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July 13, 2007

Molly C. Dougherty, PhD, RN, FAAN
Editor, Nursing Research
University of North Carolina
School of Nursing
Chapel Hill, North Carolina

Dear Dr. Dougherty,

I am enclosing a submission to Nursing Research entitled “Planning for Mass Disaster in the 1950s: Harriet H. Werley and Nursing Research.” The manuscript is 18 pages long and includes one figure. I desire that the manuscript be given a masked review.

My coauthor and I do not have any conflicts of interest, and APA ethical standards were followed in the conduct of the study.

I will be serving as the corresponding author for this manuscript. My coauthor has agreed to the byline order and to submission of the manuscript in this form. I will keep my coauthor informed of progress during the editorial review process, the results of the reviews, and any revisions made.

Sincerely,

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Planning for Mass Disaster in the 1950s: Harriet H. Werley and Nursing Research.

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This paper is based on Leifer’s doctoral dissertation, “Prefers assignments which are creative in Nature”: Harriet H. Werley, Army Nurse Corps leader, 1941-1964, conducted at the University of Wisconsin-Milwaukee.

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Keywords: Historical Research, Mass Disaster, Army Nurse Corps
Abstract

During the Cold War that followed World War II, the nursing profession was challenged to prepare for mass disasters. Army Nurse Corps officer Harriet H. Werley made significant contributions to the field of nursing in mass disaster preparation, education, and research during the 1950s. In the Army Medical Services Department of Atomic Casualties Studies, Werley participated in disaster response classes, nuclear attack simulations and biomedical research. These efforts fueled Werley’s vision for nursing research and interdisciplinary collaboration, resulting in the Army’s first Department of Nursing Research. Her actions influenced the nursing community to accept its professional responsibility as a key provider in disaster management and partner in interdisciplinary research. Today, 50 years later, the nursing profession once again faces the need to prepare for mass disasters.
Americans were continually aware of the potential for nuclear disaster during the Cold War era. During the 1950s and 1960s, the United States government was actively involved in a nuclear arms race with the Soviet Union. The American public was bombarded with media about the threat of communist infiltration and nuclear attack. Since the fear of nuclear war was ever present, military and civil defense programs were developed to help Americans become prepared. The public was encouraged to build bomb shelters and participate in civil defense drills. Military and civilian health care personnel were mobilized to prepare to manage mass casualties caused by nuclear attack.

In the 21st century, many world events have reminded nurses of the need to be prepared to respond to disaster. Since the events on September 11, 2001, the Southeast Asian tsunami in 2004 and the Gulf Coast hurricanes in 2005, there has been an increased emphasis on the need for preparedness and response planning for human-made or natural disasters. The current global war on terror and nuclear weapon buildup in North Korea highlights the need for health care agencies to be prepared to respond quickly to mass casualty incidents due to nuclear, biological or chemical assault. Groups dedicated to community service, including firemen, police, and health care personnel have collaborated to create, implement and practice disaster management plans in communities.

During the turbulent Cold War era, Harriet H. Werley, an Army Nurse Corps (ANC) major, was a pioneer in mass disaster education and nursing research. She served as the first nursing consultant in the newly formed Department of Atomic Casualties Studies (DACS) from 1955-1958. She continued to be a leader in national activities related to disaster management until 1964 when she retired from the Army.

Werley was born in Virginville, Pennsylvania, on October 12, 1914. She obtained a nursing diploma from Jefferson Medical College Hospital School of Nursing, Philadelphia,
Pennsylvania in May 1941, and joined the United States Army Nurse Corps in December. She initially served as a staff nurse at the Walter Reed Medical Center and then served overseas 37 months during World War II in the Mediterranean Theater. She left the Army from 1946-1948 to pursue her Bachelor of Science degree in nursing education at the University of California, Berkeley and then re-enlisted in 1948. Werley received a Master of Arts degree in nursing administration from Teachers College, Columbia University in 1951.

As a nursing leader, Werley developed and participated in numerous interdisciplinary disaster education programs and research projects while she was in the DACS. While interacting with Army Medical Service leaders and staff, she exchanged ideas and educated them about the abilities and potential of professional nurses. When working with military officials in Washington D.C., including the ANC, the Office of the Surgeon General, the Army Institute of Research and the Walter Reed Army Hospital, Werley shared her vision of an evolving role for nurses that included increased opportunities for leadership, research, and expanded practice. During this time, she laid the groundwork for advancing nursing science by planning the creation of a department of nursing at the Army Institute of Research.

Primary and secondary sources regarding Werley's work in the DACS and the field of disaster nursing were examined to obtain data for this historical study. Primary sources included memos, speeches, letters, reports, photos and publications in the Harriet H. Werley Papers at the Golda Meir Library, University of Wisconsin-Milwaukee. Secondary sources included professional and popular literature regarding Werley, the Army Nurse Corps and Medical Service, nursing research, and disaster planning in the Cold War era. Werley’s publications from 1941-1964 also were studied. Other materials were obtained at the Walter Reed Army Medical Center Library in Washington D.C.
At the end of World War II, knowledge about the new field of nuclear science and the effects of nuclear weapons was growing rapidly. The 1945 atomic bomb attacks on Hiroshima and Nagasaki, Japan instantly resulted in casualties of a size and nature that the world had never seen before. The Army Medical Service realized that it needed to prepare for the possibility of dealing with similar disaster situations following the war. The first “Medical Aspects of Atomic Explosions” program was developed and presented to Army medical personnel in 1947. During the Korean War (1950-1953), the program was not held. However, following the 1953 ceasefire, the Army identified the need to resume its nuclear disaster preparation program (DACS, 1956).

A series of educational courses about the “Management of Mass Casualties” was initiated in 1954 as a continuation of the 1947 program. Medical specialists were selected as faculty and nursing was represented by an ANC guest speaker. The program was reinitiated at the Walter Reed Army Medical Center, the site of the Army’s institute of research and the medical service graduate school, known together as the Walter Reed Army Institute of Research (WRAIR). The military’s top physicians, scientists and researchers worked there, as did ANC nurses, to promote and restore the health of American soldiers and their families.

In early 1954 the Commandant at WRAIR decided to evaluate the overall Army Medical Service staff education program in comparison to national scientific and professional education. Formation of a number of committees resulted; one of them was the “Committee on Relationship of Army Medical Service Graduate School with Education in Nursing and Women’s Medical Specialist Corps”. The committee was composed of six medical corps officers, two Army Nurse Corps officers that worked on research teams on a metabolic unit and a radioisotope unit at the hospital, and the ANC Consultant in the Department of Educational Services.
The medical chief and the committee “demonstrated forward thinking” when they identified a need in the graduate school for better relations with the members of the Army Nurse Corps and Women’s Medical Specialist Corps (Werley, 1963a, p.71). The committee concluded that there should be increased nursing participation in education, research and publication activities at WRAIR. These ideas were ahead of their time since nursing research was in its infancy and nursing publications were limited in the 1950s. More graduate programs in nursing were opening; few nurses had advanced degrees. At this time the Army was led primarily by men. Other than nurses in hospitals, women filled few leadership positions. The women’s movement was ten years away. Women in the Army were fighting to be visible and to become participants in significant national activities.

In 1954, the new Commandant of WRAIR and his deputy “recognizing the foreseeable medical problems resulting from warfare in which nuclear weapons are employed”, formally proposed to the Army Surgeon General that an agency be developed within the institute to meet Army Medical Service special education needs related to atomic casualties (Werley, 1963a, p. 51). The Department of Atomic Casualties Studies was formed in 1955. It consisted of two medical officers, an nurse corps officer, an administrative clerk, and a secretary (DACS Annual Report, 1956).

The head of the Army graduate school asked the Surgeon General to assign Major Harriet H. Werley, ANC career guidance counselor, to represent nursing. The chief medical service officers and the ANC chief held an interview with Werley to discuss the position. As Werley wrote in her 1988 memoirs, she was torn between accepting the position and asking that it be filled by a doctorally prepared nurse. She wrote:

I believed that this was an opportunity for nursing research development and nurse participation in various ways. I knew that this opportunity could mean a great deal for the Army Nurse Corps and for all of nursing….I respected the physicians and scientists at the WRAIR, some of whom knew me, and I knew that I would learn a great deal.
Hoping I could contribute appropriately, I accepted the challenge (Werley, 1988, p. 368).

Major Werley was appointed as the first nursing consultant at WRAIR in 1955. Her title was Nurse Consultant and Administrative Officer in the Department of Atomic Casualties Studies. Many identified this position as a significant step forward for nursing and the Army Nurse Corps. Until this time, women had not held significant Army leadership positions outside of the Nurse Corps, and nurses had not been represented on interdisciplinary committees at the Army Institute of Research.

The appointment generated acclaim and press coverage. The 15 July 1955 Service Stripe contained the headline: “Maj Werley first woman staff officer in A-Casualties course” (p.1). It was accompanied by a lengthy article and picture of Werley. Nursing leaders and friends sent numerous cards of congratulations. ANC Chief Ruby Bryant wrote to her: “The School [Army Graduate School] was pretty smart to ask for you by name and I know of no one who will better represent the interest of the ANC” (1955, p.1). One friend wrote: “I’m bursting with pride…Curl those lovely brown locks and always always put that best foot forward…Let’s let that old ‘Werley show’em’ knock them over” (Hill, 1955, p.1).

Many acquaintances hoped that Werley’s leadership qualities in her new position would be representative of other nurses and women. After reading the announcement about Werley, Frances McKenna, Dean of Baylor University, wrote: “…sounds like a wonderful assignment and a great honor. I hope…that you will be able to demonstrate some of the things we nurses consider important” (1955, p. 1). One nurse expressed her beliefs in Werley: “Am not worried about you for I have great confidence in your ability to tackle anything and make a success of it” (Ede, 1955, p. 1). Werley commented that WRAIR leaders were very progressive when they included nursing in planning the Department of Atomic Casualties Studies. She wrote: “It reflects …the belief in the interdisciplinary approach on the part of the men of this famous
In 1955, women were not clearly visible in leadership positions. It is evident from comments made by women in civilian positions that they were watching closely to see if Werley could establish a precedent as a female nurse scientist.

Preparation to Care for Mass Casualties

According to a 1956 Department of Atomic Casualties Studies history, the new department was immediately very busy and very productive. Werley worked with officers from the fields of trauma, nuclear medicine, veterinary medicine, dentistry, physics and other sciences to create disaster preparedness curricula, plan simulation activities, and participate in research projects.

The Army had recently created a directive that all Medical Service officers had to have at least 12 hours of emergency medical care education. The Surgeon General proposed that all non-medical personnel also receive some basic training in emergency medical care. Werley and the other DACS members planned and conducted the multidisciplinary courses “Medical Care of Atomic Casualties” and “Medical Management of Mass Casualties”. By mid 1956, the team had developed six courses and planned four new courses to be completed in 1957. They also conducted programs for reserve officer units, the Federal Civil Defense Association, the United States Public Health Service, and other civilian groups. In addition, they planned the production of disaster educational films addressing topics such as burn management, radiation injury and decontamination, management of trauma and psychiatric cases, and the principles and effects of nuclear weapons.

Most nurses did not have access to mass casualty education in 1956. While planning and teaching the mass disaster courses, Werley arranged training opportunities for a number of nurses. She recruited course spaces for ANC officers, civilian faculty from schools of nursing and nurses involved with Civil Defense and the Red Cross. The Nurse Corps chief mandated that
all ANC continuing education courses incorporate disaster care. Werley quickly created a series
of short courses titled “Nursing in the Medical Management of Mass Casualties”, and served as
course director for the first two sessions. Military and civilian nurses from all 48 states and the
three American territories attended.

Realizing that the entire nursing profession needed to hear the disaster care message,
Werley organized special education sessions at a number of nursing conferences in order to
widely disseminate mass disaster information. At the time, these were the only classes offered to
prepare nurses to deal with disaster situations. She expanded the profession’s knowledge by
writing three articles about the nurse’s role in mass disaster based on her conference
presentations. (Goldstein & Werley, 1956; Goldstein & Werley, 1959; Werley, 1956). Werley’s
efforts spread as she assisted both the NLN and the ANA in their efforts to educate nurses.

Disaster Nursing Conferences

The focus of the first conference, held in early 1956, was the nurse’s role following a
nuclear disaster. Lt. Col. Joseph Goldstein gave a speech about medical care following a nuclear
attack, and Werley spoke about “The role of the nurse in the care of nuclear weapons casualties”.
She called on all nurses in nursing education and practice to learn about, practice, and teach
content regarding disaster nursing following nuclear attack. Werley noted that there was a
nursing shortage and a need to expand nurses’ roles during this time of rapid social change.
These needs were even more significant when facing potential nuclear disaster than they were in
“peacetime”. She reported on the efforts of the Army Nurse Corps and Medical Service to
further develop personnel by expanding their leadership skills and abilities to deliver emergency
medical care. The ANA published the proceedings of this conference, Report of work
conference on disaster nursing, February 20-24, 1956, Washington D.C.
Recognizing the need to reach wider audiences of nonmilitary nurses, Goldstein and Werley presented “Care of Casualties Caused by Nuclear Weapons” at the 1956 ANA convention three months later. They addressed the same topics from the February conference. Approximately 100 nurses attended from 47 states and two territories. At the convention, Werley discussed the nursing responsibilities of providing clinical care and supervising ancillary staff after a nuclear catastrophe. She emphasized that the two major goals of disaster management were to conserve the greatest amount of manpower for national defense, and provide the best possible care for the largest number of injured. She said nurses needed to expand their functions to include more administration of antibiotics, narcotics and sedatives; surgical and wound care; and independent treatment of minor casualties. Similar to the current emphasis on public health preparedness for terrorist attack or an influenza pandemic, Werley urged nurses to accept their responsibilities as professionals and citizens to be prepared for nuclear attack, including participation in disaster drills (*Industrial Nurses*, 1963; Rayner, 1957; Werley, 1963).

In 1958, Werley spoke at the National Student Nurses Association annual convention. She encouraged students to “impress on the faculties of their various professional schools the need for education in the field of nursing preparedness for disaster”. Werley identified barriers to adequate disaster instruction with the students, stating:

Realistically, I know that the amount of activity along the line of teaching disaster nursing is limited and affected by many things, such as ‘disbelief on the part of the leaders that it could happen to us’, ‘rejection of anything that smacks of the military and hence rejection of national defense’, and ‘failure to realize that national survival is just as much a civilian problem as a military problem (ANA, 1958, p.1).’

She also talked about a lack of understanding of the need for disaster training. She concluded with an often-repeated phrase: “…emphasis must be placed on the greatest good for the greatest number” (p.2), a concept that continues to be important in mass disaster management in 2007.

The International Nursing Coalition for Mass Casualty Education (INCMCE) and the Office of
Homeland Security were formed shortly after the terrorist attacks on September 11, 2001. Their leaders face similar barriers and challenges when emphasizing the importance of disaster preparedness (Ireland, Emerson, Kontzamanis, & Michel, 2006; Stanhope & Lancaster, 2004).

Disaster Management Publications

There were many requests for information about the care of mass casualties after the ANA convention and Army Nurse Corps disaster workshop. Werley and Lt. Col. Goldstein co-authored two publications in response to the profession’s demand for disaster preparation information (Goldstein & Werley, 1956; Goldstein & Werley, 1959). They defined various types of disasters, discussed problems that occur following a disaster and stated three goals for nurses’ preparation: 1) be proficient in “the tasks delegated by the MD” (1959, p.184); 2) be prepared to expand usual professional and administrative duties, and 3) learn principles of personnel management and training of assistive personnel. Additionally, they described the immediate and delayed phases of disaster, as well as physical and mental health needs of victims and care providers. Other than an emphasis on “tasks delegated by the MD”, the problems and goals for disaster preparedness remain the same today, more than 50 years later.

In 1963, Werley wrote the forward for a Disaster Preparedness Reprint of the May-June issue of The American Association of Industrial Nurses Journal. She noted that: “Realism and timeliness are added through commentary on actual experiences encountered in a series of natural disasters and the evacuation of the relatives of the Bay of Pigs prisoners” (p. i). The Bay of Pigs was the location where U.S. forces had attempted to invade Cuba and were quickly defeated and imprisoned by Castro’s Army. As always, Werley was focused on increasing professional nurses’ knowledge and responsibility. She wrote:

It is hoped that this brochure may serve to prepare further personnel already interested in learning how to cope with disaster situations. But even more …may it serve as a stimulus to the uninitiated, spurring them on to learn more about their role in disaster.
During the 1950s, the Army recognized the need for nurses, trauma and nuclear medicine specialists, veterinarians, dentists, and other soldiers to participate in mock disaster drills. Werley and other Army nurses conducted triage of soldiers who pretended to be disaster victims during the simulation (see Figure 1). One Army Reserve nurse wrote: “It’s quite one thing to talk about Mass Casualties and another to face them en masse.” She reported to Werley that a disaster simulation experience was “exactly what our unit and I feel we need” (Eicherley, 1956, p. 1).

Today, disaster simulations are a routine part of annual or semi-annual drills for military and civilian health care institutions (Gebbie & Qureshi, 2002; Ireland et. al., 2006).

Principles of mass disaster do not only apply to nuclear warfare— they also apply to other disasters. From 1958-1962, the ANC was involved in providing relief efforts in a number of disaster incidents. They served in Lebanon in 1958, in Chile in 1960 after an earthquake and tidal wave, in Denver in 1961 after a domestic plane crash, and in Iran in 1962 following an earthquake (Piemonte & Gurney, 1987; Sarnecky, 1999). In the 21st century, it is equally important that nurses continue to gain knowledge and skills about disaster care, regardless whether the cause is nuclear, biological, chemical or natural.

Collaboration with National Organizations

As the realization became clear of the need for emergency preparedness, many groups established task forces and committees. Werley served on a number of national defense committees during the late 1950s. She served on the Advisory Committee of the Office of Civil Defense Mobilization and the NLN Advisory Committee on Nursing Service and Education in National Defense from 1956-1960. While working with the NLN, Werley helped develop an NLN Achievement Test in Disaster Nursing. She also was a member of the 1957 task force appointed by the Federal Civil Defense Association (FCDA) to create an equipment list for a prototype 200-bed field hospital designed to treat disaster victims. Following field testing at
disaster simulations held at Forts Meade and Sam Houston, the group finalized the equipment list  
for the portable emergency hospital.

In 1950, the ANA formed a Committee on Nursing Resources to meet Civilian and  
Military Needs. Due to the changing global situation following the end of the Korean War in  
1953, the committee changed its name to the ANA Special Committee on Nursing in National  
Defense. Werley served on this committee from 1956-1960. Their primary purpose was to  
prepare the nursing profession for potential national disasters (Flanagan, 1974, p. 164). In 1959,  
the committee worked on a revision of the ANA statement, “The role of the nurse in national  
defense”. Similarly, in 2003, the International Nursing Coalition for Mass Casualty Education  
created a list of essential educational competencies which registered nurses should possess in  
order to respond effectively to mass casualty incidents. These competencies now serve as a guide  
for nursing education programs and health care agencies (Ireland et. al., 2006; Report, 2003).  
Both documents identified key elements related to a timely, appropriate response to disaster  
victim care. The documents differ primarily in the type of technological skills and the systems  
nurses would employ if resources were available.

In 1958 and 1959, Werley served as a consultant for an 18-month study of  
disaster nursing education conducted by the Office of Civil Defense Mobilization and the NLN.  
The purpose of the study was to “give guidance to all nursing education programs on ways to  
 improve the teaching of skills and knowledge necessary for mass disaster care” (Special  
Committee on Nursing in National Defense Minutes, 1959, p.5). As part of the study, the  
Disaster Nursing Inventory was developed and administered to nursing students and faculty to  
determine their background preparation, disaster experience, and opinions of what the role of  
nurses in disaster situations should be (Werley, 1960). It was followed by education, disaster  
simulations, exhibits, a film series, and the creation of disaster plans. A report of the results
noted disagreement in many areas related to nurse’s extended responsibilities in disaster situations. Recommendations for further studies and the education of nursing instructors, students, and nurses were made (Price, Fox, Argiry & McManus, 1959). The results were used by project directors and faculty to develop ongoing disaster education in the schools’ curricula. The NLN also surveyed all American nursing programs to determine if and how they taught disaster nursing in their programs (The National League for Nursing and National Defense, 1959). Sixty-eight per cent of the nursing programs completed the surveys. Of those schools responding, 54% reported that they offered education that was “over and above a first aid course” (Special Committee, 1959, p. 5).

The National League for Nursing-Office of Civil Defense Management Disaster Nursing Study produced the major documents for nurses and schools. In addition to the progress and final reports (Neal, 1963), there was a bibliography, four pamphlets designed to give guidance to nurses, schools and hospitals and the NLN Comprehensive Achievement Test in Disaster Nursing (1961). After this initial effort, little was done until the ANA-NLN film service received a grant to produce a teaching film on the psychological effects of disaster nursing in 1966. The subject headings related to disaster planning disappear from Nursing Outlook (the official NLN journal) in 1968.

While only occasional articles appeared in the nursing journals after the NLN-OCDM project ended, at least three books were published. However, between 1970 and 1975 when “disaster nursing” appeared as a subject-heading in the American Journal of Nursing indexes, it referred to nurse participation at a specific event, usually a natural disaster. The subject heading disappeared after 1975. The military continued to prepare its staff for management of mass casualties, but the civilian nursing sector and nursing education programs no longer emphasized disaster care after the Cold War threats subsided. Between the early 1970s and 2001, disaster
nursing planning seemed to be the responsibility of the American Red Cross, not the general nursing profession.

Beginning in 2001 after the World Trade Center attacks, disaster nursing reappeared in the nursing literature. A CINAHL search revealed 135 articles on the nurse’s role in disasters published between 2001 and 2006. Today, due to the renewed emphasis on disaster preparedness, many nursing education programs are revising their curricula to include disaster nursing content and continuing education course and national conferences offer related content.

Growth of Nursing Research in the 1950s

Werley’s work in the Department of Atomic Casualties Studies at the Army Institute of Research, coincides with increasing interest in nursing research by nurses. The American Nurses Foundation was established by the ANA in 1955 to obtain funding for nursing research. In 1956, the Public Health Service, a division of the Department of Health, Education, and Welfare, also supported the development of nursing research. They provided funds for nursing studies as well as scholarships and fellowships to support the educational preparation of nurse researchers. In April 1957, a Nursing Research Study Section was created in the National Institute of Health (NIH). Werley was appointed as a member of the first group of reviewers, serving for five years. They evaluated study progress reports, site visit reports and research grant applications for NIH funding.

In the mid 1950s, the U. S. military also was growing. It was focusing its budget and manpower on research efforts to develop nuclear weapons. This required increased knowledge about the effects of nuclear bombing, and how to prepare effectively for a nuclear attack. The Army Medical Service conducted a number of preparatory activities and tests to examine the
military’s readiness to respond to nuclear disaster. As the Department of Atomic Casualties Studies nursing consultant, Werley participated in a number of these research activities.

Nuclear Weapons Testing Research

From 1953-1961, the Eisenhower administration was committed to building a nuclear arsenal to deter the Soviet Union from attack. The U.S. government authorized nuclear weapon experiments to be conducted in several western states. The Army Institute of Research was involved in studying the effects of atomic and hydrogen bombs.

While serving as Coordinator of Nursing Activities at the Institute in 1957, Werley participated in an Army medical research study at a nuclear bomb testing site in Mercury, Nevada. This now-famous test site area is located 95 miles northwest of Las Vegas. It was a massive outdoor laboratory and national experimental center larger than the state of Rhode Island, making it one of the largest restricted access areas in the United States. It was surrounded by thousands of additional acres of land that were removed from public use so that it could be used as a military testing range. The last nuclear testing at the site occurred in 1992 (Nevada Test site, 2004).

Werley saw the atomic blast testing as a “golden opportunity” for nurses to be involved in research. (R.T. McCarthy, personal communication, September 20, 2003). After consultation with Werley, ANC Chief, Col. Inez Haynes authorized a group of Army nurses to participate in the project. Captain Ethylene Hughes, Chief Nurse of the project, coordinated the plans for all of the nursing activities in relation to the classified project, Operation Plumbob (Project 4.1). The purpose of the project was to conduct a biomedical study of the effects of an atomic blast on swine. The swine would be placed in a variety of environments that were hypothesized to protect them to varying degrees from the effects of the blast (Piemonte & Gurney, 1988; Sarnecky, 1999; Summary of Nursing Activities, n. d.).
Prior to the event, the nursing staff, cleared for “top secret” activities, received special training related to nuclear weapons testing, the effects of nuclear explosions, radiation protection, and decontamination methods. Approximately 700 swine were placed in 15 different locations and two nuclear shots were made. The investigators studied the results of the blasts by counting and recording the number of dead, injured and uninjured test animals. A field hospital containing surgical and recovery areas was set up to analyze and document the injuries. All of the scientists and participants must have been very committed to the importance of this research in order to participate in such a grim activity.

Werley was assigned to the Wound Analysis section of the project. Her role was to help analyze the trauma and burns on the swine that resulted from the blasts. She designed instruments and a coding system to measure and record the data. The first atomic bomb (the Wilson shot) “did not produce the expected results”, so no surgical procedures were performed (Summary of Army Nursing Activities, n. d., p.1). Following the unsuccessful shot, the swine had dosimeters inserted in their abdomens to measure radiation exposure. A second detonation (the Priscilla shot) took place some time later. Werley reported that: “properly garbed in protective clothes, [I]was in the first vehicle that entered the site after the explosion” (Werley, 1988, p. 368).

After a review with the nurses Major Werley wrote an evaluation of their role in Operation Plumbob. The group expressed their desire to be involved in future research studies and made recommendations about how the ANC could be more effective in participating in future studies. Summary reports emphasized the importance of nurses participating in interdisciplinary research and recommended that future biomedical research include parallel studies of a nursing problem. In 1957, nursing research was in its infancy. Werley was pushing
for nurses to conduct their own research, an idea not shared by many at that time (ANC Group Evaluation, 1957).

In October 1957 the chief of the Research Division at WRAIR called for proposals for additional biomedical testing related to nuclear detonation. Werley quickly submitted a proposal to the Director that emphasized the study of nursing functions following nuclear detonation. Having had the experience of being involved in research, the nurses were now anxious to begin to conduct their own research (Werley, 1957).

A Nursing Department at WRAIR

As she conducted her work in the Department of Atomic Casualties Studies, Werley initiated activities at the Walter Reed Army Institute of Research (WRAIR) to place nursing within the realm of Army medical research. She wondered why nursing was different from the other medical professions. Why had it taken 62 years since the inception of the Army Medical Service Graduate School to add a nurse to its staff? Nursing education was not new on the Walter Reed campus. The Army School of Nursing opened in 1918 under the leadership of Annie Goodrich. When it closed in August 1931, more than 937 women had graduated as nurses (Feller & Cox, 2000, p.9). Werley mentioned that the school had strong ties to the Army Medical School and the Army Dental School. One has to speculate on the reasons for lack of a nursing presence at the Army Graduate School. Perhaps it was related to the stage of development of the nursing profession and the Army Nurse Corps. At the time, (1931), there were only two graduate programs in nursing in the United States, and they focused on preparing nurse educators and administrators. A second school of nursing, the Walter Reed Army Institute of Nursing, opened in May 1964. The purpose was to educate students in cooperation with the University of Maryland. The graduates received a BS in nursing from Maryland and served in
the Army. The program changed to only covering the last two years of college in 1975, and closed in 1978 (Feller & Cox, 2000, pp. 37-38).

When ANC Chief Col. Inez Haynes met with nurses and WRAIR staff in 1956, they determined that a nursing representative was needed at WRAIR to coordinate education and research activities. Werley was appointed as the part-time Coordinator of Nursing Activities. With the support of Col. Haynes she developed plans for the development of a department of nursing research. Werley was named Chief of the Department of Nursing at WRAIR in 1957, but continued to serve concurrently as the Atomic Casualties Studies Nursing Education Consultant. When the research and educational endeavors at WRAIR expanded, Werley’s responsibilities in the Department of Atomic Casualties Studies were reassigned in 1958.

Conclusion

At a time when the United States was contemplating preparations for possible nuclear mass disaster, Harriet H. Werley was at the Army Institute of Research. Although initially responsible for interdisciplinary education, she played a major role in mass disaster research. As an expert in the care of mass casualties, Werley led the way for nurses to participate in interdisciplinary educational and biomedical research endeavors in the 1950s. The entire nursing profession became involved in mass disaster preparation through publications, education and disaster nursing conferences. Werley had a vision for nursing that included increased opportunities for leadership, research, and expanded functions when preparing for mass disaster. Eventually, this vision served as a catalyst for Army Nurse Corps leaders to create opportunities for military nurses to participate in research. Werley also had an impact on the civilian nursing community and major nursing organizations accepting their professional responsibility as key providers of disaster care.
While working in the Department of Atomic Casualties Studies, Werley developed strong connections between the Army Nurse Corps, the Army Medical Service and other scientists at WRAIR. The disciplines’ common goal of improved health care through research laid the groundwork that resulted in the establishment of the Army’s first Department of Nursing Research in 1957. Today, with renewed emphasis on natural and manmade disasters, it is imperative that we acknowledge the nurses early involvement in civil defense, mass disaster preparedness, and interdisciplinary research.
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**Figure Legend**

Figure 1. Major Harriet H. Werley (second from right) and Army Nurse Corps personnel, 1956.