthetized with morphine, which rendered him unconscious. Hospital staff removed the tubes the following day. Senior Army personnel and a mental health team from WRAMC visited him while he was at the hospital. When he was ambulatory, he was given the choice of staying at Virginia Hospital Center or of moving to WRAMC. The Army major chose the latter, and was moved to the facility on the 12th.[13]

At WRAMC, Major Thurman was sent to Ward 75 with other Pentagon survivors. After a surgical team verified he had no injuries other than smoke inhalation, he underwent a battery of tests to evaluate the carbon monoxide and carbon dioxide levels in his body. He was also evaluated by a pulmonary team, which ordered treatments to remove the soot from his lungs and prevent pneumonia. Students examined him the following day as part of their training. Every day mental health professionals, led by a civilian psychologist, visited to discuss his anxieties and the grieving process. Senior officers from his chain of command also reassured him that it was okay to grieve and then move on, because his lost colleagues would have wanted him to. Major Thurman had lost 24 of his coworkers, including the two he personally tried to save. On 14 September, after he had passed a pulmonary artery pressure check and breathing test to assess whether his lungs operated properly, he was released.

Thurman credited his Army training for his survival. After the plane hit the Pentagon, he instinctively stopped, dropped, and rolled, which saved his life. He also was in good physical condition because of the Army's physical training requirements. He attributed his emotional recovery to the senior Army leadership's interest and encouragement, WRAMC's psychological teams, his coworkers, and his friends. Very valuable to him was a phone in his room and access to the Internet and to e-mail at the hospital, allowing him to stay in touch with people he knew and receive their support.[13]

Thurman was one of at least twelve patients who passed through the WRAMC as a result of the attack, although the hospital was prepared to receive 140 victims. Civilian Pentagon victims in military hospitals were classified as "Secretary of the Army designees," and received free medical care. The highest in-patient census on any given day was six. Some of their injuries were serious. Severely burned Navy Lieutenant Kevin Schaeffer, for example, had worked in the Navy Command Center at the Pentagon, where 33 military lost their lives. He arrived at WRAMC on the morning of the 11th and was transferred to the burn unit of the Washington Hospital Center that afternoon. WRAMC admitted three more Pentagon casualties for smoke inhalation on 9/11 (one was transferred from the Arlington Urgent Care Center). On the 12th, in addition to Thurman, WRAMC received a patient suffering ear pain from the Virginia Hospital Center. WRAMC admitted four more patients on the 14th: three suffering smoke inhalation from

local hospitals and one with seizures from the Arlington Urgent Care Center. On the 15th, a patient with burns arrived from Viginia Hospital Center–Arlington and a patient with a gastrointestinal disorder from DeWitt. All of WRAMC's patients were discharged by 25 September. One burn patient returned for a procedure on 25 September and was discharged on 4 October. After his discharge from the Washington Hospital Center, Lieutenant Colonel Brian Birdwell received follow-up care as an outpatient at WRAMC (see below).[4,7,13,14]

At 1125 on 9/11, WRAMC set up a support center for the families of patients on the third floor of the hospital in the vicinity of the chaplains' offices and the Social Welfare Service. Chaplains, mental health teams, and social workers prepared to gather there to counsel the families of the victims. On 12 September, Colonel Richard Tubb, President George W Bush's physician, called the North Atlantic Regional Medical Command's emergency operations center for information on patients and their locations in preparation for presidential visits. First Lady Laura Bush met with the injured in Washington-area hospitals on 12 September, and the president did the same on the 13th.[10,15(pp1,3)]

DeWitt Army Community Hospital

DeWitt Army Community Hospital commander Colonel Eileen Malone, who shortly after the attack had dispatched ambulances and behavioral health teams to the Pentagon, and equipment and nurses to Rader Army Health Clinic, had also placed DeWitt on code-yellow (tight security status). This status had closed clinics, including the Family Health Center Woodbridge, Family Health Center Fairfax, and Rader (to all but Pentagon victims), and had dispersed personnel to augment emergency room staffs. About 3 hours after the assault, Dewitt received the first two of thirteen Pentagon casualties when a Marriott van brought patients to its emergency room. The two were treated for minor injuries and released.[12]

About 60% of Pentagon patients lived in Northern Virginia, so DeWitt began to receive walking wounded in its emergency room and at its other family health centers on the afternoon of 9/11. The injured suffered smoke inhalation, contusions, lacerations, and posttraumatic stress. Some slightly burned individuals had been released from hospitals earlier and were beginning to feel the pain. Dewitt admitted about seven patients (the exact number cannot be determined) with a variety of injuries on the afternoon of the 11th; all of them were discharged by 13 September. The hospital transferred a victim suffering second-degree burns to Virginia Hospital Center on the 11th. This patient was moved to WRAMC on the 12th. DeWitt dealt with walking wounded all week. Between 13 and 17 September it treated eight more Pentagon patients for minor illnesses, including smoke inhalation, abdominal pain, and headaches. Some patients who had evacuated the Pentagon and gone home after the attack probably should have been in the hospital during the first 24 hours. "These are the iron colonels," Colonel Malone said, ". . . the iron senior non-commissioned officers. They aren't coming in, especially if they don't perceive themselves to have significant issues." Family members

DeWitt Army Community Hospital.
Photograph: Public Affairs, Office of the Surgeon General, US Army.

persuaded the victims to go to the hospital for care.[3,8,12,16]

In preparation for another crisis, Colonel Malone and some of her staff stayed overnight at the hospital on 9/11. In the morning, she sent a number of personnel home but kept enough surgical teams to handle emergencies and "to do key missions." Due to security delays at the gates, DeWitt diverted work to the Woodbridge and Fairfax clinics and shifted appointment times to the evening, when fewer people would be trying to enter the hospital. Over the following days, Malone visited every civilian medical facility in the area that had Pentagon patients. She knew all the hospital chief executive officers personally because she had visited them before to plan for a catastrophe in the national capital region. "When you are doing homeland defense," she said, "you absolutely cannot think of yourself as an island."[12,15(p3)]

Andrew Rader US Army Health Clinic

Fort Myer's Rader Health Clinic received four Pentagon victims on 11 September. Immediately after the attack on the Pentagon, Rader staff began initiating code-yellow activities in preparation for mass casualties and set up three triage areas in the parking lot. The first two patients arrived in a privately owned vehicle. One was an ambulatory patient with a serious head injury, who was stabilized

and sent by ambulance to Arlington Hospital Center. The second casualty had a superficial leg wound. Two other patients were walk-ins with minor ailments or injuries. One, a female sergeant hit in the abdomen by a computer, received a series of tests and was sent home after a few hours. The other patient suffered shortness of breath; he was evaluated, treated, and released. By 1313, Rader staff finished with all four victims but was awaiting more.[2(B-14),17–20]

To prepare Rader for masses of injured, DeWitt Army Community Hospital sent critical care equipment and five intensive care unit nurses to the clinic. Rader staff spent much of 9/11 anticipating large numbers of casualties, which never came. Nurses were also sent by Rader to help at the Navy Annex Clinic at nearby Henderson Hall. Under continuing guidance from the emergency operations centers at Fort Myer and WRAMC, Rader did not release staff until 1500 because of traffic congestion in the Washington area. The following day, Fort Myer was closed. For the rest of the week, its staff helped care for soldiers of the Old Guard, who were at the Pentagon helping retrieve bodies from the building. Rader personnel also assisted DeWitt with its liaison mission to Arlington Hospital, helping to support patients and families.[17,18]

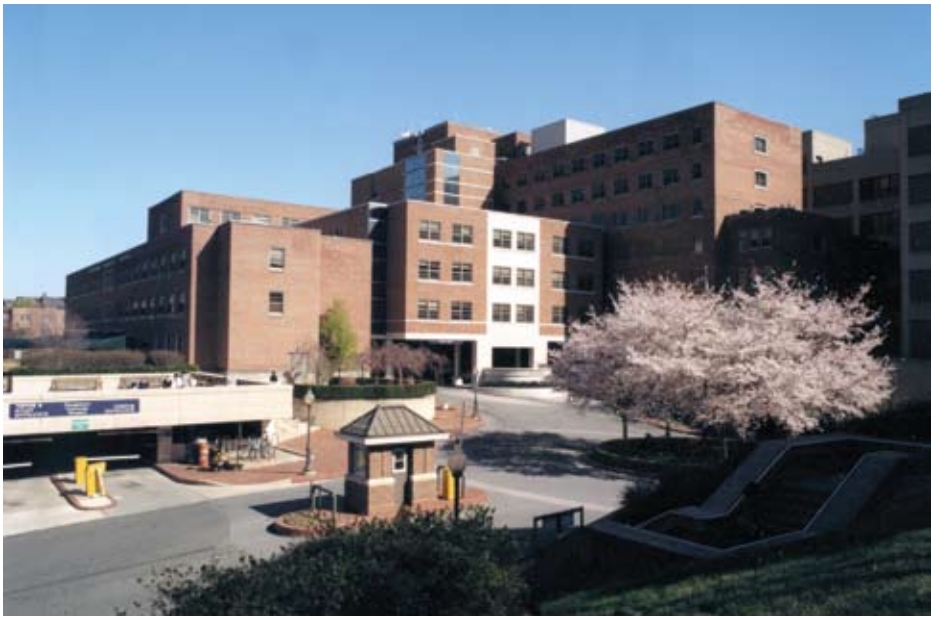
Civilian Medical Facilities

Georgetown University Hospital

Lieutenant Colonel Brian Birdwell began his journey to a local hospital shortly after being rescued from the west side of the Pentagon. After his rescuers carried him on a body board from the second floor to the first and out of the building into the center courtyard, he was lifted, still on the board, into a golf cart-like construction conveyance and taken to the north parking area. He could see that he was the most badly injured of the people around him. When police began warning that a second plane was coming in, Birdwell was moved to a grassy area across the street from north parking and close to Lady Bird Johnson Park. Natalie Ogletree, a Pentagon employee, prayed with him and used her umbrella to shield his face from the sun. His feet were bare, and hanging from his toe was a tag that gave his name, the nature of his injuries, and the medications he had received. With no ambulance forthcoming on the north side of the building, medical personnel tried to place him in a Ford Explorer, but his board would not fit. They finally squeezed him and his board into a Chevrolet Suburban, which took him to Georgetown University Hospital.[21]

An Army major, John Collison, and an Air Force technical sergeant rode with Birdwell to the hospital, whose location was familiar to the driver, an Army captain. On the way, the captain avoided traffic jams by driving on sidewalks when necessary. The only Pentagon casualty to go to the Georgetown medical facility, Birdwell received the full attention of its emergency room staff.[21]

Fortuitously, the attending physician, Dr Michael Williams, had spent a year of residency under Dr Marion H Jordan, director of the Washington Hospital Center's burn unit. Dr Williams told Birdwell, "Brian, you're very badly injured, but



Georgetown University Hospital.
Photograph: Public Affairs Office, Georgetown University Hospital.

we're going to clean you up and get you ready for the best medical care available, and I'll be back in just a minute." While he was still unconscious from the anesthesia he received at Georgetown, he was transferred by air ambulance to the Burn Center at the Washington Hospital Center.[21]

Washington Hospital Center

Colonel Birdwell was one of ten Pentagon victims admitted to Washington Hospital Center's Burn Center, the national capital region's designated emergency burn facility. The hospital admitted seven burn casualties and one inhalation injury on 9/11. Two were transfered from other hospitals, and two more were transferred from other institutions on the 12th. The inhalation injury patient was admitted to the medical intensive care unit and discharged on the 15th. The other nine patients were admitted to the Burn Center, seven to its intensive care unit and two to intermediate care. Five more people suffering from shock and minor injuries were treated and released.

Although the unit had handled patients as severely burned as the Pentagon survivors before, it had never received seven at one time.[2,22(pp2,3),23] Nevertheless, the 907-bed Washington Hospital Center was prepared. Immediately after the attack on the Pentagon, the facility discharged 200 patients, admitted no more sick and

injured, and canceled elective surgeries for 2 days. Those measures freed up 20 operating rooms, and about 40 beds were available in the intensive care unit. Cardiovascular surgery provided some 10 recovery room beds, and postanesthesia added another 25. Overall, said Dr Jordan, "We had the size and flexibility, and we scaled up to capacity."[22(p11)]

The Burn Center also had enough staff on hand to handle the emergency. In addition to eight experienced trauma surgeons, the unit had two full-time Burn Center trauma surgeons, Dr Jordan and his assistant, Dr James Jeng, who were at the hospital within minutes of the arrival of the first patients. Additionally, the heart surgery program provided seven intensive care specialists and a number of residents and fellows with experience in triage, ventilator use, and resuscitation from shock. Because the hospital was functioning on emergency code yellow, trauma teams added surgical intensive care nurses, anesthesiologists, respiratory therapists, laboratory technicians, blood bank workers, and security personnel. The teams staffed five trauma center bays, which were separate from the emergency room areas, and evaluated the first five patients efficiently and swiftly—they were in the trauma unit less than 45 minutes—to make room for the masses of survivors that were expected to follow.[22(pp4,5,9)]

With so many trauma personnel on call to handle the emergency, Dr Jordan

Washington Hospital Center.
Photograph: Publication Services, Washington Hospital Center.

decided to begin escharotomies (removal of burn scar tissue) and other surgical procedures on the victims. The task was formidable. The seven critical patients had burns ranging from 9% to 69% of their body surface areas, with burn extent averaging 34%. Five of the seven also had severe inhalation injuries. Dr Jordan and Dr Jeng began operating at noon; 96 hours later, all seven burn patients had been operated on at least twice, and three of them three times.[22] To prevent infection and increase survival rates, their wounds were temporarily covered by "a combination of cadaver skin, pig skin, and biosynthetic materials."[22(p5)]

Meanwhile, operating room personnel who managed skin inventories realized that their supply of replacement skin, which was required to cover patients' burns until their own skin could be harvested, would soon be depleted, so they requested skin from tissue banks in other parts of the country. Because nonmilitary aircraft were grounded, a relay team drove more than 23 hours from a tissue bank in Dallas to the Washington Hospital Center and delivered 70 square feet of replacement skin. Personnel from a tissue bank in Cincinnati drove 12 hours with a supply of skin. Aircraft from Wright-Patterson Air Force Base in Ohio flew skin from a Miami Valley-based tissue bank on 12 September. The Smith & Nephew corporation in Detroit, Michigan, provided TransCyte (a synthetic temporary skin replacement) by automobile, and Integra of Plainsboro, New Jersey, promised more skin as needed. The cooperation of those repositories and their rapid delivery of materials saved patients' lives.[2(pB-13),22(p6)]

Additional burn beds and personnel became available on 9/11 and the following days. Anticipating masses of burn patients on 9/11, Washington Hospital Center and New York's Cornell University Hospital had requested beds from burn units across the United States. By 2100 on the day of the attack, 1,500 burn beds were set aside for use by burn centers in the national capital region and in New York City. By the third week following the attack, burn care nurses arrived in Washington from California, Minnesota, Nebraska, and South Carolina. The Federal Emergency Management Agency (FEMA) paid for their salary, travel, and the paperwork involved in licensing certification.[22(pp6,7)]

Dr Jordan and Dr Jeng were the principal burn surgeons. Working 12 to 16 hour shifts, they performed 108 surgeries and 8 non-burn operations on nine burn patients during the first 3 weeks. One patient, Antoinette Sherman, an Army budget analyst, died on the 7th day from extensive inhalation injuries. The other nine patients survived. They included Army Colonel Brian Birdwell, Army Major David King, Navy Lieutenant Kevin Schaeffer, and civilians John Yates, Wayne Sinclair, Juan Cruz-Santiago, Luticia Hook, Racquel Kelley, and Louise Kurtz. Seven patients remained in intensive care for weeks. Two went to rehabilitation immediately because they had suffered damage on less than 25% of their body. Kurtz, an Army accountant, who had been burned over 64% of her body, was the last to leave the Burn Center, on 17 December 2001. The survivors lost pieces of skin, patches of hair, parts of ears, and whole fingers. All faced months of rehabilitation. By May 2002, four had returned to work. Two, who lost several fingers as a result of third-degree burns, were not able to perform their usual duties, and one suffered impaired vision as a result of severe burns to the cornea. The two

Army patients remained in the Army. The Navy lieutenant received a medical discharge.[22(p7),24(ppA1,A18,A19),25(ppA1,A24)]

The Pentagon victims at the Burn Center received visits from officials in the greater Washington area. When President Bush and General Timboe visited, some badly burned patients tried to return the soldier's salute. Some of those individuals had tubes down their throats and couldn't talk. They were trying to say, "I'm still a Soldier. I can do this. I'm not going to be a passive participant."[10]

General Peake usually visited the burn unit late in the evening when there were

Dr Marion H Jordan, Burn Center director, greets President George W Bush and First Lady Laura Bush at Washington Hospital Center, where severely burned victims of the attack on the Pentagon received treatment.
Photograph: Public Affairs, Washington Hospital Center.

few visitors. He discussed the patients with the doctors and nurses and felt assured that they were receiving the best care possible. All DoD patients chose to stay at the Washington Hospital Center's Burn Center because Jordan and Jeng were familiar with their cases. Flying burn victims to the Army's burn unit at Brooke Army Medical Center in San Antonio would also have distanced them from family and church support, which were important considerations. Physical and occupational therapy were more aggressive at Washington Hospital Center than at the Army hospital at Fort Belvoir, thought Colonel Birdwell. Hence, he did not want to move to an Army burn unit closer to home either. The Army supported his and the other Army patients' decisions.[21]

According to Dr Jordan, the Washington Hospital Center's disaster plan worked well: trauma teams responded to the code yellow and were present at the arrival of patients, the first five of whom they evaluated and moved out of the trauma unit within 45 minutes. Jordan also believed that 9/11 "was a wake-up call to the lawmakers and the military brass down the street that they need a burn center in their neighborhoods."[22(pp9,10)]

Virginia Hospital Center–Arlington

Shortly after the plane hit the Pentagon, Virginia Hospital Center's medical staff was alerted it might be receiving hundreds of casualties. The hospital swung into disaster mode immediately. Patients well enough to go home were discharged, freeing up 26 beds in the emergency department. Vacancies in other parts of the hospital could also be used, if necessary. The staff brought out special carts already prepared with sterile equipment for burns or any other major trauma. Two nurses and a physician were stationed in the driveway to evaluate casualties as

Virginia Hospital Center–Arlington's medical staff wait outside the emergency entrance for victims of the Pentagon attack.
Photograph: Public Affairs Office, Virginia Hospital Center–Arlington.

they arrived, if required, and to send them to the appropriate departments. Patient Care Director Ramona Bowman took up a position at the fixed opened double doors leading to the main emergency treatment area to ensure that the critically injured went to the right place. An express care section adjacent to the main treatment area was set up for less seriously injured victims. The hospital called in staff and within an hour had 39 nurses working in the emergency room. Extra help came from physicians in neighboring buildings who closed their practices and joined the emergency room staff. The hospital was ready.[26,27]

The first patients arrived shortly after 1000. Expecting emergency medical services (EMS) units, the staff was surprised to see casualties emerging from private vehicles. Bowman remembered, "A minivan sped into the driveway, and they were taken aback because given the circumstances they had no idea what it was. The back hatch and the door slid open and there were at least two or three victims in that van alone, and, it actually contained one of the most critical patients." Bowman attributed this phenomenon to the military's custom of "caring for their own. No one thought twice [about it]. If there was someone they could help, they did." It was "the epitome of brotherhood," she thought. The casualties were sorted by their triage colors. The victims arriving by ambulance wore triage tags, but because their status could have changed within minutes or seconds, they were triaged again in the treatment areas.[26,27]

Virginia Hospital Center–Arlington.
Photograph: Public Affairs Office, Virginia Hospital Center–Arlington.

Lieutenant Colonel Edward Lucci, chief of emergency medicine at WRAMC, had gone to the north side of the Pentagon on one of the first ambulances the hospital sent to the site on the morning of 9/11. After overseeing the evacuation of three seriously injured patients to WRAMC, he stayed in place and helped manage triage. With no other ambulances available, medical personnel had started to evacuate critical patients by privately owned vehicles to Virginia Hospital Center in Arlington. Lucci accompanied a seriously injured patient who was having difficulty breathing in a Subaru station wagon heading for the Arlington hospital. As one nurse drove and another sat in the passenger seat, they maneuvered slowly through heavy traffic. When they ran out of supplemental oxygen, the team stopped the vehicle and got out with the intention of intubating the individual on the street. A nearby civilian ambulance provided oxygen, and the casualty improved. Colonel Lucci accompanied the victim in the ambulance the rest of the way to their destination. "It was one of the happier days of my life," said the Colonel, "to see all of the providers at Arlington in the doorway . . . at the ER entrance. And it was easy for me to hand off the patient." He hitched a ride with the civilian ambulance and returned to the Pentagon.[28]

The Virginia Hospital Center received 44 patients that day, most of them within the first 90 minutes of the attack. They suffered burns, inhalation injuries, and orthopaedic trauma wounds. Twenty-six patients were treated and released. Eighteen patients were admitted, nine of whom went to the intensive care unit. Eight of the admitted were subsequently transferred to other medical facilities, including two burn victims sent to the Washington Hospital Center. Hospital staff stood in the driveway for hours waiting for casualties. Because overloaded phone traffic made communication difficult, they did not know whether or not patients were on their way. By mid-afternoon, they realized it was unlikely more Pentagon victims would appear. But with rumors that the building might collapse, they wanted to be prepared to treat firefighters and rescue workers.[2(pB-15),26,27]

The Virginia Hospital Center was a large institution of 344 beds, yet small enough for all the staff to be on a first-name basis. People working together knew each other. They felt closer on that day than on any other, recalled Bowman. "They not only acted as a team within their department, but the whole hospital was one big team that really pulled together." No one pulled rank or questioned the job they were given to do. Nurses brought food from the cafeteria to the paramedics and military personnel coming in from the Pentagon. For the response to the tragedy of 9/11, the hospital, which treated more Pentagon victims than any other medical facility, seemed to be just the right size.[28,29]

Inova Alexandria Hospital

The Inova Alexandria Hospital, with 339 beds, activated its disaster plan by discharging patients and clearing 80 beds, calling in extra medical staff, and opening up auxiliary treatment centers. The entire hospital mobilized to meet the challenge. A command center was established across from the hospital's administrative offices. The first patients traveled the 5.5 miles from the Pentagon to the

hospital in private vehicles within 30 minutes of the attack. The most seriously injured among them was a Virginia State Police officer, who suffered severe smoke inhalation problems after attempting to rescue people from the burning building. He was placed on the critical list and remained at the hospital for several weeks. A number of EMS units delivered more victims during the next 90 minutes, bringing the total number of Pentagon patients received by the hospital to 23. They suffered from smoke inhalation, burns, lacerations, and blast injuries. Nineteen patients were admitted for further examination and treatment. Four were released after treatment. Emergency room staff treated and released rescuers later in the day. The hospital stayed on crisis alert until 2000 that evening.[2(pB-12),30]

Patient Administrator Kenneth Kozloff spoke of the hospital's response as a collaborative and coordinated effort. The hospital coordinated activities with other Inova medical facilities at Mount Vernon, Fairfax Trauma Center, and Fair Oaks. Collaboration with the Army was through its liaison representatives, three of whom came from Fort Belvoir.[30] The medical facility also called in 20 volunteer chaplains to support the victims and their families. A family support center was established in the hospital atrium. More than 200 people came to donate blood. Many volunteers, including registered nurses from Pennsylvania, called into the command center to offer assistance. The Alexandria Police Department protected the hospital by establishing a cordon around it, and, as a security measure, instituted an identification requirement to enter the facility.[30] Both Kozloff and Dr Martin Brown, chairman of the Department of Emergency Medicine, agreed that Inova Alexandria Hospital could have cared for hundreds more casualties had the need arisen.[30]

Inova Fairfax Hospital

With 753 beds, Inova Fairfax Hospital in Fairfax County was nearly twice as large as neighboring medical facilities and was Northern Virginia's designated trauma center. The hospital put disaster procedures into effect after the attacks on the twin towers, 10 or 15 minutes before Flight 77 hit the Pentagon, when Dulles Air Traffic Control, which had notification agreements with neighboring hospitals, informed them that an aircraft was missing. Dr Daniel Hanfling, attending physician in the Emergency Medicine Department and chairman of the disaster medicine section, coordinated the crisis response center on the second floor. Under his leadership, the hospital followed its disaster plan closely, discharging patients who were able to go home, shutting down 37 of 40 operating rooms, and moving emergency room patients into another area. The medical facility called in eight surgical trauma teams, including eight trauma surgeons and eight residents in surgery. Additional surgical nurses arrived as well. The hospital received no patients during the morning of 9/11, but in the afternoon about seven self-referral casualties either walked in or arrived in private vehicles. They had stayed in the crash area to help, but sought medical attention when their symptoms began to mount. All were released after treatment for minor burns and smoke inhalation. One pregnant woman with minor injuries had been referred to Fairfax Hospi-

tal by Inova HealthPlex Emergency Care Center in Alexandria. The woman was observed for a while and then discharged. Inova Fairfax received few Pentagon casualties because it was farther from the crash site than the hospitals in Arlington County.[2(pB-12),31]

At Arlington County's request, Inova Fairfax sent one medical evacuation helicopter and team, consisting of a flight nurse, registered paramedic, and a pilot, to the Pentagon. The nurse and paramedic helped to care for injured on the ground, but there was no need for the aircraft to evacuate any casualties.[32] In the afternoon Dr Hanfling went to the Pentagon to help. Besides his duties at Inova Fairfax Hospital, he served as operational medical director for the Fairfax County Fire and Rescue Department and worked for FEMA urban search and rescue as the medical team manager for Virginia Taskforce 1, one of the first teams present at the Pentagon. He rode in the cab of a police department pickup truck to a bus where he joined other task force members. They arrived at the Pentagon at 1330.[33]

Northern Virginia Community Hospital and Inova HealthPlex Emergency Care Center

Meanwhile, emergency medical units transported six patients suffering from minor orthopaedic injuries to the 164-bed Northern Virginia Community Hospital in Arlington County. Those patients were treated and released. Emergency units also delivered three patients to the Inova HealthPlex Emergency Care Center in Alexandria, Virginia. All had minor injuries. Two were treated and released, and one was sent to Inova Fairfax Hospital.[2(ppB-12,B-13)]

Arlington Urgent Care Center

Midway between a doctor's office and an emergency room, the Arlington Urgent Care Center (part of the Virginia Hospital Center) was open 12 hours a day during the week and 8 hours on weekends. The clinic, which was affiliated with the Virginia Hospital Center, had no overnight beds, only stretchers. The facility was not in the emergency medical system and never received emergency patients by ambulance. However, on 9/11 the clinic, which was two blocks from the Pentagon, received 10 patients within the first hour of the attack. An emergency medical service ambulance brought the first. Two others arrived on foot. Two minibuses brought seven more. Victims suffered lacerations, orthopaedic injuries, and minor burns. Two patients were transferred by ambulance to the Virginia Hospital Center–Arlington. One more went to WRAMC. The seven remaining casualties were treated and released. Throughout the day, Pentagon employees walked into the urgent care facility to take refuge or to offer help.[2(pB-14),34,35]

George Washington University Hospital

Across the Potomac River from the Pentagon, George Washington Univer-

Inova HealthPlex Emergency Care Center.
Photograph: Public Affairs Office, Inova HealthPlex Emergency Care Center.

Arlington Urgent Care Center.
Photograph: Public Affairs Office, Arlington Urgent Care Center.

sity Hospital in the District of Columbia received few Pentagon victims. Congested traffic on the bridges undoubtedly kept ambulances and most other vehicles from transporting casualties to this medical facility. George Washington received three walk-in patients with minor injuries. The casualties were treated and released.[2(pB-13),21,36]

Army Hospital Liaisons

The first night Colonel Birdwell was at the Washington Hospital Center, General Peake visited the intensive care unit at about 0300 in the morning. The Army surgeon general asked Birdwell's wife, Mel, what he could do for her. She said, "I need an active duty person to hold my hand." She was not in any condition mentally to fill out forms or to do other administrative chores. At 1000 that morning, an unidentified Army colonel was "standing there, and he stood there with me and held my hand for weeks," Mrs Birdwell recalled. The colonel was a military liaison to the civilian hospital who took care of Army patients' families, helped them understand Army benefits, and assisted them in coordinating patients' affairs with both the Army and the civilian facility. By March 2002, the Army colonel was still helping Mrs Birdwell, who for most of this time was at the hospital day and night,

George Washington University Hospital.
Photograph: Public Affairs Office, George Washington University Hospital.

sleeping mainly in the waiting room near the intensive care unit. The support she received from the Army was "unbelievable," she said.[37]

All of the Pentagon victims were either military personnel or civilians who worked for the military. They and the facilities treating them were supported by several kinds of military liaisons. The Department of the Army's Personnel Command sent casualty liaison teams to local hospitals to collect casualty information and provide support to patients and families, such as information about paying bills, where the family was to be housed, and other family issues. The Army Medical Department also sent representatives to the military and civilian medical facilities caring for Pentagon victims. The North Atlantic Regional Medical Command and Tricare Northeast Region One, both commanded by General Timboe, combined staffs to provide liaisons to the medical centers to facilitate patient tracking, accountability, and patient and family assistance. Tricare representatives sent patient status reports, including transfers and changes in medical condition, to the Tricare emergency operations center set up on 9/11 in the Tricare lead agent's office at WRAMC.[9,10,38–40]

The Tricare liaison teams were augmented by personnel from WRAMC's Mental Health Department, Social Services Department, and Patient Administration Department. The Patient Administration staff were sergeants with administrative skills who kept databases and tracked patients, updating information on patients' names, their condition, and the hospitals to which they were evacuated. These patient information updates formed the basis of situation reports given to WRAMC and the surgeon general three times a day. From 11 September to 17 December, when the last casualty was discharged from the hospital, the Patient Administration Department's director Katherine A Thomas kept a spreadsheet with condition updates for each of the injured. Her staff located at Washington Hospital Center and Virginia Hospital Center–Arlington, which treated the most critically ill victims, worked in 24-hour shifts until the final day.[10,40–42,43(p1)]

The two civilian facilities with the most seriously injured Pentagon patients received special liaisons. General Timboe sent Dr David Kristo, a pulmonary critical care physician, as liaison to the Washington Hospital Center's Burn Center, and Dr Ronald Poropatich, an Army Colonel and pulmonary critical care physician, as liaison to Virginia Hospital Center–Arlington. Colonel Malone, commander of Dewitt Army Hospital, also dispatched one of her physicians to Washington Hospital Center, because DeWitt was the primary care facility for several of the patients. The special liaisons did not treat patients but served as trusted observers who could answer questions and identify medical requirements They also became single points of contact for General Timboe and Colonel Malone with regard to the condition of the victims, relieving the commanders of having to call the nurses' stations or attending physicians for information.[4,9,10] Dewitt Army Hospital also assigned nurse case managers to victims and their families at each civilian medical facility. The nurse managers worked with the liaison officers in facilitating patient care.[12]

One of the Army liaison officers indicated that civilian patients would have

benefitted from the presence of civilian liaisons who would have been more familiar with their needs. Sergeant Major Celia Molofsky, who served as an Army casualty liaison on 11 September at the Washington Hospital Center, and on 12 and 13 September at the Virginia Hospital Center–Arlington, found it difficult to answer the civilians' questions. For example, civilians, unlike military, had to worry about whether they were going to be paid while they were sick, and whether they were on medical leave.[39]

Summary

Command and Control

Command and control worked well within each hospital but at times broke down at the crash site. Area hospitals reported that they had effective incident command systems within their facilities. Activation of these systems and emergency plans resulted in successful command, control, and coordination of the response within each facility, but coordination with EMS controllers at the crash site was problematic. In contrast, military medical personnel from DiLorenzo and Rader clinics were familiar with their own incident command systems and stepped readily into a role that supported Arlington's emergency medical officers. However, medical volunteers at the crash site, who were unfamiliar with the DiLorenzo incident command system, initially were inclined to operate apart from Arlington EMS control.[2(pB-9)]

Communications

Hospitals and clinics experienced mixed results with communications on 9/11. In general, communication between hospitals, both military and civilian, regarding individual patients and types of injuries was good. Internal communications within each medical facility were generally adequate. Communication between EMS units and hospitals regarding incoming patients and between WRAMC ambulances and WRAMC could have been better. Shortly after the attack 911 calls and emergency radio traffic swamped the Arlington County Emergency Communications Center, hindering the facility's efforts to alert local hospitals to impending casualties. The heavy load of cell phone use and emergency radio traffic also hampered communications from EMS units to hospitals about the arrival and injuries of incoming patients. However, staff took advantage of phone lines that became available, and repeated efforts to use personal cell phones enabled emergency technicians to converse with medical facilities. To keep abreast of the medical situation, the Washington Hospital Center monitored the Arlington Communication Center's radio dispatches.[2(pB-7),30]

Even the incident commander, Arlington County Fire Department Assistant Chief James Schwartz, had difficulty communicating with local medical facilities; however, he also lacked information at the site. No hospital was designated to coordinate the transfer of information from the crash site to area medical facili-

ties, and as expected additional casualties failed to appear, hospital staffs received little communication about patient flow during the first few hours.[30]

Although media coverage of events served to some extent to keep medical facilities informed about the overall situation, it was so difficult for hospitals to obtain medical information from the Pentagon that Inova Fairfax Hospital, which treated and released only one patient, a transfer from Inova HealthPlex Emergency Care Center, stayed in stand-up mode until about 1700. Had communication been better, the hospital and other medical facilities in the area could have stepped down much earlier and gone back to opening some of their operating rooms to the general public.[2(pB-15),31]

Complicating matters, the regional disaster plan called for communication coordination, but a regional communication coordinator had never been designated. As a result, the transfer of information between hospitals about events and available assets broke down. Although there were efficient information exchanges about individual patients and their injuries, as well as orderly coordination of casualty transfers between hospitals, the appointment of a communication coordinator might have improved everyone's picture of the larger situation.[31]

The various clinics involved with the disaster had never been full participants in regional disaster planning before 9/11. Arlington Urgent Care, for example, indicated that it would have transferred three patients earlier if it had known of the vacancies in other medical facilities. According to Rader Clinic commander Colonel John F Roser, overloaded cell phone circuits resulted in no communication between his facility, ambulances, and EMS teams. He used runners to converse with the Navy clinic at Henderson Hall until telephone communication was available. Clinics would need better preparation for successful involvement in the next disaster.[2(ppB-7,B-17),19,44]

The problems in information exchange between Arlington's Emergency Communication's Center and hospitals, between hospitals and clinics, and between medical facilities and the crash site, revealed shortcomings in disaster preparedness efforts prior to 9/11. Overloaded cell phone usage, the volume of emergency radio traffic, the urgency of treating patients, the fact that clinics were not integrated into emergency response planning, traffic bottlenecks, "security closings," and above all, inadequate emergency planning, contributed to the problems.[1(xvi,315,323),2(ppB-5,B-8)] The Army Medical Department, like the local civilian hospitals and the rest of the nation, needed to figure out "how [it can] avoid such tragedy again."[1(ppxv)] (See Chapter 7 for post-9/11 improvements in the notification system among area hospitals.)

Personnel

Military and civilian regional hospitals had adequate staffing to meet the requirements of the emergency. The cancellation of routine services, and the fact that the attack occurred on a weekday morning, when more personnel were available, certainly helped, but the relatively low number of seriously injured patients

also contributed.[2(pB-10)] The clinics, on the other hand, experienced staffing problems. Arlington Urgent Care had to recall personnel to respond to the needs of the first ten walk-ins with injuries, and road closures and traffic congestion delayed the arrival of those summoned to duty. DiLorenzo and Rader clinics lacked the staff to support a mass casualty response. They relied on volunteer medical personnel, who were not always used effectively.[2(ppB-9,B-10)]

Security

Potential security problems at regional hospitals became apparent on 9/11. The Virginia Hospital Center's emergency room, which received many Pentagon victims, also served as one of the facility's main entrances. To provide more security, the hospital instituted a badge system for persons entering the building. By late afternoon, other regional hospitals had instituted badge systems as well. Inova Alexandria Hospital also seemed at risk, and the Alexandria Police Department set up a cordon of police officers to protect the facility and the people within. Although DiLorenzo and Rader reported that they did not experience "internal security problems"on 9/11, DiLorenzo staff thought that security at the Pentagon site was less than expected during the first 12 hours.[2(pB-10),30]

A number of medical facilities pointed out that local police forces lacked the resources to meet the security requirements of their emergency medical plans. They suggested that if hospitals were designated a national resource, they might be eligible for security support from government agencies in a disaster.[2(pB-10)]

Supplies

Supplies and other resources at area hospitals were, for the most part, adequate to support the response to the attack on the Pentagon. The Washington Hospital Center, however, had to obtain additional replacement skin for burn patients. Virginia Hospital Center–Arlington furnished supplies to the Arlington County emergency medical units at the Pentagon, replenishing oxygen, bandages, medications, and other items on ambulances and evacuation vehicles as they returned to the hospital. Arlington Urgent Care purchased extra silver sulfadiazine, a medicated cream for burns, from a local pharmacy. Hospitals expressed the need for additional planning and coordination with federal authorities regarding the use in disasters of such resources as local task forces and the distribution of such scarce medical supplies as replacement skin.[2(ppB-9,B-10)]

Disaster Plans, Preparedness, and Training

Most of the national capital region's hospitals had disaster plans and well-trained staffs to implement them. (The Arlington Urgent Care Center was the exception. Its disaster plan focused on an internal calamity such as a fire within the clinic itself.) Regional hospitals had participated in disaster exercises together.

In May 2001 the DiLorenzo Clinic and Arlington EMS units performed a joint disaster tabletop exercise. DiLorenzo staff had also recently conducted a disaster plan review. This activity and the May 2001 exercise helped the clinic to adapt its disaster plan to the new situation of 9/11. Additionally, emergency room physicians in Washington, DC, met monthly to discuss needs and problems. A committee of EMS workers from different counties in Northern Virginia did the same. Communication systems were tested every day at the DC Hospital Association's 22 facilities, whose emergency rooms had radio contact with one another. These hospitals knew how to contact each other and remain in touch during a crisis. The same could not be said of the hospitals in Northern Virginia, which did not have radio contact with one another at the time.

Hospitals in the national capital region had been preparing for a terrorist attack well before 9/11. Its emergency physicians felt for a long time that it was not a question of if, but when, something would happen. WRAMC emergency physician Colonel Lucci believed that the 1995 Tokyo sarin (nerve agent) attack highlighted the potential threat to the metro system in Washington. The DC Hospital Associations radio contact system, which worked well on 9/11, was in place by the mid-1990s.[4] Another effort to prepare for the possibility of a terrorist attack was a course offered since 1995 by WRAMC staff, in association with the US Army Medical Research Institute of Infectious Diseases and the Army Medical Research Institute of Chemical Defense, called "The Management of Chemical and Biological Casualties." The course had trained hundreds of military and civilian providers by 9/11. WRAMC had also developed a decontamination program for chemical casualties and was considered one of two primary decontamination sites for patients in Washington by the DC Fire and Emergency Medical Services Department. The Army had built and maintained decontamination stations and a cadre of trained individuals for a number of years before 9/11.[45]

Despite those efforts, there were weaknesses in disaster preparedness. Although every hospital and clinic had its own disaster plan, coordination among the plans essentially did not exist, despite the existence of the DC Hospital Association. Although they had discussed how to respond collectively to future terrorist attacks and participated in joint disaster exercises, hospital staff had not developed plans for simultaneous multifacility mass casualty use. A number of civilian hospitals were unaware of the resources available at military hospitals. Additionally, disaster plans did not include area clinics as medical resources. Above all, although staffs had talked about the subject, they had not designated a regional hospital coordinator of plans and policies to provide for the most expeditious transport of necessary assets during emergency conditions. Finally, disaster planning for communications was not thoroughly thought through. Northern Virginia hospitals, for example, did not have radio contact with one another. (For post-9/11 regional hospital disaster planning, see Chapter 7.)[2(ppB-11,B-16),46]

Nevertheless, disaster plans within hospitals worked well. When the crisis occurred, mobilization of hospitals went smoothly. Staffs had practiced mass casualty exercises during the preceding year and knew their roles. Ego and rank were

of little or no consequence; all personnel pitched in and did the job they were asked to do. Although hospitals made an effort to coordinate with the community and with volunteers, some medical facilities, notably the clinics, did not know how to utilize volunteers effectively.

For families and victims, hospitals provided practical help with bills to be paid and family housing, as well as spiritual support and professional counseling. In an impressive test of preparedness, regional hospitals geared up for hundreds of casualties (although much fewer actually needed treatment). They cleared beds and facilities, and EMS staff readied ambulances and supplies. Had there been many more patients, however, the problems of coordinating the circulation of assets around the national capital region would have multiplied, and numerous burn victims would have strained the ability of local facilities to provide care. For area hospitals, 9/11 was a wake-up call to work on new coordinated disaster plans. (See Chapter 7 for post-9/11 regional hospital disaster planning.)

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