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14. ABSTRACT Over the past 10 years the shattered bodies and psyches of our wounded warriors have come to the clinical staff at WRNMMC on a daily basis. Most of us have evaluated and treated patients who have suffered the onslaught of trauma and its impact on the psyche and soma. Many of us subscribe to assessing and responding to our patients with a biopsychosocial approach but in doing so have often ignored the topic of genital injury of the taboo associated with talking about this type of injury. As a result of this symposium, we hope to learn more about and discuss the psychiatric and medical risks associated with genital injuries in order to better care for patients, their spouses and families. To accomplish these goals many thoughts and questions must be addressed. What does it mean to have a genital injury? What is it like? How do we talk to patients with genital injuries? How do we instill hope in those with devastating genital injuries? How do we address sexual function and fertility? How do we provide the education and tools to allow wounded warriors to direct their own healing? When and how can we develop therapeutic alliances so the patient and family feel they have an advocate? How do we collaborate more effectively with our colleagues to insure more effective treatment outcomes? How can we have a voice to help our veterans who need support once they leave WRNMMC?					
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ARTISS SYMPOSIUM 2012

Evaluation and Treatment of Genital Injuries in Combat Warriors

SPONSORED BY

Department of Psychiatry, Walter Reed National Military Medical Center

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Department of Psychiatry, Uniformed Services University

Department of Urology, Walter Reed National Military Medical Center



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Department of Urology, Walter Reed National Military Medical Center



From the Conference Series:

ARTISS SYMPOSIUM

Evaluation and Treatment of Genital Injuries in Combat Warriors

Editor's Note: This transcript has been edited, however, as in most transcripts some errors may have been missed. The editors are responsible for any errors of content or editing that remain.

IPD 2012 by Center for the Study of Traumatic Stress
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First Edition



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History of the Artiss Symposium

Kenneth L. Artiss (1913–2001), the namesake of this symposium, was an Army officer, a research psychiatrist and instructor at Walter Reed Army Medical Center. Dr. Artiss, who served for 21 years in the Army Medical Corps retired in 1964 as a Lieutenant Colonel. He was Chief of the Department of Psychiatry in the Division of Neuropsychiatry at Walter Reed's Institute of Research. His work included development of treatment methods for combatants with severe psychiatric disorders.

After his retirement from the Army, Dr. Artiss was a senior consultant for many years to Walter Reed's psychiatric residency training program. Dr. Artiss created an award in 1983 to spur military psychiatry residents to conduct high quality research. This award still exists today and was presented at the conclusion of this symposium.

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For their support the committee wishes to thank:

- Ms. Lisa Moore
- Mr. Vernon Woods
- Staff at NICOE
- Our clinicians and support teams for providing the best care to our wounded warriors.
- The Command at WRNMMC for providing a climate where we are allowed the space and creative license to think about complex issues.
- Dr. Robert Ursano for his support and encouragement to document this important symposium.
- All the patients that continue to inspire and to teach us.

Preface

Harold J. Wain, Ph.D.

This year's annual Artiss Symposium, "The Evaluation and Treatment of Genital Injuries in Combat Warriors," was sponsored by the Department of Psychiatry at the Walter Reed National Military Medical Center (WRNMMC), the Department of Psychiatry, Uniformed Services University and the Department of Urology, WRNMMC, Bethesda, MD.

Over the past 10 years the shattered bodies and psyches of our wounded warriors have come to the clinical staff at WRNMMC on a daily basis. Most of us have evaluated and treated patients who have suffered the onslaught of trauma and its impact on the psyche and soma. Many of us subscribe to assessing and responding to our patients with a biopsychosocial approach but in doing so we have often ignored the topic of genital injury because of the taboo associated with talking about this type of injury. As a result of this symposium, we hope to learn more about and discuss the psychiatric and medical risks associated with genital injuries in order to better care for patients, their spouses and families. To accomplish these goals many thoughts and questions must be addressed.

What does it mean to have a genital injury? What is it like? How do we talk to patients with genital injuries? How do we instill hope in those with devastating genital injuries? How do we address sexual function and fertility? How do we provide the education and tools to allow wounded warriors to direct their own healing? When and how can we develop therapeutic alliances so the patient and family feel they have an advocate? How do we collaborate more effectively with our colleagues to insure more effective treatment outcomes? How can we have a voice to help our veterans who need support once they leave WRNMMC?

With these questions and others in mind we have organized this ground breaking symposium and invited experts from the fields of Psychiatry, Psychology, Urology and Congress to learn from each others' experiences and insights and to initiate and facilitate dialogue to help patients, families, and children. The following pages are a summary of the thoughts and discussion at this important conference.

Welcome A Warrior's Deepest Fears

Brett J. Schneider, M.D.

As part of the opening of the conference, Dr. Schneider read an excerpt from the Huffington Post that highlights some of the deepest fears our warriors feel as they prepare to deploy.

“Before they went off to fight in Afghanistan, the guys of 3rd Battalion, 5th Marines talked quietly about their deepest fear. Not dying. Not losing a leg or an arm. It was having their genitals ripped off, burned away or crushed in the fiery blast of an improvised explosive device. This was no idle concern to young men bursting with testosterone. The makeshift bombs known as IEDs are taking a frightening toll in Afghanistan, the blasts shearing off arms and legs, ripping through soft flesh, crushing organs and bone and driving dirt, rocks and filth deep into torn flesh often leaving the genitals shredded or missing. Some guys said they’d rather be dead.”

Dr. Schneider continued to explain the devastating injuries in Afghanistan presented in the article. “The decade of U.S. combat in Afghanistan has left Afghans and Americans with a seemingly endless series of woes. Among the most devastating are the blast wounds that have left more than 16,000 young American severely wounded. Several hundred have suffered genial injuries in addition to amputations and burns, leaving them unable to father children and struggling to engage in something resembling the sex they used to have often without the aid of what many view as the primary symbol of their manhood.”

After injury, Dr. Schneider illustrated there can be loss of one’s hoped for

“Several hundred have suffered genial injuries in addition to amputations and burns, leaving them unable to father children and struggling to engage in something resembling the sex they used to have often without the aid of what many view as the primary symbol of their manhood.”

future. "Who's going to want to be with me now? wondered a Marine Staff Sgt, 39, after an IED blast shattered his leg, ripped open his lower torso and severed most of his penis. It was a legitimate concern. His girlfriend stayed with him at Walter Reed National Military Medical Center in Bethesda, MD., through many of his 42 surgeries. But one day he was wheeled back to his room to find she had gone, leaving a nine-word handwritten note: 'I can't take this anymore. I'm outta here.'"

These warriors and others "agreed to share the painful and intimate details of their ordeals in order to spotlight what they feel is a life-altering but often hidden wound, one that is frequently given inadequate attention and care within the military health care system. Those who cannot regain their sexual function or drive are given little understanding or aid, they said. "They weren't prepared for this," said one injured warrior of the Walter Reed Staff.

Dr. Schneider summarized the injuries in the past decade as stated in the article. "Since 2005, more than 1,500 soldiers and Marines have been carried off the battle field with genital wounds. Since late 2009, when President Barack Obama ordered a "surge" of 30,000 combat troops into Afghanistan and approved a new tactic in increased foot patrols, the pace of genital injuries has accelerated. In the year before the surge, 170 combat troops suffered genital wounds, mostly from IED blasts. In 2010, according to Pentagon data, that number leapt to 259." Last year, the Defense Department counted 299 cases of genital wounds that Dr. James Jezior, one of today's speakers, and a urologist who does genital repair surgery at Walter Reed, characterizes as "devastating."

Last fall the British military sent two nurses to Walter Reed to learn "from the experts." They came to learn how we manage the sexual intimacy issues of patients with genital injuries. This experience, which was echoed in the Huffington Post article, taught us that we at Walter Reed are expected to be leaders in this area.

Today marks one more step in our preparation. Recently the Executive Command of the Medical Staff unanimously voted its support for a multidisciplinary team that will focus its efforts on sexual health and intimacy for our wounded warriors and their families. Requests will be submitted for funding to create this team over the next few months.

References:

Wood, D., Beyond The Battlefield: Afghanistan's Wounded Struggle With Genital Injuries. *The Huffington Post*, 3/21/2012

Introduction

“Therapuron”

Charles W. Callahan, D.O.

Medical necessity historically has been driven by military necessity. If we go back to the turn of the century we see Walter Reed himself championing and looking for the causes of yellow fever because yellow fever plagued humanity forever. Some of the issues were taken on by uniformed medicine and were conquered by uniformed medicine. That is the gauntlet that has been thrown down today as military necessity drives another area where Walter Reed National Military Medical Center has the opportunity to lead the world in expertise.

At the turn of the first millennium the Greek language had words that were used for healing. One of them was the word from which we get iatrogenic and iatros which means physical healing. But there was another word, a more robust word, the word that we derived therapy from — therapuron. Therapuron means much more than to heal. It means to heal, to care for, to serve and to restore. As we think about genital injuries and the devastation they cause, not just physically but on the whole individual including their surrounding relationships, we face the very unfortunate fact that pure physical healing is beyond our grasp at this time. We focus, instead, on the fact that we serve this patient population as demonstrated by all of us being here today and that we care for them like any group of patients with chronic and debilitating conditions. Ultimately, our goal is to heal, to care for and to restore our wounded warriors to their maximum potential.

As we think about genital injuries and the devastation they cause, not just physically but on the whole individual including their surrounding relationships, we face the very unfortunate fact that pure physical healing is beyond our grasp at this time.

The Impact of Trauma/Injury on Our Veterans and Congressional Oversight

Representative Timothy Murphy, Ph.D.

In any group, but certainly in the military, the topic of genital injury is a source of joking, teasing, mocking, and bragging. It is a sign of courage, cowardice, strength and weakness. It is a sign of masculinity, fertility, attractiveness, unattractiveness but we are not allowed to talk about it. Annual training for us is now not to talk about it. We are told what not to do as opposed to how to do it. We have to remove the cloak of secrecy surrounding genital injuries and begin a dialogue.

Approximately, one billion dollars per year is spent on medications for erectile dysfunction and that does not include all the supplements, minerals and devices used to enhance performance. What happens to soldiers, sailors, airmen and marines who go off to war after saying their goodbyes not thinking that a genital injury will happen to them?

In talking to a number of servicemen one of the great fears after genital trauma is abandonment. When we discuss with a family member, spouse, boyfriend/girlfriend what has happened to their loved one we have to understand genital injuries are overwhelming for the injured and for their family members. We have seen spouses that are very caring and loving saying, "I'm never going to forget you. I'm never not going to be your friend. I just can't be your spouse anymore."

On a national scope Congress is so filled with the psyche of embarrassment that they cannot talk about the topic of genital trauma. There are moments of courage, though. A young soldier came home after surviving devastating injuries. His wife said, "I sent this handsome young man to war and I don't know who came back with his name." When I asked her what she was going to do she said, "I made a decision on my wedding day and even if

In talking to a number of servicemen one of the great fears after genital trauma is abandonment.

it takes 50 years I'm going to teach him to laugh and love again." That is an example of extraordinary courage under fire.

It is important to recognize that we are preparing people for the rest of their lives as they seek a new identity that they were not prepared for. Issues of dealing with the injury itself as well as the prolonged recovery time can be very challenging creating extensive psychological losses and fears. Do we have adequately trained staff for these patients? Do we have the knowledge base? There is an absence of written knowledge of long term sequelae.

One of the things Congress is supposed to be good at is dealing with issues with a media perception. I recently screened a number of my colleagues. Not one of my colleagues has ever given a speech on the subject of genital injuries. Not one of my colleagues has gone on camera to talk about genital trauma to help remove some of the stigma or to help start a dialogue. One colleague said, "You have to be careful what you say on TV. You don't want that to show up in a campaign spot."

Congress has a public leadership role in the area of behavioral medicine. Do we have therapists trained to address issues of sexual function for our wounded warriors? Do we have marriage counselors? Do we have NCOs with some training and level of understanding of psychological first aid and long term support? What skill set does the VA have to support veterans with genital injuries? What is Congress doing to promote funding and asking for research and reports? Congress needs and is asking for information from the military in this area. What do you need? What do medical providers need? What products and other resources do you need and do you have the funding to get it? How many patients are we talking about? What do we need in the long term? Clearly, we do not have all the answers. Congress is seeking information from the military. Talk about these questions among yourselves to seek answers. Include the wounded warrior and his/her family in your discussions. Develop a protocol.

I want you to be challenged by the courage of the soldier's wife I spoke of earlier. Have courage like her. Help these patients get ready for the rest of their lives. Have a military and national dialogue.

*Congress has a public leadership role in the area of
behavioral medicine.*

Trauma and its Impact on One's Psyche and Soma

Robert J. Ursano, M.D.

We are filled with the feelings of what it is like to work with our patients, whether we are surgeons, internists, or mental health providers. The reason we work with our patients is because of what we just felt while Dr. Schneider read the very moving words of our soldiers. That is what pulls us back. It is what makes us come back to the operating room, the clinic, or come back to the two chairs sitting in a room with nothing else present. But empathy is only one of our tools. My task is to move us from empathy to a broader picture. How do we get from empathy, which is one of our tools, to other tools to help those we are so concerned about?

DoD leads the nation in trauma informed care. How do we develop systems for this care? How do we deliver the care? What is going on with the patient? How do they recover? So far we have only mentioned men. Two things were not said today. Women also have genital injury. In fact there is literature on intended genital injury performed on women. The second is not yet mentioned. It is burn out that providers feel. It does not matter whether you are a surgeon, internist, primary care physician, social worker, psychologist or psychiatrist. Burn out happens. Burn out is frequently exemplified by the wife or friend who says, "I'm out of here." Clinicians also say this. They say it in lots of ways. They say it by becoming so irritable at home that they cannot tolerate any more. They say it by becoming tired and depressed. They say it by making mistakes and errors. All are aspects of burn out. These two topics have to become a part of the dialogue, as well as many others.

Talking to patients, no matter what setting, provides the opportunity to

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listen and to observe accurately in a way that can be repeated by others. It is of no value to you or your patient to make an observation that no one can repeat. If someone cannot repeat it, it cannot be followed, it cannot be measured, and we cannot help the patient with that observation. No matter how elegant the observation is, and there are many in psychoanalysis that are very elegant, it does not help others if it cannot be repeated. If you cannot repeat it, you cannot use it. We enjoy the elegance of our observations but we have to make the elegance of our observations into tools if our primary goal is to help people. And I think that is the goal and has been the goal of this department and this institution with all its capabilities.

So what are we hearing from our warriors about this type of injury? When we talk about genital injury, particularly from the psyche side, what is it that is injured? "Who will want to be with me now?" That is a wonderful observation. It means the person has injured intimacy. How do we measure intimacy? We have a literature on intimacy. We can think about how to treat issues of intimacy. We can measure issues of intimacy. We can also think about how to restore intimacy in some and in others how to mourn the loss of intimacy. What about the lost sense of power and energy? We have a literature on the loss of sense of power and energy. It includes depression and decreased motivation. We have ways of measuring these. And of course, identity, "Who am I?" How do we measure the loss of identity? How do we intervene? Do we have a therapeutic modality? Do we have medications? Do we have targeted psychotherapies for restoring identity and other aspects of loss?

What about the loss of "what can I produce?" As I was listening I was thinking of Erikson's stages and laying out a grid of what is injured in the person. And I was also thinking about what Harry Holloway taught me from a wonderful piece of work that he did after an earthquake in Russia. The discussion led to what the community had lost. One of the things they lost was their children. But what they said was, "We lost our future." Genital injury also has to do with something about the loss of future. It is a loss of sense of time. How has one's time sense changed? We all confront a shortened length of time usually much later in life. If one has genital injury all of a sudden one is rocketed forward to a much older age in which one is dealing with lost productivity. How does this transition occur? Can we facilitate it in a way that is actually healthful?

What do we already know? What are some of the constructs that we have? My goal today is to present the big umbrella. What do we know about people that are injured? We know there are differences between human made and natural traumatic events or intentional and non intentional traumas. It is an important distinction. We know it generally takes longer to recover from human made/intentional events than from natural/unintentional events. What we are talking about today is a human made intentional traumatic

event. So we already begin to know recovery will be long. When there is comorbidity, for example, bodily injuries with brain injuries, the challenges are much greater.

Psychological problems, in DoD and in particular the Army and Marines, comprise the second highest of all the areas of burden of the health care system in the military. It is an important part of our health care system that requires resources to meet the needs of our patients.

There are at least three health responses to trauma and war. The first is a mental health illness. As we all know, after an exposure to trauma the most likely outcome is a resilient outcome. Most people actually do OK even in facing the worst traumatic events. But where we spend our time is with issues like PTSD, depression and anxiety disorders. Secondly, responses include distress responses. We do not usually give these diagnoses but they comprise a substantial amount of time in health care delivery. These include changes in sleep to feeling safe at home, feeling safe driving over a bridge, or feeling safe at a particular place. The other area of concern is health risk behaviors. A classic example is increased smoking of either legal or illegal substances or both. If the sustained increase in smoking continues we see an increased mortality rate. I often remind our disaster workers that starting a smoking cessation program can be one of the most important interventions after a disaster. It also allows you to identify people who are at high risk for other types of health risk behaviors.

Perhaps, surprisingly, one of the most important behaviors that helps prevent psychiatric illness is the use of a seat belt. If you have a seat belt on, you are less likely to have an injury and we know if you have an injury you are four times more likely to develop PTSD after a motor vehicle accident. What are the seat belts for combat? Seat belts for combat are frequently training and body protection. These are behavioral interventions that prevent injury and, therefore, help prevent PTSD.

There are a vast range of other psychosocial responses to trauma and disaster. Other aspects of psychological responses to trauma injury include an injured family, not just an injured person. Our group, led by Ed McCarroll, was the first to document the increased rates of child neglect that occurred in the Army from the onset of the war. Why is that? If you were to ask what is the highest predictor of child neglect the answer is single parent families. What we do when there is a war is the experiment you cannot do. We send one parent off to war. Today we are focused on an injury that impairs the ability to be a parent, and this creates a single parent family even though the parent may be present. And might there be increased rates of child neglect among injured soldiers even though they are still in the house? The burden of parenting falls on one parent. Anyone who has children knows that is a tough job.

The rates of PTSD increase with greater exposure to war. PTSD is not

uncommon after many types of traumatic events. Perhaps nearly all of us have the acute form at some point. PTSD can develop in people without a psychiatric history. Understanding that PTSD has a wide range of trajectories from mild to severe and debilitating is important. We can have PTSD as a bruise as well as a broken bone. Understanding the different trajectories is very important. We do not know how to do that yet. How can we predict on any given day post trauma the trajectory for any given patient? Our prediction ability is not very accurate. We know in the Oklahoma City Terrorist attack about 34% of people within ten blocks developed PTSD, and about 25% developed depression. Most importantly, of those people, 40% had never had a psychiatric problem in the past. Those with no previous psychiatric illness are at risk. Despite the evidence there is still the belief that if you have a trauma related disorder you had something wrong with you before the trauma. Let me clarify. This does not mean that people who had problems before are not at increased risk. But that is very different from saying that everyone with PTSD now had something wrong before.

We usually think of PTSD as a memory problem. Maybe it is not a memory problem. A cartoon illustrates: Walking beside Zambesi, Congo felt very happy. "I have a super memory," he said to himself. "And I will always remember what to forget." Perhaps PTSD is really a forgetting problem. It is an impairment in our forgetting process. Forgetting has often gotten a bad rap. In psychoanalysis we want patients to remember and in medicine we worry about forgetting because it is associated with Alzheimer's and other forms of dementia. But actually, forgetting may be a much more important process to us than remembering. Remember our brain is taking in information all the time and if it did not forget it would explode! In PTSD something has happened with our forgetting ability. It has become impaired. Is what we are really teaching patients is how better to forget?

A number of year ago we studied body handlers following the gun turret explosion on the USS IOWA. About 12 % of the body handlers developed PTSD over a year. Now why is that? Why is working around dead and injured bodies — you are not being shot at, you are not being blown up, and you are not in a motor vehicle accident — a risk factor for developing PTSD? Perhaps it has to do with identification. When you think, "It could have been me," you are four times more likely to develop PTSD. That cognition — the thought — that it could have been me, increases your risk of PTSD. You all know that thought. We all know it. It is a part of what we usually think of as a very healthy cognition called identification. We identify with our parents, our children identify with us and our mentees identify with us. But can identification actually turn against us like an auto immune disorder? Something that is usually very helpful to us has actually become an impairment.

We already know that the brain changes with PTSD: the amygdala, pre-

frontal cortex and hippocampus. We can identify people with PTSD by showing them angry faces they do not even know they are seeing because we show them in fewer than 300 milliseconds. We also know that the brain changes with treatment. It is not a question of whether there are brain changes with PTSD.

Behind all this are our genes. But genes are not the whole story. The grape has more genes than we do. The grape has about 30,000 genes and the human has somewhere in the 22,000 range. We have begun to identify what genes are related to PTSD.

There are now perhaps a half dozen genes including the serotonin transporter gene which has been looked at in a number of studies. Epigenetic changes are important to PTSD. Epigenetics is the study of how your genes change. Remember, you are born with a set of genes. Now ask yourself why did your brain become a brain and your liver become a liver? They have the same genes. How did that happen? It happened because some of them are turned on and some of them are turned off. The real story is not what genes you have. It is which ones are turned off and which ones are turned on. And that is how we get a gene environment interaction.

We began talking about empathy and how it is only one of the tools that we have to help those we are concerned about. The broader picture encompasses all aspects of trauma informed care. Talking to our patients and making accurate observations that can be repeated by others is a very important tool. We talked about some of the constructs we know about people who are injured. We know it generally takes longer to recover from human made or intentional traumatic events. Psychological problems comprise the second highest of all the areas of burden in the military health care system. We know one of the most important behaviors that helps prevent psychiatric illness is the use of a seat belt. We also know that PTSD is not uncommon after traumatic events and it can develop in people without a psychiatric history. Understanding that PTSD has a wide range of trajectories is important. We know the brain changes in people with PTSD and we have begun to identify how that happens. Identifying and using all our tools to address the topic of traumatic injuries in our warriors is a great challenge. Ultimately it will help to address the question, "Who will want to be with me now?"

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Genitourinary Trauma in Combat: Impact on the Wounded Warrior

James R. Jezior, M.D.

Historically, throughout the history of warfare, about 5% of injuries are genitourinary in nature. At the end of 2007, we saw a marked decrease in numbers as the war shifted to Afghanistan. In the Afghanistan Theater of Operations (ATO) the most dramatic changes in 2010 were the increased numbers of bilateral thigh amputations, triple and quadruple amputations, and associated genital injuries. "When those who sustained major lower limb amputations were matched with those who also sustained genital injuries, the correlation approached 90 percent." This was a new battlefield injury for us. A task force was convened to look into this new type of injury. It was defined as a dismounted complex blast injury which is an explosion induced battle injury sustained by a war fighter on foot patrol that produces a specific pattern of wounds that includes traumatic amputation of at least one leg above the knee, a severe injury to at least on other extremity, and pelvic, abdominal or urogenital injury.

In 2011, in order to look at our own numbers, we conducted a retrospective review of surgical cases performed by the Department of Urology at Walter Reed and the then National Naval Medical Center from October 2003–February 2011. The American Association for the Surgery of Trauma (AAST) categorizes most organ systems with a grading system of I–V, with V being the most severe injuries. We chose patients with injuries categorized between III and V. These patients would have had at least partial urethra disruption, laceration of greater than 25 % of scrotal diameter, laceration of the tunica albuginea of the testes with parenchymal loss, skin avulsion of the penis, glans laceration and segmental cavernosal defect. In that group of

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were matched with those who also sustained genital injuries, the
correlation approached 90 percent."*

patients we found 135 pelvic trauma cases and of those 77 % were caused by improvised explosive devices, 13 % were caused by gunshot wounds, 5 % were caused by rocket propelled grenades and 3 % were caused by motor vehicle accidents. Of those patients with genital injuries 49 % had scrotal injuries, 30 % had unilateral testicular injury or loss, 13 % had bilateral testicular injury or loss, 21 % had urethral injuries, 24 % had penile soft tissue injuries and 4 % had penile amputation. Most of the genital injuries were associated with other significant non genital injuries. We saw four common injury patterns: (1) soft tissue injury to the scrotum with or without testicular injury or loss; (2) soft tissue injury to the penis, anterior urethra, scrotum and testes; (3) perineal injury, bulbar urethral transaction, rectal injury and proximal corpus cavernosum injury; and (4) penile amputation, scrotal loss, bilateral orchiectomy, and lower abdominal injury.

We have developed protocols for penile injury, perineal injury, and scrotal injury. The first thing we do is preserve as much tissue as possible. That concept is also translated back into theater where we do everything we can to preserve testicular tissue and any of the important penile structures. We do this by evaluating the wound under anesthesia.

One of the more common injuries is a glans injury. Not only is the glans a critical feature as far as sexual function and feeling and sensation, it is also a very cosmetic part of the penis. We found that if less than 50% of the glans is lost it can be re-shaped and re-modeled to its original conical appearance.

Penile Replacement

The only approved methods for penile replacement in the United States use the individual's tissue configured into the shape of a penis which is transposed to the groin. It is flap related care which means tissue is taken from one part of the body and transposed to another part. Opportunities are becoming available for penile replacement in the civilian world but they are still in the research phase.

Limitations

There are several important limitations to genitourinary trauma reconstruction. Combat wounds often involve donor locations. Abdominal and groin wounds can obliterate common recipient vessels. Future sexual function requires a penile prosthesis if and when sensation is established. Significant complications can occur from strictures and fistula formation and tissue can atrophy over time changing the cosmetic appearance of the penis.

Future Directions

The Armed Forces Institute of Regenerative Medicine (AFIRM) is a multi-institutional interdisciplinary network working to develop advanced

treatment options for severely wounded servicemen and women. AFIRM has five major research programs: (1) Burn Repair; (2) Compartment Syndrome Repair; (3) Craniofacial Reconstruction; (4) Limb and Digit Salvage; and (5) Scarless Wound Healing. One deficit is the absence of a research program for genital injuries. In April 2012, AFIRM launched a program that allows research for genital injuries. Hopefully, protocols will be developed to help us move forward.

Tissue Engineering

Tissue engineering must have a scaffold plus seeded human cells and the presence of bioactive factors. Biomaterials are used to replicate the biologic and mechanical function of the native extracellular matrix (ECM) to form a scaffold for cell anchorage. Materials can be naturally derived like collagen, acellular tissue matrices or synthetic polymers like polyglycolic acid (PGA) and polylactic acid (PLA). Animal studies to re-grow the penis have been done in rabbits with some success. We are hopeful that this can be done in humans but at this time it is still very complicated and more research is needed.

Penile transplant is another area of increased interest but requires lifelong immunosuppression regimens similar to those used in kidney transplantation. The universal concern with immunosuppression regimens is their potential to predispose a patient to opportunistic infections, end-organ damage, diabetes, and lymphoma. The question becomes does the risk outweigh the benefit even in someone in their twenties who has lost their genitalia? One penis transplant reported in the literature in China was removed after two weeks for psychological reasons. The group that performed the transplant went on to make some very general recommendations.

Guiding Principles for Penile Transplantation

Penile transplantation should only be performed in patients with severe damage to the penis at appropriate institutions under protocols approved by institutional review boards. Institutions should have surgical and transplantation expertise with comprehensive multi-disciplinary support. Appropriate selection criteria should be established and the risk/benefit must be considered for each individual patient with detailed informed consent explaining the risks, benefits, alternatives and the innovative nature of the procedure. Candidates for penile transplantation should undergo a thorough psychiatric and psychological evaluation, including evaluation of their psychosocial support system.

How do we protect our warriors?

In 2011, the first "ballistic underwear" was distributed in theater. Tier 1

ballistic underwear is made of ballistic silk material coated in an anti-microbial agent to decrease wound infection and deflect particulate debris. Tier 2 ballistic underwear has Kevlar sewn between the layers of the ballistic silk around the inner thighs, colon, and groin area. This provides more protection from penetrating fragments.

In a study conducted by the Army Office of the Surgeon General war fighters who suffered one or more lower extremity injuries from February 2010–February 2011 were evaluated. The study compared 61 war fighters without the pelvic protection with 63 war fighters who had pelvic protection. Their findings showed there was a 72 % chance of genital injury for those without the protective garment versus a 38 % chance of injury with the garment. Testicular rupture occurred in 34 unprotected soldiers versus 22 soldiers with protection. Additional studies are needed to determine the full benefit of ballistic underwear in preventing genitourinary injuries.

As a way to bridge future discussions an article reporting on small scale qualitative study using interpretative phenomenological analysis was briefly discussed. Nine patients underwent partial or complete penectomy for penile cancer. The study highlighted the patients' issues of "grappling with the reality" of their injury and their issues of coping with the effects of the surgery. Significant changes in self-image that adversely affects relationships with a spouse and family were also discussed. Soldiers with genitourinary trauma often have the same altered self-image issues.

*We have developed protocols for penile injury, perineal injury,
and scrotal injury.*

Testicular Trauma: Managing Sexual Function and Fertility

Robert C. Dean, M.D.

There is very little long term data on the management of sexual function and fertility after testicular trauma. In the past soldiers did not survive these types of injuries.

Medical Capabilities in Theater

Many more soldiers are surviving devastating injuries on the battle field because of the many advances in care in the past 10-15 years. Urologists and other specialized surgical teams are now operating in theater which has increased survival rates. There is now a higher survival rate among those injured — the highest in any conflict in history.

Wound Patterns

Pelvic and perineal traumas from improvised explosive devices (IEDs) are the most common combat injury requiring combat care. The improved survival rates from these wounds have resulted in caring for patients with very challenging pelvic injuries. The dismounted IED blasts can produce very devastating injuries. The common injury patterns seen are: (1) Soft tissue injury to the scrotum with or without testicular injury or loss; (2) Soft tissue injury to the penis, anterior urethra, scrotum, and testes; (3) Perineal injury, bulbar urethral transaction, rectal injury and proximal corpus cavernosum injury; (4) Penile amputation, scrotal loss, bilateral orchiectomy, and lower abdominal injury. The non- trauma related urologic admissions numbers remind everyone that urologists at Walter Reed still care for urology problems not related to trauma.

There are substantial long term issues of genitourinary injuries including sexual function and fertility. Early therapy is important...

Therapy in the first four months is paramount.

Combat Genital Trauma: A Case Study

The patient was a special operations soldier injured by anti-personnel mine in the mountains of Kandahar Province and was treated by the Forward Surgical Team. He had bilateral AKAS, degloving injuries to his left thigh and sacrum, a rectal injury with an exploratory laparoscopy and diverting colostomy and perineal soft tissue injuries with loss of a segment of bulbar urethra and anterior rectum. The patient arrived at the National Naval Medical Center in the fall of 2009 for definitive care after stops at Landstuhl Regional Medical Center where he also received care. After admission to WRNMMC he had his wounds managed, had prosthetic limbs fitted, had his rectum repaired, and he had the mitrofanoff procedure which created a tube in the abdomen through which he could urinate. One year later the patient ran a marathon.

Common Therapies

There are substantial long term issues of genitourinary injuries including sexual function and fertility. Early therapy is important. Patients need to have erections early on to promote good blood flow and to keep collagen elastic. Therapy in the first four months is paramount. For prostate cancer patients the goal is to regain sexual function almost immediately after surgery. This same guideline is used for patients who have had traumatic genital injuries. For some of the genital trauma injuries patients have to wait but sexual therapies should begin as soon as possible.

Barriers to identifying erectile dysfunction (ED) are present for both the patient and for the physician. Patients can be reluctant to discuss erectile dysfunction because of embarrassment, shame or ignorance about normal sexual functioning. The patient may have a cultural belief that prohibits them from discussing sexual behaviors and many patients have a general discomfort discussing any aspects of their sexual functioning. The physician may have a fear of offending the patient or causing discomfort. They may have a lack of confidence in diagnosing and treating ED. Some physicians may have interpersonal differences with the patient (cultural, religious, and ethnic) while others may have a concern with being "overly interested" in the patient's sex life. It is important for physicians to find a way to address ED early on so treatment can begin.

Oral treatments for ED include the PDE5 inhibitors such as Viagra, Levitra and Cialis. The PDE5 inhibitors can improve endothelial function and glucose tolerance for diabetics is improved. Patients can experience improved levels of self-esteem and can have improved quality and quantity of sexual encounters. There is very little downside to using oral medications. However, if they are not working other things must be considered. How do you manage oral treatment failure?

The use of vacuum erection devices is an old therapy made better over the years. These devices are externally applied and mechanically effect penile blood engorgement. For the patient who has had genital trauma this might not be an appropriate option but for the patient who has had a spinal cord injury this might be considered. Penile injection therapy is another option. Smooth muscle relaxing medication is injected directly into the penis. Three medications are injected, papaverine, phentolamine and PGE 1 and while it may seem to be an alarming injection in reality it is not. Patients are taught how to inject themselves and report that it is not that painful. They quickly get over the idea of a needle and they get a very good erection. Injection therapy works in patients with complete nerve loss with an intact penis and often is one of the therapies used right after traumas or surgeries to keep the erectile bodies erect and full. Medicated urethral system for erection (MUSE) is another therapy used. A suppository is inserted to the urethra that relaxes the smooth muscles and mimics the physiology of an erection. This therapy is more painful than the injection/needle discussed earlier and some patients are reluctant. Penile prosthesis implantation is another therapy that can be used once all reconstructions have been done. There are different devices that are malleable or somewhat rigid. Mechanical rods can be inserted and there are inflatable devices that can be used. The inflatable devices are by far the most commonly used in the United States.

Testosterone Supplementation

Testosterone is needed for the preservation of libido, muscle and bone mass, energy and cognition. Testosterone is not the enemy when it is kept within a normal range. Generally, when testosterone is low (less than 300 mg/dl) clinical signs can include erectile dysfunction, infertility, small/soft testes, low energy, depression, sleep disturbance, poor concentration and memory, breast discomfort or enlargement, loss of male body hair, muscle wasting and increased body fat. At WRNMMC patients with genital injury have testosterone levels measured upon arrival and afterwards levels are measured monthly to follow trends in recovery. For elevated testosterone levels the treatment is observation. For low testosterone levels treatment is begun at the start of the patient's physical therapy.

The Joint Taskforce Trauma Registry (JTTR) reviewed cases under IRB approval from 2001 to 2011 to study what happens to patients' testosterone levels. Patients came from both wars and surgery records were reviewed for extent of injuries. There were 15 control patients with no testicular injury, no scrotal injury but who suffered trauma. In these patients it took an average of 9 months for testosterone levels to return to normal levels. There were 121 trauma patient groups and they were further divided into categories based on how much trauma they had to their testicular volume: (1) 60 patients

had scrotal exploration with no testicle loss; (2) 3 patients had lost half of their testicular tissue; (3) 29 patients had lost one testicle; (4) 9 patients had lost one and a half of their testicular tissue; and (5) 12 patients had complete bilateral testicular loss. Most of the trauma patients had suffered IED blasts. In the first group of 60 patients the average time to testosterone replacement was 75 days with 15 requiring replacement (25 %). In the second group of 3 patients the average time to testosterone replacement was 292 days with 1 requiring replacement (33 %). In the third group of 29 patients average time to testosterone replacement was 57 days with 16 requiring replacement (55 %). In the fourth group of 9 patients average time to testosterone replacement was 40 days with 5 requiring replacement (56 %). In the fourth group of 9 patients average time to testosterone replacement was 40 days with 5 requiring replacement (56 %).

The general rule for those patients in the middle groups is to wait and make assessments when they become more mobile, for example, when they begin physical therapy. That is the time patients need testosterone if they are not recovering it on their own. Opioids and other pain medications given to patients also lower testosterone so it is important to evaluate their medical management before making final decisions about testosterone replacement.

Genital Protection

Research compiled by the Operations Research and Systems Analysis Division of Combined Joint Task Force confirmed that those war fighters who wore the protective pelvic undergarments (PPU) had greater testicular protection.

Fertility

The importance or value of a man having children is quite high in our society. Americans take quite a bit of stock in making babies and making a family. Our government rewards those with children with added tax benefits and there are numerous government programs for the care of mothers and children. There is also high media representation of the American family and those serving in uniform receive pay increases for dependents as well as increased living allowances.

A study done in England in 2004 by Bartlett looked at the benefits for the individual and the effects of fatherhood. Basically, Bartlett was looking at the question of how happy were men being fathers? He studied married men with children, single men with children and men with no children. The study showed that the men with no children had more illness. They had poorer health with increased days in bed and more health care visits per year. Perhaps there is some benefit to men's health by having children? The study also reported that as men became older the health benefit increased.

How can we help patients with genital injuries who wish to become fathers? As of April 2012, money became available for in vitro fertilization (IVF) treatment for wounded warriors through an extension of TriCare benefits. Some may ask why this was not done sooner and why it took so long to adopt the policy. TriCare benefits are congressionally mandated law and changes to the law require a congressional vote. The IVF service at Walter Reed (ART Institute of Washington, Inc.) is in the top 10 % of the country for pregnancy rates. One can compare the WRNMMC IVF facility to any other in the United States at the web site SART.org. More than 450 cycles per year are done at WRNMMC. The average cost of IVF with ICSI is approximately \$7200.00.

Basic IVF is the process of fertilization by manually combining an egg and sperm in a laboratory dish. Embryos form within three days and eggs are stimulated to grow with gonadotropins. Risks of ovarian stimulation for the woman include: (1) Severe ovarian hyper-stimulation syndrome that occurs in 1–2 % of cases with potentially fatal thromboembolisms; (2) Mild ovarian hyper-stimulation syndrome that occurs in 25 % of patients causing increase in ovarian size and abdominal discomfort. When women of child bearing age (under the age of 42 years) are stimulated 3-20 eggs are retrieved. Once fertilization has occurred the embryos are analyzed and graded and that information is used to tell the physician how many eggs should be placed back into the uterus. WRNMMC has a policy where no more than 3 embryos can be returned to the uterus.

We know from data from the Israeli that sperm retrieved from a patient within three days can be used for IVF. Jarro's work (1996) showed that viable sperm can be found in the seminal vesicles for five days following ejaculation. Some trauma patients are able to undergo seminal vesicle aspiration and successfully retrieve motile sperm. When this can be done quickly with everyone on board, including the IVF Center, these patients will have the opportunity to go through the IVF process with their own sperm.

Conclusions

IED related lower extremity, perineal, genital, and scrotal trauma require extensive involvement by urology. Advanced Field Medicine has increased survival rates. Trends in urological care are evolving. Developing an understanding of sexual, social and reproductive outcomes is essential to providing the best care to our patients.

IED related lower extremity, perineal, genital, and scrotal trauma require extensive involvement by urology. ... Developing an understanding of sexual, social and reproductive outcomes is essential...

Psychiatric Care of Survivors of Genital Injuries

Frederick J. Stoddard, M.D.

Work with burn patients can inform our understanding of patients with genital injuries. Genital injuries are complex psychiatrically, surgically and in rehabilitation. In these ways they are similar to some disfiguring burns.

Early behavioral health evaluation and treatment of psychiatric conditions improves the patient care plan. There are three post injury phases: acute, intermediate and recovery. The history of psychiatry in burn care includes studies of disasters such as the Coconut Grove Nightclub Fire in 1942 that was the founding event for burn care in WWII. Erich Lindemann, Stanley Cobb, and Alexandra Adler were important to this work. Dr. David Hamburg wrote about burn patients in Korea from the ego psychosocial point of view. His work is still relevant today. Norman Bernstein, Walter Meyer and others wrote in the area of child psychiatry. Samuel Perry was a pioneer in teaching us about the under-treatment of burn pain. His work and efforts have impacted all of medicine.

There are six models of Post Injury Adaptation: (1) ego/ psychosocial; (2) sociological/adaptational; (3) crisis/psychopathological; (4) existential/developmental; (5) neurobiological; and (6) evidence-based/evaluative.

There is likely protective psychological benefits for soldiers in the choice to serve and from their resilience training. This may help decrease their risk from devastating combat injuries. The present war highlights that the violence and carnage of genital injuries are much greater now and there are no isolated genital injuries. Genital injuries are not new to war.

*In the psychiatric assessment of patients with genital injuries
physicians need to use all of the tools that are available:
Developmental, descriptive, biological and psychodynamic,
cognitive-behavioral, and pharmacological.*

Some of the etiologies of genital injuries include circumcision complications, infant scalds, house fires, motor vehicle accidents, electrical burns, ritual genital mutilation, self-mutilation and industrial accidents. In addition, genital injuries also come from cancer, other diseases and infections, and war. From 2001–2009 in the Iraq and Afghanistan wars there were 887 genitourinary injuries. Studies indicate this type of injury included injuries to the scrotum (29 %), penis (14.2 %), testicle (9.1 %), and pelvic fracture (14 %). Pictures done by patients at Walter Reed and published in the *New York Times* (5/27/12) can tell an important story of injured combat warriors.

Peripheral organ and brain interactions occur in burn injuries. The surgeries to recover are also traumatic. They include excision and grafting of wounds, amputations, removal of shrapnel and other foreign bodies, and release of contractures. Dressing changes relating to the surgeries can also cause severe pain. The goal is always to preserve function and to have the best cosmetic result. Consent is not always possible at the time of the trauma and the awareness of complicated surgery may emerge much later.

In the psychiatric assessment of patients with genital injuries physicians need to use all of the tools that are available: Developmental, descriptive, biological and psychodynamic, cognitive-behavioral, and pharmacological. The anatomy of the injury, infection and pain control affect psychological recovery. Psychological and social factors will inform acute care and influence long term adaptations. It is important to assess over time the patient's level of pain, anxiety, grief, guilt, depression, resilience, courage and hope.

Psychiatrists can gain understanding by going to the operating room to see the surgeries and also by attending dressing changes to see what the patient is experiencing. Some patients use words to describe their pain and anxiety and some do not. Some teams report soldiers talking about what to do if they lose their "junk." After injury, some patients avoid talking about genital injuries while others ask directly. It is important to let patients to talk at their own pace.

In talking with patients it is helpful to state you are there to help. State your physical observations and ask if the patient has questions. Inquire about locations and levels of pain using a scale of 0-10 with 10 being the most pain. Suggest a range of possible interventions. Consider sharing that no one should have to endure such pain and suffering. Consider sharing that they are fortunate to have survived. Provide reassurance that questions are normal for everyone with severe injuries.

Speaking to the patient as a member of the medical care team reduces anxiety in acutely injured patients. Explaining to patients that psychological explanations and support are an essential part of their medical and surgical care is critical to their successful recovery. Psychiatrists, psychologists, nurses, social workers, in collaboration with others who are part of the medical

team, may share in discussions about appearance related to attractiveness and the function of the injured body part.

Psychological aspects and psychoeducation include supporting emotional shock, assessing and relieving pain, reassuring that genitals do not represent the person, being alert to concerns about gender identity and being alert to concerns about the ability to satisfy a sexual partner. Assessments also include identifying strengths and threats to self-esteem, clarification about what plastic surgery techniques can and cannot do, and supporting the religious beliefs of the patient.

A case vignette of 17 year old male who sustained a 40 % burn including leg amputations and genital loss from contact with power lines was discussed. This young man considered penile reconstruction with an implant of the type discussed earlier. The result would be a cosmetic penis and not one used for urination. Issues of his leg prostheses were discussed as they related to his overall condition and progress. He benefitted from the ongoing discussions and he learned he had a place to talk about his concerns. This intervention is a cognitive oriented therapy.

There are many risk factors for severely injured patients. These include delayed admission, mental disorders, abuse, substance abuse, very young or very old age, pre-existing medical conditions, malnutrition, poverty and the lack of social supports.

Many diagnoses are associated with trauma patients. These include delirium, pain syndromes, sleep disorders, body image disorder, and other psychiatric disorders associated with traumatic events.

During the recovery phase it is important to be aware that injuries may profoundly affect body image, self-esteem and interpersonal relations. Body image disturbance is not inevitable. There are people who adapt and who are flexible enough to modify their personalities and appreciate who they are. Others are unable to adapt or do not readily adapt. Plastic surgery and reconstructive surgery that is chosen by the patient is often beneficial psychologically.

The effect on self-esteem of genital, facial, hand and other disfigurement should be assessed over time, since this may lead to social stigmatization. Social adaptation is aided by functional recovery, family support, psychotherapy, support for positive coping skills and re-entry to work or school.

How do we understand body image? What is the definition? Schilder, (1950), described body image as, "That (mental) picture or scheme of our body involving the interpersonal, environmental and temporal factors." This definition does not coincide with the objective body. The neurology of body image is also important.

Each procedure that is performed on a patient affects body image and the emotional implications can be positive and negative. Cosmetic and re-

constructive procedures may be done to almost any body location, especially the scalp, face, hands, breasts, axilla, arm, genitals, anus, leg and foot. Types of surgery include release and grafting, the use of tissue expanders, flap procedures and laser surgery.

There is little research on the psychiatric outcomes of genital injuries. Most research on severe disfiguring burns shows a majority of patients, treated and followed in centers of excellence, cope well. Studies done in the past 25 years show these patients to be functioning normally on many measures. This is not always what we expect and it is important to keep in mind when we see someone who is not doing well. Visible disfigurements are the most socially stigmatizing and data shows they are the most difficult for patients. More resources, reconstructive procedures and psychiatric and rehabilitative treatments are improving outcomes but may not be easily accessible.

A case vignette of a 10 year old boy who suffered large electrical burns with the loss of his penis was discussed. The child had a remarkable long term recovery that included many reconstructions with cosmetic penile reconstruction with artificial testes. He later became an EMT, a scuba diver, married a woman who had smaller burns and became a father via artificial insemination. When last seen as an adult his mood was very positive.

It is important to be alert to the responses of staff caring for patients with genital injuries, particularly those who are young. These include medics, technicians, nurses, surgeons, radiologists and rehabilitation specialists. Some of the ways to enhance staff resilience and reduce burn out were discussed. Stress and secondary traumatization can be great even though staff tends to be resilient and "hardy."

Some psychiatric and psychotherapeutic interventions prior to surgery were discussed. The most important piece was collaborative consultation with the surgeon and allied staff. An intervention called Social Skills Interaction Training (SSIT) was described. SSIT is a cognitive behavior method that patients with facial burns are taught to help present themselves in social situations. The program was developed in Great Britain and has been used successfully with adolescent and adult patients.

Adolescent patients can be of particular concern since their vulnerability is magnified by adolescent psychosocial development and "adolescent invulnerability." Their body self, narcissistic ideal fantasies and self-esteem are impacted by peer comparisons, prowess and the media. Increasing their skills allows for cognitive mastery of their injury and surgery, optimally modulating feelings of fear, vulnerability and depression.

Patients in young adulthood are in the prime of their lives with the goals to love and to work. The body self is more distinct from the identity of the self as a person. For example, the loss of a body part is possibly less likely to mean loss of self. Their vulnerability may be limited by compensatory

skills they have learned, their achievements and by their intimate relationships. These capabilities may aid in their adaptation to losses of appearance or function.

In mid-life patients may struggle with issues of generativity versus stagnation. Generativity refers to the protective concern for all the generations and social concerns. The virtue to care coalesces during this phase of life, further strengthening personhood and buffering the effects of injuries.

There are many different causes of body image (BI) disorders. These include congenital abnormalities, those secondary to brain damage, neurologically based and reality based disorders, those induced by disease, substance abuse or medication induced, post traumatic based, and disturbances in perceptions. Strategies to improve body image include encouragement of family affirmation and support, surgical interventions, the anticipation of changes in recovery, surgical interventions, patient education, visitation by screened survivors, referrals for psychiatric consultation and encouragement to continue a hopeful approach.

Seeing one's own disfiguring body can be emotionally traumatic. Usually patients have seen themselves without staff awareness but planning to look at a time when supportive people can be present may reduce the emotional stress.

Ethical issues were briefly discussed. The decision to survive, possibly with a tourniquet is an ethical choice. There has been consideration in burn care regarding the ethics of providing choice of survival or not after massive burns. And, as in military medicine, the ethical consensus is to support survival and to provide medical care that seeks to improve outcomes.

Dr. Elvin Semrad said, "Find out what the heart says and where in the body the feelings are." The goal is to seek to understand and help the patient.

*There is little research on the psychiatric outcomes
of genital injuries.*

Speaker Biographies

Charles W. Callahan, D.O.

COL Charles (Chuck) Callahan graduated from Rutgers College with a commission as Second Lieutenant in the Infantry. After attending Infantry Officer's Basic Course he graduated from the New Jersey School of Osteopathic Medicine in 1984. Dr. Callahan did his pediatric residency at Walter Reed Army Medical Center and completed a fellowship in pediatric pulmonology at St. Christopher's Hospital for Children in Philadelphia, PA. Dr. Callahan served as the Pediatric Consultant to the Surgeon General from July 2003 to 2007.

In 2004, Dr. Callahan deployed in support of Operation Iraqi Freedom as the Chief of Professional Services for the 8th Medical Brigade. He served as the Deputy Commander for Clinical Services at Walter Reed Army Medical Center and later commanded the DeWitt Army Community Hospital and Health Care Network at Ft. Belvoir. In July 2010, Dr. Callahan became the first Army officer to serve as Deputy Commander at the National Naval Medical Center, Bethesda, MD. In August 2011, he became the first Chief of Staff of the new Walter Reed National Military Medical Center under the Joint Task Force Capital Medicine. In July 2012, he assumed Command of the new Fort Belvoir Community Hospital.

Dr. Callahan's awards include the Legion of Merit with three oak leaf clusters, the Bronze Star, the Meritorious Service Medal with four oak leaf clusters, the Order of Military Medical Merit and the "A" Proficiency Designator from the Army Medical Department. In 2004, he received the Lewis Aspey Mologne Award from the Surgeon General for Academic Excellence in the Army Medical Corps. Dr. Callahan is board certified in pediatrics and pediatric pulmonology and a professor of pediatrics at the Uniformed Services University in Bethesda, MD. He is a Fellow of the American Academy of Pediatrics. Dr. Callahan has received numerous teaching awards and authored more than one hundred articles on subjects including pediatrics, pulmonology, leadership and parenthood.

Robert C. Dean, M.D.

Dr. Dean is a graduate (Class of 1985) of the University of Rochester, N.Y. with a Bachelor of Science Degree in Cell Biology. After receiving his M.D. degree from Uniformed Services University of the Health Sciences in Bethesda, MD in 1989, he completed an internship at Tripler Army Medical Center in Honolulu, HI.

Dr. Dean graduated from his Urology Residency at Walter Reed Army Medical Center in 2000. He gained additional urology training in Andrology (Male Sexual Health and Infertility) at the University of California, San Francisco and completed his fellowship in 2005. In 2003, Dr. Dean was deployed for 12 months in support of Operation Iraqi Freedom with the 28th Combat Support Hospital from Ft. Bragg, NC. Dr. Dean is currently the Program Director for the Urology Residency and the Director of Andrology at the Walter Reed National Military Medical Center, Bethesda, MD. Dr. Dean is also an Assistant Professor of Surgery at the Uniformed Services University, Bethesda, MD. His interests include treatments for erectile dysfunction, medical management for erectile preservation, Peyronie's disease, and male infertility. Dr. Dean's present research projects involve pathological analysis of prostate tissues, testosterone therapy, and neurovascular preservation of erectile function.

James R. Jezior, M.D.

Dr. Jezior graduated from the United States Military Academy, West Point, NY in 1985 with a Bachelor of Science and Engineering. He earned his M.D. at the Uniformed Services University of the Health Sciences in Bethesda, MD and completed an internship and urology residency at Tripler Army Medical Center in Honolulu, HI. In June 2001, he completed a Fellowship in Adult and Pediatric Reconstructive Urology at Eastern Virginia Medical School, Norfolk, VA.

Dr. Jezior was deployed for 12 months in support of Operation Iraqi Freedom with the 28th Combat Support Hospital and while there was Chief of the General Surgery Service and then Deputy Commander for Clinical Services. Dr. Jezior is currently the Chief of the Urology Service, Director of Female and Reconstructive Urology and serves on the faculty residency program at the Walter Reed National Military Medical Center, Bethesda, MD. He is also an Assistant Professor of Surgery at the Uniformed Services University of the Health Sciences, Bethesda, MD.

Representative Tim Murphy, Ph.D.

In January 2011 Congressman Tim Murphy began serving his fifth term in Congress representing the 18th district of Pennsylvania. Congressman Murphy relies on his three decades as a psychologist to advocate for meaningful

reform in the U.S. healthcare system. As one of only a handful of members of Congress with a background in healthcare, he quickly established himself as a leader in the issue. He is Co-Chair of the Mental Health Caucus and GOP Doctors' Caucus, giving him a platform to educate other members of Congress and the public on ways to make healthcare more affordable and accessible for all families.

Legislation accomplishments include authoring the Seniors Access to Mental Health Act, which ended the discriminatory practice of charging higher co-pays to seniors on Medicare seeking mental healthcare. The legislation became federal law as part of the Medicare Improvements for Patients and Providers Act on July 15, 2008.

Before coming to Congress, Congressman Murphy served in the Pennsylvania State Senate from 1997-2002. There he penned the state's historic Patient Bill of Rights and increased funding for medical research, while consistently supporting responsible fiscal management of government to promote job creation and reduce the tax burden on families.

Congressman Murphy also serves as a Lieutenant Commander in the U.S. Navy Reserve Medical Service Corps, working with wounded warriors with traumatic brain injury and post traumatic stress disorder.

Congressman Murphy earned a bachelor's degree from Wheeling Jesuit University, a master's degree from Cleveland State University and his Ph.D. from the University of Pittsburgh.

Brett J. Schneider, M.D.

Lieutenant Colonel (P) Brett J. Schneider, M.D. is currently serving as the Chief of Psychiatry at Walter Reed National Military Medical Center. He also serves as the appointed Child and Adolescent Psychiatry Consultant to the US Army Surgeon General. Dr. Schneider graduated from Creighton University with a co-major of Biology and Philosophy. He attended Creighton University School of Medicine and after graduation he did his psychiatry residency and a child and adolescent psychiatry fellowship at Walter Reed Army Medical Center.

Upon completion of training, LTC(P) Schneider served as the Division Psychiatrist for the 1st Infantry Division in Vilseck Germany for two years before returning to Walter Reed to do a fellowship in Forensic Psychiatry. He served two tours in Iraq for Operation Iraqi Freedom. Dr. Schneider served as the Chief of Telepsychiatry and the Chief of Child and Adolescent Psychiatry prior to being named the first Chief of Psychiatry at the new Walter Reed National Military Medical Center in Bethesda, MD.

Frederick J. Stoddard Jr., M.D.

Frederick J. Stoddard Jr., M.D. is Associate Clinical Professor, Harvard

Medical School at the Massachusetts General Hospital (MGH), heads psychiatry at the affiliated Shriners Hospital for Children, and is a senior attending psychiatrist at the MGH Burn Center. Born in Ann Arbor, he received his B.A. from Bowdoin College, his M.D. from Case Western Reserve University, and trained in adult and child psychiatry at Harvard hospitals. He served in the Public Health Service in the Job Corps, and at the NIH in the Biological Psychiatry Branch. His consulting and teaching are multidisciplinary with medical students and psychiatry residents, trauma surgeons, plastic surgeons, pediatricians, nurses, other allied staff, and administrative personnel.

Dr Stoddard is an expert in burns, body image including genital injuries, PTSD, grief, and bioethics. He is a mentor for aspiring child and adult psychiatric researchers, and leaders. His research and teaching focus on pain, depression, resilience, disaster psychiatry, and health professionals' self-care. He is active in the American Psychiatric Association, the American Academy of Child and Adolescent Psychiatry, the Group for Advancement of Psychiatry, the International Society for Burn Injuries, and the American Burn Association. His book, *Disaster Psychiatry*, edited with Anand Pandya and Craig Katz, received the 2012 British Medical Association's High Commendation as one of the best books in Psychiatry.

Robert J. Ursano, M.D.

Robert J. Ursano, M.D., is Professor of Psychiatry and Neuroscience and Chairman of the Department of Psychiatry at the Uniformed Services University of the Health Sciences, Bethesda, Maryland. He is founding Director of Center for the Study of Traumatic Stress. In addition, Dr. Ursano is Editor of *Psychiatry*, the distinguished journal of interpersonal and biological processes, founded by Harry Stack Sullivan. Dr Ursano completed twenty years of service in USAF Medical Corps and retired as Colonel in 1991. He was educated at the University of Notre Dame and Yale University School of Medicine and did his psychiatric training at Wilford Hall USAF Medical Center and Yale University.

Dr. Ursano served as the Department of Defense representative to the National Advisory Mental Health Council of the National Institute of Mental Health and is a past member of the Veterans Affairs Mental Health Study Section and the National Institute of Mental Health Rapid Trauma and Disaster Grant Review Section. He is a Distinguished Life Fellow in the American Psychiatric Association. He is a Fellow of the American College of Psychiatrists. Dr. Ursano was the first Chairman of the American Psychiatric Association's Committee on Psychiatric Dimensions of Disaster. This work greatly aided the integration of psychiatry and public health in times of disaster and terrorism. Dr. Ursano was an invited participant to the White

House Mental Health Conference in 1999. He has received the Department of Defense Humanitarian Service Award and the highest award of the International Traumatic Stress Society, The Lifetime Achievement Award, for "outstanding and fundamental contributions to understanding traumatic stress." He is the recipient of the William C. Porter Award from the Association of Military Surgeons of the United States, and a frequent advisor on issues surrounding psychological response to trauma to the highest levels of the U.S. Government and specifically to the Department of Defense leadership.

Dr. Ursano has served as a member of the National Academies of Science, Institute of Medicine, Committee on Psychological Responses to Terrorism, Committee on PTSD and Compensation and the Committee on Nuclear Preparedness; and the National Institute of Mental Health Task Force on Mental Health Surveillance After Terrorist Attack. In addition, he is a member of scientific advisory boards to the Secretary of Health and Human Services and the Centers for Disease Control. In 2012, Dr. Ursano was awarded the William C. Menninger Memorial Award for distinguished contributions to the Science of Mental Health by the American College of Physicians. Dr. Ursano has more than 300 publications. He is co-author or editor of eight books.

Harold J. Wain, Ph.D.

Harold J. Wain, Ph.D., is the initial selected Chief of the Integrated Psychiatry Consultation Liaison Service at Walter Reed National Military Medical Center. Previously he had been Chief and Director of the Psychiatry Consultation Liaison Service at Walter Reed Army Medical Center. He is also a professor in the Department of Psychiatry at the Uniformed University School of Health Sciences School of Medicine. Earlier in his career he had been Chief of the Psychology Department at Walter Reed Army Medical Center.

Dr. Wain completed nine years of active duty and twelve years in the U.S. Army Reserves. He received his degrees from Brooklyn College, The University of Nebraska and Columbia University. He did his formal clinical training at Walter Reed Army Medical Center.

Dr. Wain has published widely, lectured and presented numerous workshops both nationally and internationally focusing in the areas of pain, hypnosis, somatoform spectrum disorders, psychosomatic medicine and trauma. He has received several recognition awards for his teaching and academic contributions. Dr. Wain has been privileged to have had significant leadership roles in the professional organizations where he has held membership and/or fellowship. He has been on several task forces as well as a consultant in his area of expertise. Dr. Wain has also been a reviewer for several journals, and was the associate editor of the American Journal of Clinical Hypnosis. In addition, he has edited three books.



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