



MENTAL HEALTH RESPONSE TO THE PENTAGON AFTER 9/11: AN OVERVIEW

Elsbeth Cameron Ritchie, M.D.

Following the crash of American Airlines 77 into the Pentagon, the immediate medical response was a mission to evacuate and treat the wounded. Within hours, however, it became apparent that the dead were many and the wounded were few. The response thus turned to become one to provide mental health support to the survivors, the rescue workers, the family members of the victims, and other affected personnel.

Teams and individuals from the Department of Defense, the Red Cross, the National Center for Post Traumatic Stress Disorder (NCPTSD) from the Department of Veterans Affairs (VA), and many others provided assistance. This article briefly outlines their efforts, and some of the mental health interventions used. Hundreds of people participated in these interventions, and have their own perspectives; this essay outlines an overview from the author's experience, and incorporates what she learned from others. The account is hardly a comprehensive one. A forthcoming supplement to *Military Medicine* should develop many other accounts. Others did much of the hard work, and this author wants to acknowledge their contributions.

The literature on disaster is, fortunately or not, growing exponentially. It is reviewed elsewhere (1, 2).

The Event

Shortly after two airplanes smashed into the World Trade Center on the morning of September 11th, a third hit the south side of the Pentagon. Those in the affected wedge heard a boom, and depending on how close they were, saw, smelled and heard smoke and fire. Some had to struggle to get out, and were often aided by colleagues or the first responders. However, many in the far side of the Pentagon did not even feel the crash.

Many rescuers worked outside the Pentagon to aid the wounded. Initially, most of the severely injured were brought to the central courtyard. They were immediately airlifted to local hospitals, including the burn unit at the Washington Hospital center. Only a few were brought to local military hospitals. After a relatively brief period of time, everyone requiring medical treatment was evacuated.

The entire building was immediately evacuated in an orderly fashion, including the day care center, on the north side. Several times there were reports of other planes approaching, and the rescuers



Dr. Ritchie meeting President Bush

needed to evacuate the crash site for fear of more plane bombs. One hundred eighty-nine people were killed in the crash, to include Pentagon personnel, the airplane passengers and crew, and the hijackers.

Activities Immediately After the Crash

Each branch of the military service boasts a hospital in the Washington DC area: Walter Reed Army Medical Center (WRAMC), National Naval Medical Center (NNMC or "Bethesda"), and Malcolm Grow Medical Center (MGMC) at Andrews Air Force Base. Immediately following news of the attack, the hospitals implemented their respective disaster plans and team procedures for providing emergency medical

Continued on page 55

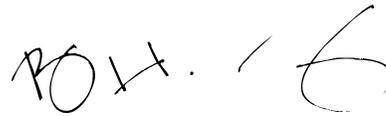
Inside this issue

Mental Health Response to the Pentagon after 9/11: An Overview	53
New Directions	60
Early Intervention: A Clinical Forum	61
Virtual Reality Based Exposure Therapy With Vietnam Veterans	62

FROM THE EDITOR

In this issue, the Clinical Quarterly continues its series of articles about emergency mental health services in response to disasters. Elspeth Cameron Ritchie provides a first hand account of the complex mental health service response coordination within Department of Defense (DoD) and between DoD and several federal, non-profit, and local agencies following the 9/11 attack on the Pentagon. A multi-tiered service effort to provide support to primary, secondary, and tertiary victims is described. Dr. Ritchie was later instrumental in organizing the Consensus Workshop on Mass Violence and Early Intervention that took place in Virginia in November, 2001. The conference, hosted by DoD, Department of Justice, NIMH, VA/NC-PTSD, and American Red Cross, brought disaster mental health experts from around the world to examine critical issues related to screening, practice guidelines, training, ethical consideration, research, etc. Work is underway to publish "Proceedings of the Mass Violence and Early Intervention Expert Consensus Conference."

This issue also features the creative and ground-breaking work of the Atlanta VAMC Post-Traumatic Stress Disorder Clinical Team and their colleagues at Georgia Tech University. Through their efforts to integrate empirically-validated treatment with new technology, David Ready, Barbara Rothbaum, and Larry Hodges have created and begun preliminary evaluation of PTSD treatment that could not only be potentially more powerful than other exposure-based therapies, but that could have application in the treatment of other anxiety disorders such as panic or social phobias. Having recently adorned the equipment (head mounted display) myself to receive a computer generated "tour," it was easy to imagine the potential therapeutic benefits and easy to appreciate the excitement the Atlanta team has for undertaking a rigorous evaluation for its use as a component of PTSD treatment.



Bruce H. Young, Editor-in-Chief

NATIONAL CENTER FOR PTSD

Executive Director

Matthew J. Friedman, M.D., Ph.D.
VAMC/ROC White River Junction
Vermont 05009

Education and Clinical Laboratory Division

Fred Gusman, M.S.W., Director
VAMC, Palo Alto, California 94304

Behavioral Science Division

Terence Keane, Ph.D., Director
VAMC, Boston, Massachusetts 02130

Women's Health Science Division

Lynda King, Ph.D., Acting Director
VAMC, Boston, Massachusetts 02130

Pacific Islands Division

Fred Gusman, M.S.W., Chief of Operations
Honolulu, Hawaii 96813

Neuroscience Division

John Krystal, M.D., Director
VAMC, West Haven, Connecticut 06516

Northeast Program Evaluation Center

Robert Rosenheck, M.D., Director
VAMC, West Haven, Connecticut 06516

NATIONAL CENTER
FOR POST-TRAUMATIC
STRESS DISORDER

Clinical Quarterly Staff

Editor-in-Chief	Bruce H. Young, L.C.S.W.
Managing Editor	Josef I. Ruzek, Ph.D.
Executive Editor	Fred D. Gusman, M.S.W.
Associate Editor	Eve B. Carlson, Ph.D.
Assistant Editor	John Aboytes, B.A.
Design & Production	Bruce H. Young

MENTAL HEALTH RESPONSE TO THE PENTAGON AFTER 9/11: AN OVERVIEW

and mental health care. Assets from Ft. Belvoir and Bolling AFB also joined the effort.

Chaplains and mental health personnel were immediately deployed to the crash site and to the DiLorenzo health care clinic in the Pentagon, which quickly became the Operations Center for the mental health response throughout the Pentagon. Army and Air Force personnel principally operated out of that clinic. A Navy team de-deployed to the Navy Annex.

The Pentagon houses 24,000 personnel, and another 16,000 work in buildings near or adjacent to that building. Of the 24,000, approximately ten thousand are military or DoD (Department of Defense) civilian employees; the rest are contractors.

Wounded individuals were primarily first treated in local hospitals. The psychiatry consult liaison service from Walter Reed worked with many of the hospitalized wounded. Others were seen in their local emergency rooms and referred to mental health if needed.

The Days and Weeks after the Attack

A wide variety of activities commenced immediately after the attack. The bulk of the mental health personnel were deployed to the Pentagon itself. Group sessions were offered at the crash site, in the workplace, and in the DiLorenzo clinic. Many workplaces were destroyed, so often sessions were conducted in makeshift spaces. Individuals were seen at the clinic and the crash site on a walk-in basis. Group interventions (“debriefings”) were offered on a regular basis, at the health clinic, crash site, and in work areas.

A Navy team deployed to the Navy Annex, which is a large building overlooking the Pentagon. The bulk of Navy personnel who had been located in the Pentagon were re-located there. The Air Force also developed a separate operations center, for outreach to the Air Staff personnel. Staff from Keesler AFB joined the overall effort on September 15th.

Outreach to the entire Pentagon was undertaken a few days after the attack. From other disasters and experiences within the military, it was clear that many would not go into a mental health clinic, but would respond to outreach. Fortunately, this was not only supported, but initiated, at the highest levels of command. Maps showing the sections were used. Teams walked through these areas to contact, distribute a specially developed flyer, and to help people become aware of the services that could be provided. The Employee Assistance Program, located in the Civilian Occupational Clinic (part of the DiLorenzo Clinic),

provided treatment and referrals to civilian employees. Civilian employees and contractors, not officially eligible for military health care, were encouraged to participate in both individual and group interventions.

Many people officially assigned to the Pentagon work in adjacent offices, such as in Hoffman and Skyline Buildings. In addition, organizations whose offices were destroyed were relocated to buildings such as the Taylor Building. Group and individual assistance was also offered to all these locations.

...it was clear that many would not go into a mental health clinic, but would respond to outreach. Fortunately, outreach was not only supported, but initiated, at the highest levels of command.

A few other examples of distress follow: a) a worker who was very perturbed that he had followed the orders to evacuate, rather than try to return to rescue others; b) workers who worked in adjacent building, but had lost dozens of their long term colleagues; c) day care staff who thought that they would lose their jobs, because only a fraction of the children returned to the Pentagon Day Care Center; and d) several employees appeared who were spooked by the sounds of safes being unloaded—they thought it was another bomb.

As previously mentioned, the childcare center was evacuated immediately after the attack, and closed for the next ten days. Children therefore had to endure not only the sights of the bombing but also the re-location and change of caretakers. Their parents were working long hours, in preparation for war. The mothers of two children were killed. Child psychiatrists, first from Children’s Hospital and then from Walter Reed, worked with the staff and children there.

The Family Assistance Center

Each Service (Army, Navy, Air Force) initially began to set up their own Family Assistance Center. However, the day following the event, a consolidated triservice Family Assistance Center was organized in a hotel in Crystal City, near the

The views expressed in this article are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

RITCHIE

Pentagon. This was organized and staffed by DoD, with support from all the Services. Those eligible were family members of all the victims, including military personnel, civilian employees, contractors, and airline passengers.

This DoD Family Assistance Center provided a wide range of services. The general in charge provided briefings twice daily. Each family had assigned to them a casualty assistance care officer (CACO). Personnel from the Office of Victims of Crime (OVC), the Red Cross, the Federal Emergency Management Agency (FEMA), and the different Service relief agencies offered financial and supportive services. The Armed Forces Institute of Pathology (AFIP) gathered DNA from family members to assist in identification. There was a robust presence from chaplains, medical and mental health assets (including child psychiatrists), and volunteers. Pet therapy was also available. Hundreds of families gathered at this hotel. The ballroom, the main briefing room, became a shrine. From the author's perspective, some of the most poignant moments involved watching the children play in the room and the hotel, not yet truly realizing the loss of a parent or grandparent. The environment was very intense.

The general in charge did a heroic job of working with the families, as did all the staff of the center. A team from the National Center for PTSD (part of the VA) joined this effort. They primarily worked with the staff of the assistance center, to help them process their work with the victim's families. Many of the staff who had lost friends in the attack, worked continuously with the families for the following month. The counselors paid special attention to the hotel staff as they knew of the severe stress on ancillary staff through working with other disasters.

Therapeutic Activities

A variety of therapeutic activities were employed. The term "debriefing" was used, but seldom was a formal "Critical Incident Stress Debriefing" or "CISD" utilized (3-5.) Usually the group intervention activities were tailored to the group and their particular situation. Groups were run several times daily in the DiLorenzo Clinic, both for specific workplaces and for walk-ins. Individual supportive therapy was offered, again both in the clinic and as part of the outreach. Meetings with the workplace often focused on "repairing the organizational fabric".

All mental health disciplines were represented in the effort, to include psychiatric nurses and occupational therapists. Chaplains provided spiritual and therapeutic services, both through individual and group work, and through memorials and remembrances in the workplace. Their tent was prominent at the opening for the crash site.

Special mention should be made of the work provided to members of the Old Guard. Those young infantry soldiers,

stationed at nearby Ft. Myers, who usually guard the Tomb of the Unknown Soldier and work at funerals, were responsible for entering the smoking hole in the Pentagon and clearing debris. They were provided information about dealing with dead bodies and given a chance to discuss their experiences in the mental health tent at the end of each shift (Tables 1 and 2). In general, both command and soldiers were receptive to the briefings (6-8).

Similarly individual contact and group meetings were offered to other personnel at the crash site, including first responders, the criminal investigative services and mortuary affairs. These personnel were, in general, seasoned professionals, and did not seek out counseling—although they were probably comforted by the aid offered there. Little yet is known, by this author, about any long-term reactions.

A team also was deployed to Dover, where the task of identifying remains was centralized. The team working there drew in the experience of more senior staff to help the junior staff with coping with the grisly tasks.

Coordination

Special efforts were needed to coordinate interventions, both between the Services, and between DoD, the VA, the Red Cross, local governments, and other agencies. Conference calls were held for four afternoons following the attacks. E-mail was used extensively. These mechanisms helped reduce unnecessary over-lap and minimized gaps in areas of need.

The Red Cross helped to coordinate efforts between governmental and non-governmental agencies and volunteers. The American Psychological Association picked up that function after the departure of the visiting Red Cross workers. At those meetings, representatives from the federal government (SAMHSA, NIMH), different local governments (DC, MD, VA), the different professional associations (APA, APA, NASW), and local hospitals and military members met to exchange information.

Operation Solace

Consultants to the Army Surgeon General and other Army medical staff developed a long-range plan for provision of care. Using data from the Oklahoma bombing and other acts of terror and disasters, they sought to project the need for mental health care over the weeks, months and years after the attack (1, 2, 9-11). Resources were then deployed to meet those anticipated needs.

Mental health assets were placed on a long-term basis at the DiLorenzo Clinic, in a conference room in the Pentagon area, and at the Taylor and Hoffman Buildings. At this time (March, 2002), overall psychiatric morbidity is less

Continued on page 59

MENTAL HEALTH RESPONSE TO THE PENTAGON
AFTER 9/11: AN OVERVIEW

Table 1. When The Mission Requires Recovering Human Dead Bodies: How to Prepare Yourself, Your Buddies, and the Unit

The Mission

One consequence of many humanitarian and peace support missions, as well as of war, is coming in contact with bodies which have died under tragic or horrible circumstances. All soldiers, in all types of units, may be assigned to mission of recovering, processing and perhaps burying human remains.

- We may collect the bodies of fellow service members so that the Mortuary Affairs specialists can return them to the United States for identification and burial.
- We may gather and perhaps bury the bodies of enemy or civilian dead, to safeguard public health.
- The numbers of dead may be small and very personal, or they may be very, very large.
- The victims may include service members much like ourselves, or young men and women, elderly people, small children and infants for whom we feel an innate empathy.
- Being exposed to children who have died can be especially distressing, particularly for individuals who have children of their own.

Extensive experience has been gained during such missions, and in working with the body recovery teams afterwards to help them cope with the memories. This experience can help you, your buddies and your unit take such a difficult mission in stride. You can complete the mission proud of what you have done, and return to your usual duties, career and family life without being unduly troubled by the memories, even when those memories include some very sad, unpleasant or distressing details.

What To Expect

Some body recovery missions involve situations where there are no living survivors. Other situations are in concert with ongoing rescue, emergency medical care, and survivor assistance activities. In the latter case, the reactions of the living victims may include grief, anger, shock, gratitude or ingratitude, numbness or indifference. Such reaction may seem appropriate or inappropriate to you, and may interact with your own reactions to the dead.

In some situations, the bodies may be distorted or mutilated. Seeing mutilated bodies invokes a horror in most human beings, although most of us quickly form a kind of tough mental "shell," so that we won't feel so badly. To some extent we come to see the remains simply as objects without reflecting that they were once people.

- The dead bodies may be wasted by starvation, dehydration, and disease (e.g. Rwanda refugees or some POW and concentration camp victims).
- They may have been crushed and dug out from under rubble, (e.g., the Beirut barracks bombing or earthquake victims).
- They may be badly mutilated by fire, impact, blast or projectiles (e.g., the victims of the air crashes at Gander, Newfoundland, and Sioux City, Iowa; the civilians killed by collateral damage and fire near the Commandancia in Panama City, or the Iraqi army dead north of Kuwait).
- They may be victims of deliberate atrocity (e.g., the Shiites of south Iraq, or any side in Bosnia).

Sometimes, however, the cause of death leaves few signs on the bodies (e.g. the mass suicide with cyanide at Jonestown, Guyana, or victims drowned in floods). The caregivers often say this is harder to adapt to because it is harder to form that "shell." Of course, the degree of decomposition of the bodies will be determined by the temperature and climate, and by how long it has been before you can reach them and begin collection.

In addition to seeing mutilated or nonmutilated bodies, you will often have to smell the bodies and other associated strong odors. You may have to touch the remains, move them, and perhaps hear the sounds of autopsies being performed, or other burial activities. These sensations may place a strain on your capacity to do the work, and may trouble you in memories. We will list below things you can do to help this.

Being exposed to large numbers of dead bodies is not a normal part of human experience. Therefore when you are exposed to bodies you should not be surprised should you develop feelings you are not used to. When you are exposed to bodies you may experience sorrow, regret, repulsion, disgust, anger, and futility. REMEMBER, THESE ARE NORMAL EXPERIENCES GIVEN THE SITUATION IN WHICH YOU HAVE BEEN PLACED. In fact, it would be surprising if you did not have at least some of these emotions. You may start to see similarities between yourself (or others you love) and those who have died. This could lead to feelings of guilt ("Why wasn't it me?" or "Why can't I do more to stop it?") or anxiety ("It could have been me"). Again, these feelings are NORMAL given the situation.

Humor is a normal human reaction or "safety valve" for very uncomfortable feelings. Body handling situations naturally tend towards what is aptly called "graveyard humor". Don't be surprised at finding this in yourself or others.

SOURCE: Combat Stress Actions Office; MCCA-HPO, Dept. Preventive Health Services, AMEDDC&S, FSH, TX, 78234-6142, DSN 471-6985, commercial (210) 221-6985

RITCHIE

Table 2. Guidelines for How to Work with Human Remains

Prepare yourself for what you will be seeing and doing, allowing as much time and access to information as is possible. It is better to be prepared for the worst and not have to face it than to be under-prepared.

- √ Learn as much as you can about the history, cultural background, and circumstances of the disaster or tragedy. How did it come to happen? Try to understand it the way a historian or neutral investigating commission would.
- √ Look at videos and photographs of the area of operation and of the victims. The television news networks and news magazines may be sources. If pictures of the current situation are not available, look up ones from previous similar tragedies in the library archives. Share them as a team, and talk about them.

Understand the importance and value of what you are doing. Remember that you are helping the deceased to receive a respectful burial (even if in some cases, it must be a hasty and mass burial). You are saving their remains the indignity of simply being left on the ground to decay. In some cases, you are helping survivors know their loved ones have died, rather than remain for years in uncertainty. Those relatives or friends can then take the bodies for private burial, or at least know where they are buried. Additionally by collecting or burying the bodies of those who have already died, you are providing a safer, healthier environment for those individuals still living. When you are seeing or working with the bodies, think about the larger purpose you are serving, without attempting to relate to each individual who has died. By not focusing on each individual, you will be able to do your important job more effectively.

Remember that the body is not the person, but only the remains. Some people who have done this important work have found it helpful to think of the remains as wax models or mannequins (as if in a training exercise), or as memorial models to which they were showing the respect due to the original person who was no longer there. If your job requires you to collect personnel effects from the bodies for identification, intelligence or other official purposes, do not let yourself look closely at or read those personal effects. (The people who need to examine those effects are advised to do so remote from and preferably without having seen the body.)

Needless to say, do not desecrate or take souvenirs from the bodies. Those are criminal acts.

Humor, even graveyard humor, is helpful if it remains on a witty and relatively abstract level. It is unhelpful when it becomes too gross, too personal (e.g. comments or practical jokes which pick on members of the team who need support; no ridicule), or too disrespectful of the individual dead. Some members of the team may become upset at excessive graveyard humor, and even the joker may remember it with guilt years later.

Each of you can say prayers for the dead, and conduct whatever personal ceremonies your own beliefs and background recommend. The unit chaplain and/or local clergy may also conduct rites or ceremonies. Even very brief rites at the time can help, perhaps to be followed by larger, formal ceremonies later.

Take steps to limit exposure to the stimuli from the bodies. Have screens, partitions, covers, body bags or barriers so that people don't see the bodies unless it is necessary to their missions. Wear gloves if the job calls for touching the bodies. It may help to mask the odor with disinfectants, air-fresheners, or deodorants in some locations. Using other scents such as perfume or aftershave lotions are of limited value in the presence of the bodies, and are perhaps better saved for when taking breaks away from the work area. Don't be surprised if the scents bring back memories of the experience for a while thereafter.

Take care of yourself and each other.

- √ When the mission allows, schedule frequent short breaks away from working with or around bodies.
- √ Drink plenty of fluids, continue to eat well, and especially maintain good hygiene. To the extent possible, Command should assure facilities for washing hands, clothing, and taking hot showers after each shift. (If water must be rationed, Command should make clear what can be provided and how it should be used and conserved.)
- √ Hold team after action debriefings frequently to talk out the worst and the best things about what has occurred, sharing thoughts, feelings and reactions with your teammates.
- √ A mental health/stress control team or chaplain may be able to lead a Critical Event Debriefing after a particularly bad event or at the end of the operation.
- √ Plan team as well as individual activities to relax and get your mind off the tragedy you are helping to correct. Do not let yourself feel guilty about this, or about not being able to fix all the tragedy immediately.
- √ YOU MUST PACE YOURSELVES FOR THE TASK, AND DO WHAT CAN BE DONE WITH THE RESOURCES AVAILABLE, ONE STEP AT A TIME.
- √ Stay physically fit.
- √ Keep your unit Family Support Group fully informed about what is happening, and make sure your family members and significant others are included in and supported by it.
- √ Take special care of new unit members, and those with recent changes or special problems back home.

If the stress caused by working with the dead bodies begins to interfere with your performance or your ability to relax, or if you feel that you are becoming overwhelmed, TAKE ACTION. Do not ignore the stress. Seek out someone to talk with about how you are feeling. This might be a buddy or someone else. Other people are likely to be feeling the same things you are. The important thing is not to withdraw from others and become isolated. The unit chaplain, medic, or a combat stress control/mental health team member can often help.

Likewise, it is important to help your buddy, coworkers, subordinate or superior if he or she shows signs of distress. Give support and encouragement, and try to get the other person to talk through the problems or feelings that they are having. By working with each other, you both will be better able to cope with the situation in which you must work.

After you have completed your mission and are no longer working around the bodies, you may experience a variety of feelings. These may include feeling bad about not treating each body as an individual, and needing to express the emotions that were pent up while you were doing the work of body recovery. DO NOT KEEP THESE EMOTIONS INSIDE. They are normal and are best worked through by talking with your fellow unit members.

- √ Take an active part in an end-of-tour debriefing and pre-homecoming information briefing within your unit prior to leaving the operational area.
- √ Follow through with Family Support Group activities which recognize and honor what the unit has done and shares the experience (and the praise for a hard job well done) with the families.

Don't be surprised if being at home brings back upsetting memories from the operation. You may find it hard to talk about the memories from the operation. You may find it hard to talk about the memories with family or friends who weren't there. This is very common. Try to talk about them anyway. Also stay in touch with your teammates from the operation. If you still find yourself upset, don't hesitate to talk with a chaplain or with the community mental health or stress control team in your area. This is just wise preventive maintenance.

 MENTAL HEALTH RESPONSE TO THE PENTAGON AFTER 9/11: AN OVERVIEW

than feared, perhaps partly due to the intensive efforts described above.

Conclusion

The tragedy of September 11 has shaken and traumatized the country. Subsequent anthrax threats turned the issue from an acute stress to a chronic one. The response from mental health and chaplain personnel from the Department of Defense to the Pentagon tragedy was comprehensive and immediate. Challenges did arise, however, as different agencies integrated in providing services.

References

1. Norris, F.H. (2001). 50,000 Disaster Victims Speak: An Empirical Review of the Empirical Literature, 1981 – 2001. Unpublished manuscript prepared for The National Center for PTSD and The Center for Mental Health Services (SAMHSA).
2. North C.S., Nixon S.J., Shariat, S., Mallonee, S., McMillen, J.C., Spitznagel, E.L., & Smith, E.M. (1999). (1999). Psychiatric disorders among survivors of the Oklahoma City bombing. Journal of the American Medical Association, *282*, 755-762.
3. Wessely, S., Rose, S., & Bisson, J. (1999). Brief psychological interventions ('debriefing') for immediate trauma related symptoms and the prevention of post traumatic stress disorder (Cochrane Review). The Cochrane Library, *4*. Oxford: Update Software.
4. Weisæth, L. (2000). Briefing and Debriefing: Group Psychological Interventions in Acute Stressor Situations. In, B. Raphael & J. P. Wilson (eds.), Stress Debriefing: Theory, Practice and Evidence (pp. 43-57). London: Cambridge University Press.
5. Raphael, B. & Wilson, J.P. (2000). Introduction and overview: Key issues in the conceptualization of debriefing. In B. Raphael & J.P. Wilson (eds.), Psychological Debriefing: Theory, Practice and Evidence (pp. 1-14). Cambridge University Press.
6. Ursano, R.J. & McCarroll, J.E. (1990). The nature of a traumatic stressor: Handling dead bodies. Journal of Nervous & Mental Disease, *178*, 396-398.
7. McCarroll, J.E., Ursano, R.J. & Ventis, W.L. (1993). Anticipation of handling the dead: Effects of gender and experience. British Journal of Clinical Psychology, *32*, 466-468.
8. McCarroll, J.E., Fullerton, C.S., Ursano, R.J., & Hermesen, J.M. (1996). Posttraumatic stress symptoms following forensic dental identification: Mt Carmel, Waco, Texas. American Journal of Psychiatry, *153*, 778-782.
9. McFarlane, A.C., & Girolamo, G.D. (1996). The nature of traumatic stressors and the epidemiology of posttraumatic reactions. In B.A. Van derKolk, A.C. McFarlane, & L. Weisach (eds.), Traumatic stress: the effects of overwhelming experience on mind, body, and society. New York: Guilford Press.
10. Oklahoma Department of Mental Health and Substance Abuse Services. (1998). A report on Project Heartland, Oklahoma crisis counseling services for those affected by the Murrah Federal Building Bombing on April 19, 1995. Final Report FEMA regular crisis counseling services grant, May 31, 1998.
11. Bryant R.A., & Harvey A.G. (2000). Acute stress disorder: A handbook of theory, assessment, and treatment. Washington, DC: American Psychological Association.

<p>Dr. Elspeth Cameron Ritchie is a psychiatrist and Program Director of Mental Health Policy and Women's Health Issues, Office of the Assistant Secretary of Defense/Health Affairs. LTC Cameron Ritchie graduated with a Bachelor of Arts Degree in Biology and Folklore and Mythology from Harvard College, and received her medical degree from George Washington University. LTC Ritchie entered active duty in 1986 and after serving in Korea and Somalia, held several positions at Walter Reed Army Medical Center including Chief, Community Psychiatry, Assistant Chief of Outpatient Psychiatry, Chief of Inpatient Psychiatry, and Chief of the Forensic Psychiatry Services. Her awards include the Expert Field Medical Badge, Humanitarian Medal, Army Commendation Medal (with three oak leaf clusters), Army Achievement Medal and the Army Good Conduct medal. She has numerous professional publications in journals and textbooks and testifies frequently as an expert witness.</p>

NEW DIRECTIONS

MATTHEW J. FRIEDMAN, M.D., PH.D.

Executive Director, NC-PTSD

This issue's New Directions column is co-authored by Matthew J. Friedman, M.D., Ph.D., and Deputy Director, Paula P. Schnurr, Ph.D.

We are extremely pleased that VA's Cooperative Studies Program has funded another National Center multi-site psychotherapy treatment trial, VA Cooperative Study #494 (CSP #494) "A Randomized Clinical Trial of Cognitive-Behavioral Treatment for PTSD in Women."

The study is distinctive in several ways. It represents a collaboration between VA and the Department of Defense (DoD). Vet Center sites are included along with VA Medical Center (VAMC) sites. Both female veterans and women on active duty in the military will participate. The study will test a form of cognitive-behavior therapy, Prolonged Exposure (PE), that has the greatest amount of empirical support and it will be the largest individual psychotherapy trial for PTSD ever conducted.

Co-chairs of the project are LTC Charles Engel MD from Walter Reed Army Medical Center, and the two of us from the National Center for PTSD (Paula is head investigator on this study). The twelve participating facilities include one DoD site at Walter Reed in Washington, DC; two Vet Center sites at Bay Pines/Tampa, FL and Denver, CO; and nine VAMC sites at Albuquerque, NM, Atlanta, GA, Baltimore, MD, Boston, MA, Cincinnati, OH, Cleveland, OH, Dallas, TX, New Orleans, LA, and Portland, OR. (When we include the eight other centers that participated in our previous cooperative study, CSP420: Group Therapy for PTSD, a total of 17 different VAMCs, 2 Vet Centers, and one military medical center have been included in National Center-sponsored multisite psychotherapy treatment trials, in recent years.)

We are also extremely fortunate to have the support of VA's Cooperative Studies Program Coordinating Center in Palo Alto, headed by Phil Lavori with Ken James as Study Biostatistician and Maryann Boeger as Administrative Officer. Our Executive Committee includes many of the top American experts in PTSD treatment and/or women's mental health: Edna Foa, Tracie Shea, Patti Resick, Terry Keane, Bob Rosenheck, Rod Haug, Sue Orsillo, and Carole Turner.

Female military personnel, hence female veterans, have a higher prevalence of PTSD than their civilian counterparts. A recent Navy and Marine Corps study found that among women on active duty, 17.4% had lifetime PTSD and 8.3% had current PTSD. Female Vietnam veterans were estimated to have 26.0% lifetime and 8.5% current PTSD. These findings contrast with findings among civilian women where lifetime and current PTSD prevalence are 10.4% and 2.7%.

Because PTSD cannot develop unless an individual has been exposed to traumatic stress, it's important to consider both military and premilitary exposure. Military trauma in women most often involves sexual assault or rape although it may also involve physical assault, accidents, disasters, war zone exposure and, for women assigned to medical/nursing duties, it may include exposure to wounded, dying and dead active duty personnel and indigenous civilians. To compound this issue, a significant number of women experience trauma prior to joining the military. Indeed, several studies have found higher prevalence of exposure to childhood/adolescent sexual abuse among female military inductees than among civilian comparison groups.

We cite these statistical findings to emphasize the significance of this study and the potential policy implications of our research findings. Recognition of the magnitude and special needs of women has prompted VA to create specialized programs for female veterans and special training for VA practitioners to promote effective and comprehensive treatment for women.

The study is a randomized clinical trial involving 384 female veterans and active duty personnel across 12 sites. If they meet entry criteria, participants will be randomly assigned to one of two treatments: Prolonged Exposure (PE), or Present Centered Therapy (PCT), which focuses on current problems rather than past trauma. Treatment will be delivered in 10 weekly sessions.

Participants will be assessed before treatment, immediately following treatment, and 3 and 6 months after the end of treatment. The primary outcome is PTSD severity. Secondary outcomes are anxiety and depression. Exploratory outcomes include associated features of PTSD, such as dissociation and substance abuse; psychosocial functioning, quality of life, physical health, satisfaction with treatment, and service utilization.

Training is a major component of CSP #494. Therapists will attend an intensive and comprehensive multi-day training session taught by each Master Therapist at separate sites so that they learn how to utilize the treatment manual. Following this, each therapist will treat two pilot subjects before being assigned to a subject in the study. Close supervision for all pilot and study cases will be provided to insure that subjects receive high quality PE or PCT Therapy. This will be accomplished by having master therapists review selected videotapes of treatment sessions in order to provide timely supervision of study therapists. Videotapes will also be reviewed by another team of expert consultants to evaluate the quality of PE or PCT that had been delivered.

It's hard for the uninitiated to appreciate the magnitude of this undertaking. Each study site will have seven individuals working on the study: a site investigator, a site coordinator, an assessment technician, and four therapists. Because there are 12 sites, that makes 84 individuals. At Palo Alto's Cooperative Studies Program, there are additional personnel involved in study management and data processing. Additional staff in Philadelphia, Providence, and St. Louis provide therapy supervision or perform fidelity monitoring. Finally, we must include the Co-Chairs' office at White River Junction. In short, well over one hundred people are making major contributions to CSP #494.

In closing, we want to specifically recognize Nancy Bernardy, Veronica Thurston, Kay Jankowski, and Moira Ripley in White River Junction and Maryann Boeger and her staff in Palo Alto, who are the glue who hold this massive study together and the enforcers who keep us all on track.

EARLY INTERVENTION: A CLINICAL FORUM

JOSEF I. RUZEK, PH.D.
Associate Director of Education, NC-PTSD

Early intervention to prevent development of PTSD: Toward effective post-trauma education

Much of what is called early intervention is really simple education. That is, survivors are given information that is intended to help them recover. As a relatively brief, non-stigmatizing, low-cost form of care, it may be delivered via informal conversations or in structured formal presentations, but together with restoration of physical safety, social support, and practical help, educational information forms much of what is offered to survivors in the immediate aftermath of trauma. Given the ubiquity of such education, it is useful to begin to think through this component of early intervention to examine the degree to which it is likely to achieve its objectives, and to consider the limitations of education as an intervention.

In most post-trauma settings, the psychoeducational component of early intervention is generally intended to achieve the following kinds of goals:

- To help survivors better understand a range of post-trauma responses.
- To accomplish “normalization” of responses; that is, to influence survivors to view their post-trauma reactions as normal (e.g., not as reactions to be feared, not as signs of personal failure or weakness, not as signs of mental illness).
- To help survivors recognize the circumstances under which they should consider seeking further counseling.
- To inform survivors how and where they can access additional help, including mental health counseling.
- To increase use of social supports.
- To increase use of other adaptive ways of coping with the trauma and its effects (e.g., talking to others about the experience of trauma).
- To decrease use of problematic forms of coping (e.g., alcohol consumption, social isolation).
- To increase ability to help family members cope (e.g., information about how to talk to children about what happened).

It is likely that some of the objectives of early post-trauma education will be routinely achieved by existing educational practices. For example, such practices are probably effective in informing survivors about sources of mental health counseling. It is also likely that education increases some of the concrete changes in behavior that are targeted, such as reduction of alcohol consumption or use of formal counseling services. Verbal instigation of behavior change is a primary tool of all counseling, and, in non-trauma treatment contexts, brief advice has sometimes been found to be as effective as more intensive forms of help (e.g., in reducing alcohol intake). This may be particularly true when the required change is easily within the repertoire of the survivor, as in the seeking of counseling. When desired behaviors require more complex social performances (e.g., seeking social support), simple instruction may prove to be less effective than modeling. When they involve possible increases in negative emotion (e.g., talking about the experience of trauma) or other disincentives, other approaches, such as motivational interviewing, may be useful. Whether simple instruction that “trauma responses are normal reactions to abnormal situations” accomplishes the complex of cognitive changes that may be grouped under the concept of normalization is unclear, but perhaps unlikely.

Despite its routine application, little is known about the education component of early post-trauma care. For example, studies have not examined the degree to which those receiving education retain information. This is an important issue, given that acute stress reactions are likely to impair attention and memory processes. Ways of presenting and structuring of information have yet to be systematically compared. Written materials will lend themselves particularly well to such evaluation, since alternative forms of materials can be easily created and distributed, and given the demonstrated efficacy of “bibliotherapy” in other domains of behavior, this is an extremely important line of research inquiry. While educational materials have sometimes been adapted for use with children of different ages, adolescents, and for specific groups of adult survivors (e.g., the elderly), the effectiveness of these materials has not been evaluated.

In the next decade, it is likely that theory will increasingly inform design of post-trauma education and that systematic research will be brought to bear on this neglected arena of care. In the meantime, as helping professionals and emergency responders, we will continue to be challenged to educate survivors of all kinds of traumas. It is important that we think through the objectives of our educational activities and design our instruction so that it will have maximum impact. Our presentations must be easy to comprehend, include repetition of key points, and summarize take-home messages. It is especially important that we prepare and distribute written materials that correspond to our verbally-presented material, so that survivors can digest them when they are ready to do so.

VIRTUAL REALITY BASED EXPOSURE THERAPY WITH VIETNAM VETERANS WHO SUFFER FROM PTSD

David J. Ready, Ph.D., Barbara O. Rothbaum, Ph.D., ABPP, and Larry Hodges, Ph.D.

A recent meta-analysis of 61 Posttraumatic Stress Disorder (PTSD) outcome studies found greater efficacy for exposure therapy than for any other type of PTSD treatment as measured by clinician-rated changes in PTSD symptoms (1). Exposure therapy is aimed at facilitating emotional processing (2). For this to occur, it has been proposed that the fear structure must be activated and modified. Exposure therapy is historically effective at activating the fear structure via confrontation with the feared stimuli, which elicits the fearful responses. With PTSD the feared stimuli can be the patient's memory of a traumatic event. The processes of habituation and extinction, in which the feared stimuli cease to elicit anxiety, aid modification of the fear structure, making its meaning less threatening. Any method capable of activating the fear structure and modifying it would be predicted to improve symptoms of anxiety. Thus, Virtual Reality (VR) exposure has been proposed as another medium for exposure therapy (3). What distinguishes VR from a mere multimedia system or an interactive computer graphics display is a sense of presence. A sense of presence is essential to conducting exposure therapy.

Virtual Reality opens up the possibility of providing exposure that is near in vivo quality without the potential hazards and inconvenience of real in vivo exposure.

Virtual Reality is a revolutionary new computer technology that gives the patient a sense of presence in a highly interactive, computer-generated environment that has been used for psychotherapeutic purposes. What makes VR different than looking at a picture or seeing a movie is that the patient has the sense of being immersed within an environment that responds to his/her behavior in much the same way the real world does. VR exposure has been shown to be effective in treating specific phobias (4). This paper describes the application of VR exposure to PTSD in Vietnam combat veterans.

This collaborative effort between the Atlanta VA Medical Center, Emory University and Georgia Institute of Technology uses two Virtual Vietnam environments. One is a Huey helicopter ride that travels over several different types of Vietnam-like terrain (jungle, rice paddies, river) and that lands in a hot landing zone. The other is a landing zone-like environment in which the patient can, through the use of a joystick, "walk"

around an area that feels like it is about two acres in circumference and includes a swampy area and several rolling hills. In each environment the therapist can turn on and off sight and sound effects such as machine gun fire,

explosions and fog as needed. These environments respond to the patient's behaviors in a variety of ways that assist in making them seem real. For example, as the patients look up they see the sky, as they look down they see the ground, and they have a 360-degree view of the virtual world around them. As in the real world, when they move closer objects appear larger and as they move away from them objects appear smaller. Sounds are directional as well. For example, in the landing zone, the patient can hear helicopters approaching. They get louder as they come nearer and when one takes off the sound fades as it gets farther away. These elements combine to quickly fool the senses. For example, when the patient navigates in the swamp, he has the sensation of going down into the mud a few inches and hears a sloshing sound as he moves through it. Sound effects include mortars, rockets, machine gun fire, yelling, land mines, distant B 52 strikes, combat noises from a nearby battle, sloshing sounds in the swamp, radio chatter and a variety of helicopter sounds. Visual effects include helicopters coming in and flying out and flying over, muzzle flashes, fog, a bright flash as the land mine explodes, and darkness.

In this treatment, patients wear a Head Mounted Display (HMD), which covers their eyes and ears. In the HMD they look straight into two mini-television screens that take up most of their visual field and wear large earphones. The computer screens are set in such a manner as to provide a three-dimensional view of the computer-generated environments. A tracker on the top of the HMD signals to the computer the precise location of the patient's head. The computer gives the patient a different view of the environment with every head movement and everytime he squeezes the button on the joystick in the landing zone.



Dr. Ready demonstrates how to monitor movement within Vietnam virtual reality and talk to patient, with social worker Kevin Wilson, volunteering to wear HMD.

VIRTUAL REALITY BASED EXPOSURE THERAPY

There is more evidence for exposure therapy than for any other intervention for PTSD (5). Yet, it has been greatly underutilized with US combat veterans (6). This underutilization may partly be due to the difficulty of doing imaginal exposure with this patient population and the impracticality of providing in vivo exposure. Many veterans find it very difficult to stick with their traumatic memories long enough to allow habitation in imaginal exposure. With combat-related trauma it would be very expensive and possibly dangerous to provide actual machine gun fire, mortars, and helicopters for in vivo exposure.

Virtual Reality opens up the possibility of providing exposure that is in near vivo quality without the potential hazards and inconvenience of real in vivo exposure. Within the VR environment the therapist has complete control over everything that the patient sees and hears in terms of both the presence and the intensity of stimuli. For example, stimuli such as mortars can be turned on and off and the intensity of the mortars can be modified by both the frequency that the mortars are dropped and by the volume of the explosions. When the volume is lowered the mortars sound as if they are landing farther away, making them seem less dangerous to the patient.

There are three phases of treatment. The first phase includes the initial evaluation and the first session. During this phase patients are carefully screened to determine if they meet the inclusion criteria (Vietnam veterans who suffer from PTSD) and do not meet the exclusion criterion (history of psychosis, current or recent substance abuse, bipolar disorder or lack of a support system, or a medical contraindication such as a heart condition). This is accomplished through a clinical interview and assessment battery, which includes the Clinician Administered PTSD Scale (CAPS) (7). Patients are asked to provide a copy of their military discharge summaries (DD214) and submit to a drug screen. The patient's current mental health team is contacted to get input before deciding to offer VR exposure to a patient. At this time the treatment is explained to the patient in detail. It is very important that the patient is well informed about the rationale and procedures of the treatment. A failure here may make it much more likely that the patient will terminate treatment prematurely. A patient must clearly understand the nature of the treatment and sign the informed consent before beginning treatment.

During the first session the procedures and rationale of treatment are reviewed and the patient is exposed to a neutral VR environment. This is a virtual room in which he can move with no threat cues to get him used to VR, and to teach him how to navigate within a VR environment.

During the second phase the patient is oriented to the Virtual Vietnam environment that will be used in his treatment. If his trauma is mainly related to helicopters, then the helicopter environment is used. If his trauma is mainly related to ground combat, then the landing zone environment is used. This phase can take from two to five sessions depending on the patient's response. The goal here is to get the patient familiar with the environment and have him build up some tolerance to the

stimuli that will be used when he confronts his traumatic combat memories in the next phase of treatment. During all exposure sessions an audiocassette recording is made of the exposure portion of the session. The patient is instructed to listen to this tape daily between sessions. This increases the amount of exposure the patient experiences and often gives him a sense that he is moving forward as the same exposure has less and less effect on him with repeated

The patient is informed that he is to have one foot in Vietnam and one foot in the lab. It is this balance of the traumatic memory being stimulated by the VR yet maintaining constant contact with the therapist that facilitates emotional processing.

listening. The typical session takes about 90 minutes. The first 15 minutes are spent assessing the patient's current state of mind, checking on homework, asking about his reaction to the treatment and negotiating what will occur in the VR. Occasionally, the therapist and patient may decide not to conduct VR exposure therapy during a session as when a patient had been in an auto accident the day before. On those occasions a more traditional, non-VR psychotherapy session takes place to deal with any issues that have arisen. In the VR treatment the patient sits in a special chair (with a large woofer in the bottom to create vibrations) for the helicopter environment or stands up on a platform that has rails around it (to keep the patient within range of the computer's tracker) for the landing zone environment. He then dons the HMD (described above). The therapist communicates with the patient through a microphone that is patched into one of the patient's earphones. The VR exposure lasts 30 to 45 minutes, depending on how the patient is responding. While in VR the patient is asked for a Subjective Units of Discomfort Scale (SUDS) rating (0-100) every 5 minutes. This rating helps monitor how the patient is responding to the VR exposure and assists in determining when to add new stimuli. The therapist is in frequent contact with the patient by

READY, ROTHBAUM, & HODGES

requesting clarification about what the patient is describing or asking about body sensations that relate to stress or trauma. This careful monitoring helps determine when to add, intensify, lessen or remove stimuli. At the end of the VR exposure the patient removes the HMD and material that arose in the session is discussed.

Once it is clear that the patient is able to tolerate the VR stimuli that relate to his trauma the third phase begins, focusing on the patient's most traumatic Vietnam memories. The patient is asked to describe, in detail, the traumatic experience as it unfolded and to talk about it in the present tense ("I see the enemy approaching"). The therapist turns on and off visual and audio effects in sequence with what the patient describes. For example, when a patient indicates that he hears enemy machine gun fire the therapist activates machine gun fire until the patient indicates the firing stopped. Of course, it is impossible to duplicate all of the sights and sounds of war in a VR environment. However, we have found that providing some of the key elements, such as gunfire, explosions and helicopters, is enough to assist the patient in getting in touch with and staying with the traumatic memories. Often patients report seeing, smelling or hearing things that are not in the virtual environment. This projection indicates that they are very engaged with the traumatic experience. This is a good sign as long as the patient does not dissociate and stop responding to the therapist. This is a rare event but if it happens the therapist quickly reestablishes the connection with the patient, which sometimes requires lowering the intensity of the VR stimuli.

The primary role of the therapist during VR exposure therapy is to provide enough of the appropriate stimuli at the right time and at the level of intensity that can be tolerated by the patient while assisting in therapeutic exposure. This can only be accomplished by a careful moment-by-moment monitoring of the patient's responses to the stimuli and attention to the patient's recounting of the traumatic memory. With the right titration the patient will be greatly aided in accessing his fear structure without becoming overwhelmed by the VR environment (8). The therapist needs to consider both the effect of the stimuli that he/she is providing and to what degree the patient is responding to the internal stimuli of his traumatic memory. If the patient is not responding to this internal stimuli at all then he is not accessing the traumatic memory and it is unlikely that change will occur. On the other hand, if the patient is so in touch with these stimuli that he is no longer responding to the therapist then it is unlikely that any therapeutic processing of the traumatic memory will take place. If the patient seems to be overresponding to his internal stimuli the therapist reduces the external stimuli and insists that the patient respond to the therapist in the here

and now. The patient is informed that he is to have one foot in Vietnam and one foot in the lab. It is this balance of the traumatic memory being stimulated by the VR yet maintaining constant contact with the therapist that facilitates emotional processing.

One of the common signs that the memory has been accessed is the presence of body memories. The term "body memories" refers to the physical sensations related to the traumatic memory but that are inconsistent with the present environment. Common examples include the patient feeling very hot and sweating (as he did in Vietnam) or feeling pain where he was wounded. These sensations often dissipate quickly once the patient leaves the VR environment. Body memories are often strongest during the first five or so sessions. Having fewer and less intense body memories is usually a sign that the patient is successfully processing the memories.

During this phase the patient will usually start with a story that is somewhat limited. As the sessions progress more details will emerge. As these additional details emerge, the story often makes more and more sense to the patient and he often feels less and less anxiety about what he recalls. In addition, the patient's SUDS ratings tend to decrease in response to the same stimuli over time, indicating habituation. Patients often report that a traumatic memory that has haunted them for over thirty years no longer comes to mind as frequently and when it does, has much less impact. It is as if a terrible experience that happened recently (although it was over three decades ago) has shifted into a sad event that happened a long time ago.

Currently a total of 21 patients have started VR based exposure therapy and 15 have completed it. Most patients can complete VR treatment within 15 sessions. All six of the dropouts were within the first year of our developing this new treatment and none reported any lasting negative effects. Four of the dropouts reported that the VR was too stimulating, two of these within the first twenty minutes of virtual Vietnam exposure. The others indicated that they did not feel the therapy was helping them. Nine of the last nine patients who have started VR exposure treatment completed it. A clinical interview and assessment battery was administered prior to treatment, at the completion of treatment, and three and six months after treatment. Clinically and statistically significant PTSD symptom reductions were found on the Total CAPS scores on all three post-treatment assessments. On the re-experiencing subscale of the CAPS statistically significant decreases in symptoms were found when the three and six month follow-up assessments were compared to the pre-treatment scores. In both the avoidance subscale and the hyperarousal subscales of the CAPS there were significant decreases in symptoms on all three post treatment

VIRTUAL REALITY BASED EXPOSURE THERAPY

assessments. This preliminary evidence suggests that this treatment can reduce PTSD symptoms and that these reductions can be maintained over time (9).

The most challenging part of exploring this new type of exposure therapy has been patient recruitment. Many patients are reluctant to be among the first to try a new treatment and many are afraid of exposure therapy. It also took time to refine our procedures. All of the patient responses to VR exposures have been very manageable on an outpatient basis.

The biggest challenge that the field of VR exposure therapy faces is the initial expense of creating VR environments. Most environments are PC-based and the additional equipment necessary to run a VR environment is not prohibitively expensive.

The following has been made clear by the work accomplished thus far. (I) VR can produce an intense sense of being in a similar environment to that in which combat-related trauma took place in Vietnam veterans. (II) Patients can have this sense and still maintain awareness that they are in a therapy session, which helps them to not become overwhelmed by the stimuli in the VR environment. (III) Emotional processing can occur as a result of VR based imaginal exposure. (IV) This processing can lead to significant symptom reduction; and finally (V) the positive effects of this treatment can last over time. We believe that Virtual Reality can be a powerful new tool in exposure therapy and can be a component of a comprehensive treatment program for Vietnam veterans suffering from PTSD.

Future applications of Virtual Reality are limited less by the technology than by the imagination of those who wish to utilize it. The next logical step will be to test this application in a controlled study.

Case example

Mr. D is 100 percent service connected for PTSD and served in Vietnam for only three weeks before being medically evacuated. The twelve VRE sessions focused upon an incident in which he was severely wounded and trapped between US and NVA forces after the truck he was driving was blown up. As Mr. D described being caught in the crossfire, enemy machine gun fire, rocket explosions, mortar explosions, screaming, and battle ambience (a firefight in the distance) were activated in response to different parts of his story. When he described the enemy withdrawal the volume for these effects was reduced until they faded away. A helicopter landing and taking off was used to simulate his being flown to a field hospital. Mr. D's overall CAPS score was 51 percent lower on his immediate posttest and these changes were maintained on his three-month follow-up assessment

There were reductions in all three symptoms clusters. There was an increase in arousal and avoidance symptoms on the six-month follow-up assessment. These changes may have been the result of his relocating across the country due to his wife's job transfer and the resulting disruption in his regular PTSD treatment. The overall score on the six month post treatment CAPS was 31 percent lower than his pretreatment score.

References

1. Van Etten, M.L., & Taylor, S. (1998) Comparative efficacy of treatment for post-traumatic stress disorder: A meta-analysis. *Clinical Psychology and Psychotherapy*, *5*, 126-144.
2. Foa, E.B., & Kozak, M.J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, *99*, 20-35.
3. Rothbaum, B.O., Hodges, L.F., Kooper, R., Opdyke, D., Williford, J.S., & North, M. (1995). Effectiveness of computer-generated (virtual reality) graded exposure in the treatment of acrophobia. *American Journal of Psychiatry*, *152*, 626-628.
4. Anderson, P.L., Rothbaum, B.O., & Hodges, L. (2001). Virtual reality: Using the virtual world to improve quality of life in the real world. *Bulletin of the Menninger Clinic Supplement*, *65*, 4-17.
5. Rothbaum, B.O., Meadows, E.A., Resick, P., Foy, D.W. (2000). Cognitive-behavioral therapy. In E.B. Foa, T.M. Keane, et al., (eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (pp. 60-83). New York: Guilford.
6. Boudewyns, P.A. (1994). Direct therapeutic exposure: A learning-theory-based approach to the treatment of PTSD. In L. Hyer & Associates (eds.), *Trauma victim: Theoretical issues and practical suggestions*. Accelerated Development, Muncie, Indiana.
7. Blake, D.D., Weathers, F., Nagy, L.M., Kaloupek, D.G., Klauminzer, G., Charney, D.S., & Keane, T.M. (1992) A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *The Behavior Therapist*, *13*, 187-188.

VIRTUAL REALITY BASED EXPOSURE THERAPY

8. Foa, E.B., Steketee, G., & Rothbaum, B.O. (1989). Behavioral/cognitive conceptualization of posttraumatic stress disorder. *Behavior Therapy*, *20*, 155-176.
9. Rothbaum, B.O., Hodges, L., Ready, D., Graap, K., & Alarcon, R. (2001). Virtual reality exposure therapy for Vietnam veterans with posttraumatic stress disorder. *Journal of Clinical Psychiatry*, *62*, 617-622.

Acknowledgments: This research was supported by NIMH grant # 5 R21 MH55555-02 awarded to Barbara Rothbaum. The authors would like to thank Renato D. Alarcon, Ken Graap, Stacey Pollack, Greg Inman and Fran Shahar for their invaluable contribution to this project. **Disclosure statement:** Drs. Rothbaum and Hodges are entitled to sales royalties from Virtually Better, Inc., which is developing products related to this research. In addition, they serve as consultants to and own equity in Virtually Better, Inc. The terms of this arrangement have been reviewed and approved by Emory University and Georgia Institute of Technology in accordance with their conflict of interest policies.



David J. Ready is the clinical psychologist for the Atlanta VAMC's Posttraumatic Stress Disorder Clinical Team (PCT). He was the primary therapist in the first use of Virtual Reality to treat PTSD and is an Assistant Professor, Clinical Track in the Department of Psychiatry & Behavioral Sciences of Emory University School of Medicine.

Barbara O. Rothbaum, Ph.D. is an associate professor in psychiatry at the Emory School of Medicine in the Department of Psychiatry & Behavioral Sciences and director of the Trauma and Anxiety Recovery Program at Emory. Dr. Rothbaum specializes in research on the treatment of individuals with anxiety disorders, particularly focusing on PTSD, and has published two books on the treatment of PTSD. Drs. Rothbaum and Hodges are pioneers in the application of virtual reality to the treatment of psychological disorders.



Larry F. Hodges is Associate Professor and Head of the Virtual Environments Group in the Graphics, Visualization and Usability Center at Georgia Tech. He is currently a Senior Editor for the journal Presence: Virtual Environments and Teleoperators and a member of the IEEE Computer Society's Executive Committee for Visualization and Computer Graphics.

NATIONAL CENTER FOR PTSD

EDUCATION, TRAINING, & SUPPORT SERVICES

The Education and Clinical Laboratory Division for the National Center for Post Traumatic Stress Disorder at the Palo Alto CA VAMC, in collaboration with the VA Employee Education System, offers a Clinical Training Program (CTP). The training program is approved for 30 Category 1 CEUs for physicians, psychologists, social workers, and nurses. The CTP offers a broad range of educational activities, including:

- * Lectures
- * Clinical consultation
- * Clinical observation of group treatment
- * Group discussions facilitated by staff

Specific training topics include warzone trauma group treatment, treatment of women veterans, treatment of sexual assault related PTSD, relapse prevention, cross cultural treatment issues, assessment and treatment of families, disaster mental health services, cognition and PTSD, assessment of PTSD, and psychiatric assessment.

Week long training programs are scheduled nine times per year, on the second or third week of the month. Funding for attendance is not available from the National Center. There is no fee for the training program itself, but participants are responsible for providing their own transportation, lodging, and meals. Interested applicants are encouraged to explore funding options through their local medical centers or VA Employee Education System.

For more information, or to request an application, please email:

Josef.Ruzek@med.va.gov or telephone 650-493-5000, ext. 22673.

PTSD Assessment Library

Available upon request are selected instruments from our library of assessment and program evaluation tools (with accompanying articles), together with templates describing over 100 trauma-related measures courtesy of Beth Stamm, Ph.D., and Sidran Press. Telephone (650) 493-5000 ext. 22477.

PTSD Article Library

A helpful set of key articles on aspects of PTSD is available to VA or Vet Center clinicians free of charge. Telephone (650) 493-5000 ext. 22673.

PTSD Video Library

The Menlo Park Education Team maintains a small videotape lending library exploring topics related to PTSD diagnosis, evaluation, and treatment. Videotapes may be borrowed free of charge. Telephone (650) 493-5000 ext. 22673.

PTSD Program Liaison and Consultation

The Menlo Park Education Team can help VA health care professionals locate needed resources. Services may include assistance in locating relevant articles, locating resource persons, or problem-solving. Staff are available to consult in the areas of PTSD Diagnosis and Treatment, Program Development and Design, Women and Trauma, Relapse Prevention, and with other PTSD-related concerns. Telephone (650) 493-5000 ext. 22977.

National Center for PTSD Web Page

The award winning NC-PTSD Home Page provides a description of activities of the National Center for PTSD and other trauma related information. The world wide web address is: <http://www.ncptsd.org>

PILOTS Database

PILOTS, the only electronic index focused exclusively on the world's literature on PTSD and other mental health consequences of exposure to traumatic events, provides clinicians and researchers with the ability to conduct literature searches on all topics relevant to PTSD. <http://www.ncptsd.org/PILOTS.html>

NC-PTSD Research Quarterly

The Research Quarterly reviews recent scientific PTSD literature. Telephone (802) 296-5132 for subscription information.

Emergency Mental Health Services Training & Program Development

Training and program development in emergency mental health services for response to workplace violence and community disasters. One and two day individually tailored training programs, best practice guidelines, and policy development. Telephone (650) 493-5000 ext. 22494 or email: [ncptsd@bruceyoung.net](mailto:>ncptsd@bruceyoung.net)

SUBSCRIPTION INFORMATION

The *NC-PTSD Clinical Quarterly* is available for free to readers employed by the Department of Veterans Affairs. Non-VA employees can receive the *Clinical Quarterly* at nominal cost by using the Superintendent of Documents form below. Selected articles are also available for free in PDF format from our website: www.ncptsd.org



**United States Government
INFORMATION**

Order Processing Code:

*** 5737**

YES, please send _____ subscriptions to:

National Center for PTSD Clinical Quarterly (CPCQ) at \$7 each (\$8.75 foreign) per year.

The total cost of my order is \$ _____.

Price includes regular shipping & handling and is subject to change.

Company or personal name (Please type or print) _____

Additional address/attention line _____

Street address _____

City, State, Zip code _____

Daytime phone including area code _____

Purchase order number (optional) _____

Credit card orders are welcome!

Fax your orders (202) 512-2250

Phone your orders (202) 512-1800

For privacy protection, check the box below:

Do not make my name available to other mailers

Check method of payment:

Check payable to: Superintendent of Documents

GPO Deposit Account

VISA MasterCard

(expiration date)

Authorizing signature _____

5/96

Mail to: Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954

Important: Please include this completed order form with your remittance.

Thank you for your order!