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# *Intimacy* after **INJURY**

Therapeutic advances to alleviate the devastating impact of war injury on fertility and on physical and emotional intimacy.



December 11-12, 2014



# INTIMACY AFTER INJURY

## Therapeutic Advances to Alleviate the Devastating Impact of War Injury on Fertility and on Physical and Emotional Intimacy

December 11-12, 2014, Washington, DC

### CONTEXT

Life-altering Injuries from the Iraq and Afghanistan conflicts – TBI, PTS, amputations, and other traumatic injuries – have become the focus of military medicine in the 21st century and emblematic to the American public of the price being paid by our nation's war fighters. Often ignored due to societal taboos, however, is the devastating, life-long impact these catastrophic injuries can have on sexuality, fertility, and physical and psychological health of individuals and families.

Seeking to break the silence surrounding these injuries and raise public awareness of the impact of GU injuries, the Bob Woodruff Foundation, in partnership with the Johns Hopkins Military and Veterans Health Institute and the *Wake Forest Institute for Regenerative Medicine*, sponsored *Intimacy after Injury*, a convening on leading-edge therapeutic advances designed to alleviate the devastating impact of war injury on fertility and on physical and emotional intimacy.

### ISSUES

The Department of Defense (DoD) Trauma Registry reports that from 2001 to 2013, 1,378 male service members sustained GU injuries and that the average age at the time of injury was 24. Doctors and nurses report the devastating impact on these young men. Waking from a coma after leaving the battlefield, despite confronting missing limbs and other life-threatening injuries, the first question from the wounded service member often is "How's my junk?" Expressing anguish that he had not banked his sperm before deployment, one young man said, "Pretty much all I had dreamed of was to have children." Another asked, "Who's going to want me now?"

Little is known about the long-term sexual, fertility, social, and psychological effects of GU injuries. Patients are reluctant to talk about these injuries and few medical providers are trained to address issues of intimacy and sexual function. And all too often, they share their patients' discomfort in discussing the problems. A study of Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) patients with GU injuries who are receiving VA health care revealed that far fewer of these veterans are married than veterans without GU injuries. They also have a higher incidence of traumatic brain injury and psychological problems. Many clinicians working in the field believe we are seeing only the tip of the iceberg, with the effects of many GU injuries going unreported.

Policy and legal issues have added to the difficulties surrounding severe GU injury and its effect on future fertility. Prior to deployment, service members and their partners are not advised of the specific risks of GU wounds and the potential loss of fertility nor are they encouraged to bank sperm in the event such an injury should occur. "When they tell you that you will never have children, you feel completely violated," recounted one spouse at the convening. "Why didn't somebody talk to us about banking sperm?"

An additional impediment to preserving fertility relates to the retrieval of sperm from a wounded service member. Sperm retrieved as soon as possible following a GU injury offers the best possibility for future pregnancies, while a delay in harvesting the sperm decreases such chances significantly. However, US legal practice requires the patient's informed consent prior to sperm retrieval and because severely injured patients are rarely in a condition to provide such consent, they lose their best chance for future fertility.

Another contentious policy issue is the difference in reproductive health benefits offered to injured service members through the DoD TRICARE program and to veterans who receive their health care from the Veterans Health Administration. The most notable distinction is that in vitro fertilization (IVF) services are available to injured service members and their spouses under the TRICARE system while those covered by the VA program cannot receive that benefit. For service members with genital injuries who leave active duty and transfer to VA medical care before they are ready to start a family, the possibility of having children may be closed to them forever unless they are able to personally pay for the very high costs of IVF treatments.

### HOPE

In spite of the potentially devastating consequences of genital injury and the silence that has traditionally surrounded this most private wound, better battlefield protection, remarkable medical advances, policy revisions, and heightened awareness of the physical and psychological needs of these service members and their families give some cause for hope. Among the positive developments:

- The UK defense establishment has been working with US counterparts to develop advanced battlefield pelvic protection equipment that is reducing the number and severity of battlefield GU injuries.
- In recent years, US military hospitals around the country led by Walter Reed National Military Medical Center (WRNMMC) have greatly expanded their capacity to treat GU injury and its impacts.
  - Operating the largest DoD infertility program, WRNMMC conducts more than 400 assisted reproductive procedures each year.

- A Health and Intimacy Workgroup, now in its third year at WRNMMC, provides training, networking, and support to clinicians and other care providers on sexual health and intimacy best practices.
- At WRNMMC's National Intrepid Center of Excellence, "Relationships and Intimacy" classes educate wounded service members and their partners about the impact of traumatic brain injury and psychological health on intimacy and sexual functioning.
- The military medical community is being joined by other medical institutions and research groups around the country in its effort to better care for families struggling with GU injury. The Center for Innovation and Research on Veterans and Military Families at the University of Southern California's School of Social Work is launching an educational toolkit to enable medical providers to make an appropriate sexual health referral. Online forums such as "Making Love after Making War" provide wounded service members and their families a place to share insights on restoring intimacy and healing.
- To gather the data needed to understand and support the physical and psychology health needs of GU injured service members, DoD is currently seeking funding to conduct a Trauma Outcome and Urogenital Health Project, the first-ever long-term study that will include the largest GU injury database.
- In February 2015, US Senator Patty Murray, former Chair of the Senate Veterans' Affairs Committee, introduced the Women Veterans and Families Health Services Act of 2015 -- legislation that, if approved, would expand the types of infertility treatments provided by the VA to include assisted reproductive technology procedures, of which IVF is the most widely used. The legislation would also allow VA to pay adoption costs for severely wounded veterans with infertility conditions related to their service-connected injury. The legislation also expands fertility treatment eligibility for the military, and authorizes additional services to help service members and families preserve their options in the event of a serious injury in the line of duty.
- UK clinicians working with service members with the most severe genital injuries have developed new sperm retrieval techniques that are preserving fertility in ways that were not previously possible.
- Remarkable advances in microsurgical penile reconstruction can restore sexual function, even in some of the most severely injured cases. Equally extraordinary recent work in regenerative medicine, laboratory-grown organs, and tissue engineering are providing new hope to patients and their medical teams.
- With breakthrough advances in immunotherapy and complex transplantation techniques, the Johns Hopkins reconstructive transplantation team expects to undertake its first penile allotransplant in the next year or so.

Panelists and other convening participants noted the need for more training of clinicians so they are aware of the impact of intimacy issues and talking openly and comfortably on the subject with their patients. For some patients, the religious aspects of intimacy practices are important and involving chaplains may be appropriate. Some family member participants expressed concern that the best practices being instituted at WRNMMC and Brooke Army Medical Center were not trickling down to other facilities and providers around the country.



- 8:30 WELCOME**  
**Anne Marie Dougherty**, Executive Director, Bob Woodruff Foundation
- 8:45 OVERVIEW**  
**OEF/OIF Genital Injuries: what do we know and where do we go?**  
**Jean Orman**, ScD, MPH, Chief, Statistics and Epidemiology, US Army Institute of Surgical Research and the Joint Trauma System
- The Other Invisible Wounds: Sex and the Military**  
**Sherrie Wilcox**, PhD, Research Assistant Professor, USC School of Social Work
- 9:45 INTIMACY: A PERSONAL PERSPECTIVE**  
**MODERATOR: Shannon Maxwell**, Co-Founder, SemperMax Support Fund
- **Kathleen Causey**, Writer, wife of Army Sergeant 1st Class Aaron Causey
  - **Stacy Fidler**, mother of Marine Lance Cpl. Mark Fidler
  - **Tracy Keil**, wife of Army Staff Sgt. Matthew Keil
  - **Andrea Sawyer**, wife of Army Sgt. Loyd Sawyer
- 10:45 THE PSYCHOLOGY OF TRAUMA: FROM INJURY TO INTIMACY**  
**MODERATOR: Sherrie Wilcox**, PhD, Research Assistant Professor, USC School of Social Work
- **Emilie Godwin**, PhD, LPC, MFT, Director, Psychotherapy & Family Services, Physical Medicine & Rehabilitation, Virginia Commonwealth University
  - **Ihsan Rogers**, MSW, Continuity Manager, NICOE
  - **Mitchell Tepper**, PhD, MPH, Sexology Consultant and Trainer
  - **Catherine Vriend**, PhD; Chief, Clinical Health Psychology Service, Dept of Behavioral Medicine, Brooke Army Medical Center
- 12:30 FERTILITY AFTER INJURY**  
**MODERATOR: Barbara Collura**, President/CEO, RESOLVE: The National Infertility Association
- **COL Robert Dean**, MD, MC, Program Director, Urology Residency, Director of Andrology, Walter Reed National Military Medical Center
  - **Mark Payson**, MD, Reproductive Endocrinologist, Dominion Fertility
  - **COL Stephen Phillips**, Deputy Chief, Clinical Support Division, Health Care Operations Directorate, Defense Health Agency
  - **Belinda Yauger**, MD, Division Director, Reproductive Endocrinology and Infertility Service, Walter Reed National Military Medical Center
  - **Laurie Zephyrin**, MD, MPH, MBA, FACOG, Director, Reproductive Health, Department of Veterans Affairs
- 1:45 THE IMPACT OF POLICY ON SEXUAL HEALTH & INTIMACY**  
**MODERATOR: Diana Tabler**, Senior Advisor, Ward Circle Strategies
- **Hannah Fairman**, Health Policy Analyst, Wounded Warrior Project
  - **LTC Daniel Gade**, PhD, United States Military Academy
  - **Benjamin Merkel**, Legislative Aide, Office of Senator Patty Murray
  - **Kathryn Monet**, Senior Legislative Assistant, Senate Veterans' Affairs Committee
- 3:00 INNOVATION AT WALTER REED**  
**MODERATOR: CAPT Moira McGuire**, BSN, RN-BC, Assistant Chief, Integrative Health & Wellness
- **CDR Paul Gobourne**, MSN, FNP-BC, Director, Sea Services Warrior Clinic
  - **Glenn Parkinson**, MSW, MA, Psychotherapist, Traumatic Brain Injury Program
  - **Kathryn Ellis**, MOT, OTR/L, Occupational Therapist
- 4:00 INNOVATION IN THE UK**  
**MODERATOR: Jean Orman**, ScD, MPH, Chief, Statistics and Epidemiology, US Army Institute of Surgical Research and the Joint Trauma System
- **Jackson Kirkman-Brown**, MBE, PhD, Science Lead, Birmingham Women's Fertility Centre; Hon. Andrologist, Royal Centre for Defence Medicine, Birmingham; Reader, University of Birmingham
  - **Wg Cdr Davendra Sharma**, FRCS, Chair, Military Genitourinary Working Group, Royal Centre for Defence Medicine and Urology Department, St Georges Hospital London
  - **Eluned Lewis**, PhD, Defence Equipment and Support, UK Ministry of Defence
- 5:00 DAY-2 OVERVIEW**  
**James Gilman**, MD, Director, Johns Hopkins Military and Veterans Health Institute



## OEF/OIF Genital Injuries: What Do We Know and Where Do We Go?

**Jean Orman**, ScD, MPH, Chief, Statistics and Epidemiology, US Army Institute of Surgical Research and the Joint Trauma System

The DoD Trauma Registry reports that, from 2001 to 2013, 1,378 male service members survived with genitourinary (GU) injuries, and 75 percent of these injuries occurred as a result of an explosion, often from an IED. In an examination of 965 of these genital injuries, 65 had severe penile injury or amputation and many of these suffered traumatic brain injury as well as other serious injuries to lower and upper extremities, colon, urinary tract, etc. Little is known about the long-term sexual, fertility, social, and psychological effects of these GU injuries and patients and clinicians are often reluctant to talk about them.

The young men with these injuries have reported their devastation: “Losing my genitals has been by far the biggest issue. You can get prosthetic limbs, but this has been the biggest loss.” Another young service member who expressed regret that he had not frozen his sperm before deployment said, “Pretty much all I had dreamed of was to have children.” Another said, “Who’s going to want me now?”

Of the OEF/OIF patients who received US Department of Veterans Affairs (VA) health care between 2001 and 2011, 301 had GU injuries. In its investigation of the impact of GU injury on marital status and physical and psychological health, a VA study found that far fewer of veterans with GU injury were married. These veterans were also far more likely to suffer from sexual dysfunction, infertility and chronic pain than veterans who did not have GU injuries. They were also likely to experience a much higher incidence of traumatic brain injury (TBI) and psychological health problems. Many in the field believe we are only seeing the tip of the iceberg with many of these problems going unreported.

Advances in fertility treatment are encouraging. There has been significant improvement in techniques to salvage and store sperm that existed prior to a GU injury; in tissue engineering to restore lost tissue and organs; and even in the potential transplantation of missing organs. The UK and the US have made advances in battlefield pelvic protection equipment to prevent future wounds. The Wounded Warrior Recovery Project, a comprehensive DoD study focusing on the recovery and quality of life of injured service members, and a Trauma Outcomes and Urogenital Health Project have both received strong DoD and Congressional support. Greater collaboration is needed among academia, VA, nonprofits, advocates, lawmakers and international partners.

## The Other Invisible Wounds: Sex & the Military

**Sherrie Wilcox**, PhD, Research Assistant Professor, University of Southern California School of Social Work

In pre-deployment surveys of military personnel, 16 percent report a psychological injury, while in post-deployment surveys, more than 30 percent report this injury. These psychological injuries often increase the risk of problems with intimacy, marital relations, divorce, and sexual dysfunction. Additional studies have found that nearly half of erectile dysfunction cases stem from mental or emotional stress and that over 20 percent of post-9/11 male and female veterans report sexual function problems.

Few providers are trained in intimacy and sexuality and many are not comfortable discussing these sensitive subjects. Despite high rates of sexual dysfunction, this problem has not been a national priority and there is insufficient treatment available. Researchers have found that post-traumatic stress disorder (PTSD) increases the risk for erectile dysfunction by nearly 30 times, and only 12 percent of those experiencing sexual functioning problems report receiving treatment.

The Center for Innovation and Research on Veterans and Military Families at the University of Southern California’s School of Social Work is launching an educational toolkit that will feature video vignettes, case scenarios, and assessment tools. The toolkit will be available online and free to the public. It is designed to educate providers so at the very least they know how to make an appropriate referral. Wilcox called sexual functioning problems in the military “the elephant in the bedroom” and urged providers to find ways to reduce barriers to care as well as to develop and share best practices.

## Intimacy: A Personal Perspective

**MODERATOR: Shannon Maxwell**, Co-Founder, Semper Max Support Fund

**PANELISTS: Kathleen Causey**, wife of Army Sergeant 1st Class Aaron Causey; **Stacy Fidler**, mother of Marine Lance Cpl. Mark Fidler; **Tracy Keil**, wife of Army Staff Sgt. Matthew Keil; **Andrea Sawyer**, wife of Army Sgt. Lloyd Sawyer

Four military spouses and one mother shared wrenching stories of life with service members who returned home with physical and psychological wounds and the impact these injuries have on sexuality, fertility, and marital and family relationships. The women emphasized that these wounds are not always the result of a blast injury to the genitals. Traumatic brain injury, as well as injuries to the spinal cord, limbs, and major organs, requires long periods of medical treatment and continuous regimens of powerful drugs that often undermine sexual health. Combat-related psychological trauma, depression, sleep disorders, hypervigilance, and the stresses of post-deployment life can greatly challenge a couple’s ability to re-establish intimacy. In addition, medications prescribed to combat psychological stress in many cases are precisely those that affect sexual function.

The women recalled that they and their husbands received no pre-deployment counseling on the risk posed by GU wounds and psychological injury to future fertility and sexual health. One said that “fertility protection is as important as body armor,” and all agreed that they should have been counseled about sperm banking. One panelist said, “When they tell you that you may never have children, you feel completely violated. Why didn’t somebody talk to us about sperm banks?”

Other panelists spoke of the mounting psychological problems their spouses struggled with upon their return, but early warning signs of sexual dysfunction were not a priority for medical providers. Providers did not initiate discussion of the problem and patients are reluctant to

raise it themselves. When the long-delayed acknowledgement of sexual dysfunction was finally addressed, it was disjointed, bureaucratic, with a constantly changing cast of endocrinologists, urologists, therapists, and other medical providers all working in their own isolated silos, prescribing various medications and treatments but rarely collaborating as a team to develop a coordinated treatment plan.

One panelist recounted her odyssey through the military medical world and its lack of responsiveness to her and her husband's concerns about fertility. It was only at the end of the rehabilitation phase of her husband's recovery, when he was in a private facility, that fertility issues were finally addressed and talked about openly. The couple eventually succeeded in having twins through IVF.

A mother whose son has a severe genital injury spoke about the need for sperm banking even in the case of unmarried service members. In many instances of severe genital trauma, sperm for future use in assisted reproduction can be extracted from the patient at the time of injury; however, this procedure needs to be done as soon as possible after the injury occurs since, the longer the delay, the less likely the sperm will be viable. The mother said providers should talk to the parents of unmarried injured service members about this so that all possible steps are taken to preserve fertility. One of the wives noted that military medical providers also missed the opportunity to extract viable sperm from her husband immediately following his injury and spoke of the resulting emotional and psychological anguish.

All of the women expressed frustration with the military and VA medical establishments and their disjointed approach to providing care and benefits for fertility problems arising from genital injury. DoD hospitals, where active duty and retired members of the uniformed services and their families are covered by TRICARE medical benefits, and VA medical facilities, where coverage is provided through the Civilian Health and Medical program (CHAMPVA), do not provide the same fertility treatment benefits. These differences in DoD and VA benefits can have disastrous effects on wounded service members and their families. When asked what changes they would like to see, the women said they wanted the opportunity for service members with GU injury to grow their families through donor banks or sperm harvesting or adoption. They wanted medical care providers to proactively initiate conversations with patients and their families about intimacy and fertility issues, and they wanted every treatment facility to have specially trained personnel able to address these difficult issues.

## The Psychology of Trauma: From Injury to Intimacy

**MODERATOR: Sherrie Wilcox**, PhD, Research Assistant Professor, University of Southern California School of Social Work

**PANELISTS: Emilie Godwin**, PhD, LPC, MFT, Director, Psychotherapy and Family Services Physical Medicine and Rehabilitation, Virginia Commonwealth University; **Ihsan Rogers**, MSW, Continuity Manager, National Intrepid Center of Excellence, Walter Reed National Military Medical Center; **Mitchell Tepper**, PhD, MPH, Sexology Consultant and Trainer; **Catherine Vriend**, PhD, Chief, Clinical Health Psychology Service, Department of Behavioral Medicine, Brooke Army Medical Center

**Mitchell Tepper:** In true sexual healing, trust, safety, and connectedness matter more than physical and genital functioning in predicting who regains the ability to experience orgasm. Medical providers, caregivers, and patients need to connect the dots between mental health, physical health, sexual health, and spiritual and moral health. An online forum, "Making Love after Making War," gives wounded warriors and their families an opportunity to share insights on restoring emotional closeness and physical intimacy after serious combat-related injuries; stories to date are primarily stories of recovery and healing, not just sexual success. All returning service members should be evaluated, not just those who have been diagnosed with brain injury or psychological trauma. Tepper tracks symptoms of impaired psychological health and TBI -- anger control, short-term memory loss, nightmares, irritability, hypervigilance -- against the foundations of intimacy such as trust, sleeping together, and communication.

**Ihsan Rogers:** There is now a robust program at the National Intrepid Center of Excellence (NICoE) to educate service members and their partners about the impact of TBI and psychological health on intimacy and sexual functioning. Each month, NICoE welcomes 20 active duty service members for 30 days of intensive, integrated assessment and individualized treatment planning by teams of specialized clinicians and care providers. As part of this program, 20 to 30 percent of service members and/or couples request an intimacy assessment and elect to join the "Relationship and Intimacy" class addressing topics such as understanding the difference between intimacy and sexual function, how to make time for one another, and the difficulty of the dual role of caregiver and intimate partner. Class participants are encouraged to mourn the loss of their old relationship, acknowledge the importance of the mind/body connection, and define their "new normal." It is a challenge for patients and couples to find continuing support in their communities once they leave the 30-day NICoE program and many appropriate providers are not covered by the TRICARE system.

**Catherine Vriend:** Sexual dysfunction is epidemic in the military and institutional biases against addressing sexual function problems prevail. Sexual function should be considered an activity of daily living no different from bathing, feeding, and dressing oneself. For service members with genital injuries and their partners, assistive devices for sexual function should be considered as durable medical equipment and the VA should acknowledge and support these necessary interventions. Too often service members with devastating GU wounds are left alone to cope with their anxiety and grief. The impact of these injuries needs to be addressed without delay by an interdisciplinary team that encourages the patients to grieve their losses. Many veterans leave military medical care without having the loss of sexual function, fertility, and the effect on psychological health being addressed and we need to pull them back into the system to do so.

**Emilie Goodwin:** Too frequently medical care providers fail to acknowledge the importance of sexual activity and intimate relationships in the recovery process. Some service members are far more resilient in recovering from GU and TBI injuries than others. We need to look closely at what the most resilient people are doing and teach other individuals and couples these resiliency skills. For example, providers can help patients focus on how a positive family environment can combat protracted grief and loss or how good communication can mitigate poor problem solving and unbalanced family responsibilities. We know that sexual activity produces a hormonal response that is an antidote to anxiety and we should be finding recovery paths that take advantage of the body's positive hormonal stimulus. "The hormonal love cocktail helps relieve stress." When working with couples, Goodwin uses informal, non-clinical language to help them start the conversation. She asks them to respond to questions about the physical and emotional barriers to good sex that they are experiencing and asks what they think their partner is experiencing. As a way to minimize pressure at the beginning, she often advises couples to take sex off the table for the first two months of therapy.



## Fertility after Injury

**MODERATOR:** **Barbara Collura**, President/CEO, RESOLVE: The National Infertility Association

**PANELISTS:** **Col Robert Dean**, MD, MC, Program Director, Urology Residency, Director of Andrology, Walter Reed National Military Medical Center; **Mark Payson**, MD, Reproductive Endocrinologist, Dominion Fertility; **Col Stephen Phillips**, Deputy Chief, Clinical Support Division, Health Care Operations Directorate, Defense Health Agency; **LTC Belinda Yauger**, MD, Division Director, Reproductive Endocrinology and Infertility Service, Walter Reed National Military Medical Center; **Laurie Zephyrin**, MD, MPH, MBA, FACOG, Director, Reproductive Health, Department of Veterans Affairs

**Barbara Collura:** Disabled veterans and their dependents are covered under the VA's Civilian Health and Medical Program (CHAMPVA), which is separate from TRICARE, the DoD health care program for active-duty and retired service members. There is a great deal of confusion about what the DoD TRICARE and the VA CHAMPVA programs do and do not do to support fertility. RESOLVE: The National Infertility Association along with many other advocacy groups is advocating to align the benefits.

**Mark Payson:** While the requirements for fertility – egg, sperm, uterus – seem straight forward, fertility can fail in many ways. Female causes of infertility include anatomical abnormalities, failure in egg production, or advancing age -- there is a significant decline in fertility beginning at age 35. Male causes of infertility include problems with sperm production, blockage of the ducts that convey sperm (vas deferens), or erectile/ejaculatory dysfunction. Infertility treatments include stimulation of egg production, usually with medication; intrauterine insemination (IUI) or artificial insemination where the sperm is placed directly into the uterus; in vitro fertilization (IVF) in which the egg is fertilized outside the body; donor eggs or donor sperm; and the use of a gestational carrier. IVF is generally considered the gold standard of fertility treatments and the procedure works about 50 percent of the time per genetically normal embryo; 1.5 percent of US births are the result of IVF.

**LTC Belinda Yauger:** For the general population of service members, assisted reproductive technologies (ART), including artificial insemination and in vitro fertilization, are not covered under TRICARE. While many fertility services are available at a handful of military treatment facilities, there is considerable variation in the services offered at each facility and in most instances a portion of the cost must be borne by the patient. At some facilities treatments are offered on a limited space-available basis and there may be a wait of more than a year for procedures such as IVF. Some treatments are done onsite at the facility while others are performed offsite at medical facilities in the community. WRNMMC has the largest DoD infertility program providing complete female reproductive evaluations and extensive surgical treatment options. The facility offers artificial insemination, IVF, and other assisted reproductive technologies at a significantly reduced cost to the patient. More than 400 assisted reproductive procedures are performed at WRNMMC every year. Eligible patients are TRICARE beneficiaries (active duty, retired, or activated reserve) who also meet certain medical criteria (for more information go to [www.bestivf.com](http://www.bestivf.com)). Additionally, certain service members who have sustained serious neurological, physiological, or anatomical injury while on active duty that led to the loss of their natural reproductive ability may be eligible for full ART coverage.

**COL Robert Dean:** The policies regarding IVF treatment for seriously injured service members are detailed in Section 1633 of the 2008 National Defense Authorization Act. The benefit is designed to allow active duty injured service members and spouses to become parents through assisted reproductive technologies when the injury has made it impossible to conceive normally. Stipulations include that the service member be 1) seriously or severely injured (Categories II and III); 2) males must be able to produce their own sperm; and 3) females must have ovarian function and a uterus. The policy covers 1) freezing sperm for up to three years; 2) not more than six attempts to achieve a maximum of three pregnancies; 3) sperm harvest; 4) medications for IVF; 5) retrieval of the egg cell; and 6) IVF and/or ICSI, a variation on IVF that requires very few sperm.

**Col Stephen Phillips:** Unlike private health insurance, TRICARE benefits are determined by federal law; TRICARE is funded by taxpayers and Congress is responsible for establishing benefits. TRICARE must report on reproductive health benefits to Congress within 180 days from mid-December 2014 and advocacy groups are lobbying to encourage Congress to make changes to coverage. The reproductive health benefits offered by DoD and VA are not the same; one important difference is that VA benefits exclude IVF. For severely injured service members who decide to pursue IVF after they leave active duty and enter the VA system, it is too late. Some service members delay leaving active duty in order to receive IVF services. When an injured service member is preparing to leave active duty and transition to the VA system, it is important that case managers on both sides carefully coordinate the move.

**Laurie Zephyrin:** Due to the increase in women serving in the military, the number of women using VA services has more than doubled since 2000. That growth is expected to double again soon and many of those women are in their reproductive years. The VA offers male and female infertility services including hormonal medications, intrauterine insemination, treatment of erectile dysfunction, and sperm retrieval, federal regulation prohibits the VA from providing IVF treatment. DoD provides IVF treatment to injured service members, however, when service members transfer to VA care and are no longer active duty, that benefit is no longer available. Senator Patty Murray, former Chair of the Senate Veterans' Affairs Committee, offered legislation that would allow VA to perform IVF procedures for injured veterans and their spouses but the measure did not win Congressional approval. VA is working hard to address this issue including a national VA Infertility Workgroup to develop policy to define what is available under the current statute. VA is also reaching out to women veterans and has a national Women Veterans Call Center (1-855-VA-WOMEN (1-855-829-6636)) and additional information on women's health services available on the VA Women's Health Website ([www.womenshealth.va.gov](http://www.womenshealth.va.gov)).

## The Impact of Policy on Sexual Health and Intimacy

**MODERATOR:** **Diana Tabler**, Senior Advisor, Ward Circle Strategies

**PANELISTS:** **Hannah Fairman**, Health Policy Analyst, Wounded Warrior Project; **LTC Daniel Gade**, PhD, United States Military Academy; **Benjamin Merkel**, Legislative Aide, Office of Senator Patty Murray; **Kathryn Monet**, Senior Legislative Assistant, Senate Veterans' Affairs Committee

**Diana Tabler:** There is a lack of public awareness of fertility issues confronting injured veterans. In addition, there is limited data and little understanding of the advances in science and technology. Congress has had difficulty in establishing funding priorities and there are widely divergent views of the proper role of government in establishing social policy.

**Benjamin Merkel & Kathryn Monet:** Senator Patty Murray, a senior member and former Chair of the Senate Veterans' Affairs Committee, is the author of the Women Veterans and Other Health Care Improvement Act that would require the Department of Veterans Affairs (VA) to cover IVF and other assisted reproductive technology procedures for injured veterans, spouses, and surrogates. It would also give VA authority to coordinate infertility counseling and treatment for the spouses and surrogates of veterans who have difficulty having children because of a service-connected disability. Other provisions would allow VA to pay adoption costs for severely wounded vets. The bill was passed unanimously in the Senate during the 112th Congress, but was never brought to the House floor for a vote. In the 113th Congress, the bill was incorporated into S. 1982, the Comprehensive Veterans Health and Benefits and Military Retirement Pay Restoration Act of 2014, but failed to clear a 60-vote threshold to move to the floor. Senator Murray intends to reintroduce the bill in the 114th Congress and to expand upon it, drawing from the stories and ideas exchanged at the *Intimacy After Injury* convening. Many policy makers are not aware of the fertility issues that many injured service members and their families face. In evaluating legislation and responding to pressure from advocates, members of Congress must understand who benefits from the legislation, the overall costs of the legislation, and other potential ways to meet the need. Participants at this convening should find ways to tell their stories to members of Congress because more voices on this topic need to be heard.

**Hannah Fairman:** We don't know how many people are affected by this issue; it may be a much bigger problem than the numbers indicate. Quality of life and social support is a critical component of recovery yet many may not be aware of the resources available to them. There is also the issue of access to care; how do vets find out where to get treatment for sexual function and intimacy problems. We need better pre-deployment counseling. We also need better decisions about what kind of treatment is provided and what is not. Some of these issues could be resolved without new legislation.

**LTC Daniel Gade:** Pity is a bad rationale for public policy; it makes us do things we ought not to do. It is hard to craft good policy around relatively small numbers and there are not that many GU injuries. All costs cannot and should not be borne. GU injuries include direct genital trauma, spinal cord injuries that affect the GU system, and psychological injuries that affect sexual function. Also, an on-duty injury is different from an injury incurred off-duty and an on-duty injury, especially a combat related injury, is different from an illness. Following a severe injury in Iraq, Gade fathered twins using IVF and believes when wounded soldiers take their GU injuries to the VA, fertility support should follow them. In general, young men do a terrible job of thinking about the future and we should not expect them to have the foresight to bank sperm prior to deployment. The legal constraints that prohibit sperm retrieval from wounded service members immediately following their injury in the absence of formal consent is absurd. Instead, we should assume consent at the time of the injury, retrieve the sperm and if at a later stage of recovery a patient chooses to withdraw consent, the sperm can be discarded.

## Innovation at Walter Reed

**MODERATOR: Capt Moira McGuire**, BSN, R-BC, Assistant Chief, Integrative Health and Wellness

**PANELISTS: Cdr Paul Gobourne**, MSN, FNP-BC, Director, Sea Services Warrior Clinic; **Glenn Parkinson**, MSW, MA, Psychotherapist, Traumatic Brain Injury Program; **Kathryn Ellis**, MOT, OTR/L, Occupational Therapist

**Capt Moira McGuire:** Several years ago, McGuire saw the need for more discussion about sexual health and intimacy among wounded service members, their families, and their care providers. She put out a call to see who on the WRNMMC staff might share her views and received a strong response from a diverse group. The workgroup soon realized there was a great need for specially trained providers with real expertise. The Walter Reed Sexual Health and Intimacy Workgroup is now in its third year of providing this networking, support, and education.

**Cdr Paul Gobourne:** Throughout his years at WRNMMC, Gobourne has overseen the arrival of many severely wounded soldiers -- some of them missing one or more limbs - fresh from the battlefield. Almost always, the first question they ask when coming out of a coma is "How's my junk?" GU injury is the most serious wound of all. As the service member progresses through treatment in rehab and then as an outpatient, the GU injury presents the most difficult recovery. Sexual health and intimacy is a main focus of primary health and a team approach to recovery is absolutely essential.

**Glenn Parkinson & Kathryn Ellis:** Both therapists have been interested in sexual health issues for some years and had been long frustrated by not having a sustained network of colleagues with whom to collaborate. Thanks to the development of the Walter Reed Sexual Health and Intimacy Workgroup they have the opportunity to interact with colleagues with whom they normally would have little or no contact. Occupational therapists think of recovery in terms of daily activities and medical providers should be thinking of sexual health and intimacy in this way. The workgroup is preparing a manual for GU-injured service members and their caregivers; the manual is being funded by the Bob Woodruff Foundation.

## Innovation in the UK

**MODERATOR: Jean Orman**, ScD, MPH, Chief, Statistics and Epidemiology, US Army Institute of Surgical Research and the Joint Trauma System

**PANELISTS: Jackson Kirkman-Brown**, MBE, PhD, Science Lead, Birmingham Women's Fertility Centre; Hon. Andrologist, Royal Centre for Defence Medicine, Birmingham; Reader, University of Birmingham; **Wg Cdr Davendra Sharma**, FRCS, Chair, Military Genitourinary Working Group, Royal Centre for Defence Medicine and Urology Department, St. Georges Hospital London; **Eluned Lewis**, PhD, Defence Equipment and Support, UK Ministry of Defence

**Wg Cdr Davendra Sharma:** Four distinctive elements of the UK experience in treating GU-injured service members are: 1) recognition of the "signature injuries" of severe lower limb injury, pelvic fracture, and genital trauma from IED blasts; 2) the acute sperm retrieval program; 3) advanced battlefield pelvic protection; and 4) a high degree of collaboration among multidiscipline teams. A team approach that addresses fertility, sexual function, psychological health, and urinary function is routinely employed and the full range of possible interventions – sperm retrieval, assisted conception, testosterone replacement, surgery – is now available as a regular multidisciplinary one-stop clinic. It is also effectively the main source for the wider understanding of the intermediate and longer-term consequences of severe GU trauma.

**Eluned Lewis:** Collaborative investigations in the UK revealed a growing incidence in groin and pelvic injuries among UK service personnel returning from operations in Afghanistan. The UK Ministry of Defence issued an urgent request for a protective system to reduce the number and severity of such injuries

and to improve outcomes for survivors. Options for prototypes were narrowed down through human factors and military-user assessments and three tiers of pelvic protection were developed and fielded. The Tier 1 undergarment, constructed of two layers of high performance knitted silk protection stitched to the outside, mitigates the effects of dust, grit, dirt and debris emanating from a buried IED. Tier 2, designed to be worn over combat trousers, offers the same level of protection as textile body armor and covers the groin, buttocks and some of the inner thigh. Tier 3, designed for use on counter-IED operations, is worn over combat trousers and provides enhanced protection by covering the upper leg, wider abdominal regions and the femoral artery. The response has been extremely positive as demonstrated by the reduction in the number and severity of groin, perineal and genital injuries since the introduction of the protective system in September 2010.

**Jackson Kirkman-Brown:** Prior to 2009, a UK service member with a severe GU injury would typically have unsalvageable genitals immediately removed following the trauma, following protocols developed in previous conflicts. These were focused upon saving testicular material in situ, but they lacked evidence of supporting future fertility. The team at Birmingham Women's Hospital and the Royal Centre for Defence Medicine, University Hospital Birmingham developed a new technique to retrieve sperm from severely damaged genital tissue even in cases of the total loss of both testicles. Because of this technique, the UK military medical procedure has been changed so that no removal of tissue takes place in the field, but instead the patient is immediately transported to the UK where Jackson and his team can perform the retrieval within a day or so of the injury. In the UK positive consent is assumed and the sperm is harvested as soon as possible since time is key. When the patient has recovered, he can confirm assent or withdraw it, in which case the sperm is discarded, as it is if patients do not survive their injuries. Since March 2010, there has been success in 29 cases and several babies have resulted, despite total testicular loss, which would have made it impossible to have children by any other existing technique. The UK government does not pay for pre-deployment sperm banking, but costs have been brought to a very low level through an independent society and service members are informed about it.







**Lee Woodruff**, Author, CBS Contributor, and Co-Founder of the Bob Woodruff Foundation

In candid remarks, Lee Woodruff spoke about the paramount importance that hope plays in recovery. The patient, the family, and even the care team must remain hopeful and must reinforce each other's hope. Hoping for a good outcome gives strength in ways that bracing for the worst cannot.

Too often, Woodruff believes, doctors don't keep the door open wide enough for hope. In the early days, when the eventual outcome is far from certain, doctors tend to emphasize worst-case possibilities.

Woodruff spoke of her anguish immediately following her husband's injury in Iraq as she contemplated a future of life irrevocably changed by Bob's devastating brain injury. She spoke of hope as a negotiation and of the deals she made with God. In the days immediately following the injury, she asked God to simply allow him to live; later, she asked God to give him more words.

Everyone told her how lucky she was that her husband was alive, but she did not feel lucky. As the recovery progressed, the daily irritations of married life loomed far larger than they had in the past. Woodruff urged spouses of injured service members to allow themselves to confront their losses while actively looking for ways to remain hopeful about the future.



Lee Woodruff has garnered critical acclaim as co-author of "In an Instant" -- the compelling and humorous chronicle of her family's journey to recovery following her husband Bob's roadside bomb injury in Iraq. Appearing together on national television and radio since the February 2007 publication of their book, the couple has helped put a face on the serious issue of traumatic brain injury among returning Iraq and Afghanistan war veterans, as well as the millions of Americans who live with this often invisible, but life-changing affliction.

They founded the Bob Woodruff Foundation to assist wounded service members and their families. To date, the foundation has raised more than \$22 million to help veterans successfully reintegrate into their communities and receive critical long-term care.

Woodruff is a contributing reporter for "CBS This Morning." Her best-selling book "Perfectly Imperfect - A Life in Progress," was followed by her first novel "Those We Love Most," which became a New York Times best-seller and won the Washington Irving Book Award for fiction. She is also a freelance writer and has penned numerous magazine articles about her family and parenting.

She ran her own marketing consulting business for 16 years after leaving the PR agency world in New York, Washington, DC, and San Francisco. She lives in Westchester County, NY, with her husband and four children.

- 8:45 WELCOME & OVERVIEW**  
**Anthony Atala**, MD, Director, Wake Forest Institute for Regenerative Medicine, and the W.H. Boyce Professor and Chair, Department of Urology, Wake Forest University  
**W. P. Andrew Lee**, MD, the Milton T. Edgerton, MD, Professor and Chair, Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine
- 9:00 GUEST SPEAKER**  
**Lee Woodruff**, Author, CBS Contributor, and Co-founder of the Bob Woodruff Foundation
- 9:45 PSYCHOLOGY OF BODY IMAGE**  
**Margaret Rukstalis**, MD, Clinical Investigator, Geisinger Center for Health Research
- 10:10 MILITARY GENITOURINARY INJURIES**  
**MAJ Steven Hudak**, MD, Reconstructive Urologist, San Antonio Military Medical Center and the San Antonio Uniformed Services Health Education Consortium  
**COL James Jezior**, MD, Chief of Urology and Director of Reconstructive Urology, Walter Reed National Military Medical Center
- 11:00 CIVILIAN GENITOURINARY INJURIES & DISEASES**  
**Arthur L. Burnett**, MD, MBA, Professor, Department of Urology, Johns Hopkins University School of Medicine
- 11:30 GENITOURINARY RECONSTRUCTION**  
**Ryan Terlecki**, MD, Director, Men's Health Clinic, Wake Forest University
- 12:00 MICROSURGICAL PENILE RECONSTRUCTION**  
**Richard Redett**, MD, Associate Professor, Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine
- 1:30 ETHICAL CONSIDERATION OF PENILE TRANSPLANTATION**  
**Ana Iltis**, PhD, Director, Center for Bioethics, Health and Society, Associate Professor of Philosophy and Adjunct Associate Professor of Social Sciences and Health Policy, Wake Forest University  
**Jeffrey Kahn**, PhD, MPH, Robert Henry Levi and Ryda Hecht Levi Professor of Bioethics and Public Policy, Johns Hopkins Berman Institute of Bioethics and Professor in the Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health
- 2:10 PSYCHOLOGICAL CONSIDERATION OF PENILE TRANSPLANTATION**  
**Frederick Berlin**, MD, PhD, Director, Sexual Behavior Consultation Unit, and Associate Professor of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine
- 2:40 IMMUNE MODULATION FOR VASCULARIZED COMPOSITE ALLOTRANSPLANTATION**  
**Gerald Brandacher**, MD, Associate Professor, Department of Plastic and Reconstructive Surgery and Scientific Director, Reconstructive Transplantation Program, Johns Hopkins University School of Medicine
- 3:20 SURGICAL CONSIDERATION OF PENILE TRANSPLANTATION**  
**Damon Cooney**, MD, PhD, Assistant Professor, Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine
- 3:40 ADVANCES IN REGENERATIVE MEDICINE**  
**Anthony Atala**, MD, Director, Wake Forest Institute for Regenerative Medicine, and the W.H. Boyce Professor and Chair, Department of Urology, Wake Forest University
- 4:10 SUMMATION**  
**Drs. W. P. Andrew Lee and Anthony Atala**

## Psychology of Body Image

**Margaret Rukstalis**, MD, Clinical Investigator, Geisinger Center for Health Research

Treatment of GU injuries requires not only physical care but also psychological care for both the patient and the family. In a highly publicized case, a patient in China received a penile transplant only to request that it be reversed shortly after the procedure because of his wife's psychological reaction to the transplant. In spite of their informed consent, the patient and wife were psychologically unprepared for the transplant. Sexual health, relationships, body competence, and fitness all affect body image and body image is strongly influenced by culture. For men, weight, muscularity, height, and penis size are often related to overall appearance, sexual prowess, and self-esteem. While there is little qualitative data regarding the impact of genital injury on body image, scientists have identified regions in the brain related to body image. If penis transplants are undertaken in the future, it may be possible to develop multidisciplinary therapies and treatments to maximize psychological resilience and help the individual accept a transplanted penis. Possible concerns to be addressed by a potential transplant recipient and the family include the mental and surgical risks and benefits, informed consent, surgical expectations, and post-surgery compliance. As in face transplants, post-surgical care should include intensive psychological support for the patient and the family.

## Military Genitourinary Injuries

**MAJ Steven Hudak**, MD, Reconstructive Urologist, San Antonio Military Medical Center and San Antonio Uniformed Services Health Education Consortium; **COL James Jezior**, MD, Chief of Urology and Director of Reconstructive Urology, Walter Reed National Military Medical Center

**MAJ Steven Hudak:** Historically, GU injury was a relatively minor contributor to battlefield trauma, but the numbers started to change in Desert Storm and in the early years of Operation Iraqi Freedom. By the end of 2010, GU injuries rose to levels never before seen primarily as a result of dismounted patrols encountering IED blasts. Between 2001 and 2013, the Department of Defense Trauma Registry recorded 1,378 male service members with GU injury, nearly 75 percent of them the result of explosive blasts. Severe penile and testicular injuries present huge reconstructive surgical challenges as well as related psychological problems. A study of the long-term effects of GU injury is urgently needed and DoD is currently seeking funding to conduct a Trauma Outcome and Urogenital Health Project, the first-ever longitudinal study that includes the largest GU injury database; in-person examinations of injured service members; and collection of patient-reported sexual, urinary, and reproductive outcomes, general and psychological health, and post-injury care needs.

**COL James Jezior:** A review of surgical cases performed by the WRNMMC Urology Service between 2003 and 2011 identified 135 patients with significant pelvic, perineal, and/or genital injuries. Goals for these patients were to reduce tissue loss, preserve erection and ejaculation functions as well as fertility, and maintain the appearance of the genitals. These are complicated wounds that often require re-evaluation in the operating room every 48 hours, cleaning with low pressure irrigation, negative pressure dressings, staged closure, and staged reconstruction. There are many hurdles to reconstruction and recovery such as invasive infection, lack of usable graft tissue because of extensive wounds on the rest of the body, TBI and/or PTSD, and chronic pain. There have been tremendous advances in wounded warrior care as a result of military-civilian collaboration. However, currently there is very little good data on long-term follow up and there is a great need to assess our current treatments, outcomes, and patient priorities.

## Civilian Genitourinary Injuries and Diseases

**Arthur Burnett**, MD, MBA, Professor, Department of Urology, Johns Hopkins University School of Medicine

In reviewing the advances in urologic trauma, Burnett noted five possible trauma areas -- renal, ureteral, bladder, urethral, and genital -- and referred to the American Urological Association Guidelines that detail protocols and procedures to be employed in each type of injury. Genitourinary organ salvage is increasingly possible thanks to advances in imaging, minimally invasive techniques, and reconstructive surgery.

## Genitourinary Reconstruction

**Ryan Terlecki**, MD, Director, Men's Health Clinic, Wake Forest University

Referring to his medical specialty of reconstructive urology as "plumbing," Terlecki reviewed the various kinds of GU issues in addition to trauma that he regularly confronts: urethral strictures (blocked plumbing); erectile dysfunction (plumbing and electricity); buried penis (excavation); infertility (plumbing vs. production); and Peyronie's disease (curved erection). The first microsurgical replantation took place in 1977 and there have been fewer than 50 described cases since that time. In a civilian setting, penile amputation can result from self-inflicted trauma, improper circumcision, an angry spouse, and gender reassignment surgery. In one study of microsurgical replantation, 86 percent of the cases reported erectile function and 82 percent reported sensation. The surgical principles employed in replantation surgery are similar to those that would be used in transplantation.



## Microsurgical Penile Reconstruction

**Richard Redett**, MD, Associate Professor, Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine

Goals of penile reconstruction include improvement of the appearance of the genitals, ability to urinate standing up, restoration of sexual function, and improvement in psychosocial function. Penile reconstruction often involves microvascular skin grafts in which tissue and its blood supply are taken from another part of the patient's body, frequently from the inside of the forearm. Penis reconstruction is sometimes undertaken when baby boys are born with ambiguous genitalia, a too-small penis, or no penis at all. In such cases, it had previously been thought that assignment of female gender was the best option. However, when approaching puberty, many of these children clearly express the desire to be a boy. In these "gender reaffirmation" cases, the surgeon seeks to construct an organ that is capable of erection, has sensation, and looks normal.

## Ethical Consideration of Penile Transplantation

**Ana Iltis**, PhD, Director, Center for Bioethics, Health and Society, Associate Professor of Philosophy and Adjunct Associate Professor of Social Sciences and Health Policy, Wake Forest University; **Jeffrey Kahn**, PhD, MPH, Robert Henry Levi and Ryda Hecht Levi Professor of Bioethics and Public Policy, Johns Hopkins Berman Institute of Bioethics and Professor in the Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

**Ana Iltis:** The prospect of a future penile transplantation from a human donor cadaver raises many ethical considerations: Who is allowed to give consent? What role should the partner of the recipient play? What does success look like? How will success be measured? What data needs to be collected? How will media interest and the desire for privacy be balanced? Do both donors and recipients fully understand the risks and benefits? How can outcome expectations be managed? If there is consensus about the answers to these questions among donors and donor families, recipients, recipients, researchers, and the public at large, then we can consider moving forward with penile transplantation.

**Jeffrey Kahn:** In anticipation of the first penile transplant in the US, the Johns Hopkins team is developing an ethics protocol to address concerns of the professional community and the public at large. The Hopkins bioethics group concluded that prospective donors were unlikely to have envisioned penile donation at the time they checked off the organ donation box on their driver's license renewal form. Penile donation must be treated as a specific and special request. There must be a clear discussion with the family of what the donation entails. No testes, sperm, or gametes will be transplanted under the Hopkins protocol and recipients must understand the risks, which include a lifetime of immunosuppression treatment. Donor and recipient confidentiality is paramount. Some of the issues that institutions must consider before undertaking penile transplantation include: Who is an appropriate recipient? Is the procedure appropriate for gender reassignment purposes? Could a donor family stipulate that the organ is available to a wounded warrior but not to an individual seeking gender reassignment? Should there be a distinction between those recipients requiring treatment and those wanting enhancement? There is likely to be wide controversy in the early days of penile transplantation.

## Psychological Consideration of Penile Transplantation

**Frederick Berlin**, MD, PhD, Director, Sexual Behavior Consultation Unit, and Associate Professor of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine

There are many unknowns in trying to identify the best possible candidates for penile transplants. In addition to informed consent, including psychological risks and benefits and treatment alternatives, recipients need to understand the need for medications to avoid transplant rejection and the prospect of future fertility. A pre-surgical assessment of psychological stability, temperament, and trustworthiness is essential, as well as screening for use of psychiatric medications, drug/alcohol abuse, prior sexual disorders, and relationship problems. Some potential recipients may have problems with erectile dysfunction from other pre-existing conditions and any pre-surgical assessment should include the patient's capacity for sex such as libido, health, and wellness levels. If transgender candidates, some of whom are thought to be at higher risk of suicide, are denied access to penile transplantation surgery, it could be highly controversial.

## Immune Modulation for Vascularized Composite Allotransplantation

**Gerald Brandacher**, MD, Associate Professor, Department of Plastic and Reconstructive Surgery and Scientific Director, Reconstructive Transplantation Program, Johns Hopkins University School of Medicine

Vascularized composite allotransplantation (VCA) is an umbrella term that refers to transplants composed of several kinds of tissue such as skin, muscle, and bone as in a hand or face transplant. These complex transplantations are distinct from the more established solid organ transplantation, such as heart or liver transplants. In solid organ transplants, the organ is fully functional at the time of the surgery while VCA procedures require regeneration in the transplanted tissue in order to reestablish skin sensation and reanimate the muscles. In general, the history of VCA transplants is a success story. Over 200 types of reconstructive transplants can now be performed, which includes 108 hand/upper extremity transplants and 30 face transplants. It has been demonstrated that intermediate and long-term graft survival is possible with conventional immunosuppression, and functional, psychosocial, and immunological outcomes have exceeded initial expectations. The modern era of immunosuppression began in the early 1990s and the first hand transplant was performed in 1998. Today, in solid organ transplantation, the patient and graft survival rates are excellent in the short term, but the long-term survival rates have remained unchanged in 30 years; 85 percent to 90 percent of patients experience acute rejection episodes within the first year following a hand transplant, but such rejections have in almost all cases been reversed when promptly treated with immunosuppressive drugs. Rejection of VCA transplants can be as well controlled as that of solid organ transplants. However, immunosuppression drugs are toxic and their adverse side effects must be balanced against quality of life concerns. In the Johns Hopkins program, the driving goal is to *regulate* the immune system rather than *suppress* it. In a novel clinical approach, the Hopkins team uses donor bone marrow and stem cells to modulate the immune system.

## Surgical Consideration of Penile Transplantation

**Damon Cooney, MD, PhD,** Assistant Professor, Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine

In the standard technique for penile reconstruction -- most often used in female-to-male gender reassignment -- from the inside of the forearm surgeons harvest one of the two arteries that run along the arm to the hand, along with a big piece of skin and fat, and roll it into something that looks like a penis and eventually transfer it to the pubic area. This radial forearm flap technique presents a number of drawbacks including the frequent need for surgical revisions, blockage of the urethra, and other complications. The goals of the penile allotransplant program are designed to provide patients who have devastating GU injuries with an option that may provide a better outcome than the current standard technique. The Johns Hopkins reconstructive transplantation program, which has world-renowned VCA scientists, researchers and surgeons, has conducted the nation's first bilateral hand transplant and above-elbow transplant, and has made break-through advances in immunotherapy. The team has had significant success with few acute rejection episodes among their transplant patients, no chronic rejections, and few serious complications. As the team prepares for its first penile allotransplant, it is considering ethical issues, technical and surgical requirements, and organ procurement protocols. In assessing the risks/benefits of penile allotransplantation, the Hopkins team believes the procedure offers improvements in aesthetics, urination, and erection; that it can be performed reliably; and that for at least some patients, the risks of long-term immunosuppression therapy are justified.

## Advances in Regenerative Medicine

**Anthony Atala, MD,** Director, Wake Forest Institute for Regenerative Medicine, and the W.H. Boyce Professor and Chair, Department of Urology, Wake Forest University

The Wake Forest Institute for Regenerative Medicine was the first in the world to engineer laboratory-grown organs that were successfully implanted into humans. The Institute's interdisciplinary team is working to engineer more than 30 different replacement tissues and organs and developing new cell therapies. The principles of regenerative medicine are being applied to repair or replace diseased tissues and organs. Most human cell types can be grown outside the body and cells are being isolated, mixed with growth factors, and induced to multiply in the labs. For cell types that cannot be grown outside the body -- heart, nerve, liver, and pancreas -- stem cells may be an option because of their ability to become multiple cell types. After cell expansion, the next step in engineering a tissue or organ is to create a mold, a three-dimensional scaffold, in the shape of the specific tissue. Scaffolding for blood vessels, as well as muscles and tendons can also be fabricated. These man-made scaffolds are "seeded" with cells and support the cells as they grow and develop. The ideal scaffolding construction material is one that is compatible with the body, promotes cell growth, and degrades into the body once the engineered tissue has fully integrated with the existing tissue. When this technique of tissue regeneration is used in children, the organ grows as the child grows. The Wake Forest Institute for Regenerative Medicine is working with the Armed Forces Institute of Regenerative Medicine to develop the capacity to regenerate skin for burn victims, reconstruct genital and urinary organs, restore function to severely traumatized limbs, and reconstruct facial and skull injuries.



**ANTHONY ATALA, MD**

Anthony Atala, a practicing surgeon and a researcher in the area of regenerative medicine, is the director of the Wake Forest Institute for Regenerative Medicine and the W.H. Boyce Professor and Chair of the Department of Urology at Wake Forest University. His current work focuses on growing new human cells, tissues and organs. Dr. Atala works with several journals and serves in various roles to include Editor-in-Chief of Stem Cells-Translational Medicine, Current Stem Cell Research and Therapy, and Therapeutic Advances in Urology. Dr. Atala is a recipient of many awards, including the US Congress funded Christopher Columbus Foundation Award, bestowed on a living American working on a discovery that will significantly affect society; the World Technology Award in Health and Medicine, presented to individuals achieving significant, lasting progress; the Samuel D. Gross Prize, awarded every five years to a leading surgical researcher by the Philadelphia Academy of Surgery; the Barringer Medal from the American Association of Genitourinary Surgeons; and the Gold Cystoscope award from the American Urological Association for advances in the field.

**FRED S. BERLIN, MD, PHD**

Fred Berlin is an associate professor in the Department of Psychiatry and Behavioral Sciences at the Johns Hopkins University School of Medicine and an attending physician at Johns Hopkins Hospital. He is the founder of the Johns Hopkins Sexual Disorders Clinic; director of the National Institute for the Study, Prevention and Treatment of Sexual Trauma, a program designated a National Resource Site by the US Department of Justice; and director of the Johns Hopkins Sexual Behaviors Consultation Unit. Dr. Berlin has addressed a White House conference on childhood sexual abuse; various subcommittees of the US Senate; and several state judicial colleges. He has provided consultation to the National Conference of Catholic Bishops and the European Parliament and participated in a number of events organized by the FBI. He has numerous publications and does peer reviews for a number of journals including The Journal of the American Medical Association and The American Journal of Psychiatry. He received a Guggenheim Foundation grant to study the activity of brain neurotransmitters during sexual arousal.

**GERALD BRANDACHER, MD**

Gerald Brandacher is scientific director of the Johns Hopkins Reconstructive Transplantation program and an associate professor of surgery in the Department of Plastic and Reconstructive Surgery at Johns Hopkins University School of Medicine. Prior to joining Johns Hopkins in 2010, Dr. Brandacher was a key member of hand transplant programs in Innsbruck, Austria, and at the University of Pittsburgh where he was instrumental in designing a novel cell-based immunomodulatory treatment protocol and was part of the team that performed the first bilateral hand transplant and first forearm transplant in the US. Dr. Brandacher is the recipient of the Young Investigator Awards of the American Society of Transplantation and the European Society of Organ Transplantation; the Young Innovator Award of the American Society of Transplantation; and the Excellence in Research Award of the American College of Surgeons. A past president of the Austrian Society of Surgical Research, he chairs the American Society of Transplantation (AST) Vascular Composite Allotransplantation Advisory Council and is a founding and Board Member of the American Society of Reconstructive Transplantation (ASRT). In 2014, he co-founded the Vascularized Composite Allotransplantation (VCA) journal and serves as its Editor-in-Chief.

**ARTHUR L. BURNETT II, MD, MBA**

Arthur L. Burnett is Professor, Department of Urology, at Johns Hopkins University School of Medicine, where he is also Director of the Basic Science Laboratory in Neurourology. Dr. Burnett holds professional appointments at Johns Hopkins Hospital including director of the Male Consultation Clinic and clinician-scientist at the James Buchanan Brady Urological Institute. He is an established expert in prostate cancer, lower genitourinary tract malignancies, lower genitourinary tract reconstruction, erectile dysfunction and penile abnormalities, and female urology. Dr. Burnett is a recognized world-authority in the science and medicine of male erectile dysfunction. He contributed original discoveries of the nitric oxide biochemical mechanisms in erectile tissue that paved the way for the clinical development of oral medications to treat erectile dysfunction such as Viagra. He has also pioneered work to develop therapies to protect penile nerve function required for improved erectile function recovery after radical prostatectomy.

**KATHLEEN CAUSEY**

Kathleen Harris Causey was born and raised in Alabama, where she pursued an arts career in dance, writing and theater. In 2010, she married Aaron Causey, an Army bomb technician, and moved to Fort Drum, NY, where she began volunteering at the USO and writing for PBS as a new military spouse. On September 7, 2011, Aaron was injured when he stepped on an improvised explosive device (IED) while serving in Afghanistan and Kathleen began her journey as a caregiver. Kathleen has been a featured speaker with USO-Metro and is the 2013 recipient of the John Gioia Patriot Award. In 2014, Kathleen and Aaron welcomed a miracle baby, their daughter AJ, and moved back to Alabama to be closer to family. Kathleen plans to continue her education and pursue a career in public speaking and writing. She writes a blog, Coming Home Causey, and has a Facebook page by the same name.

**BARBARA COLLURA**

Barbara Collura joined RESOLVE: The National Infertility Association in September 2004 as the director of Chapter & Constituent Services. In 2007, she was named chief staff officer and in 2012 she was appointed president and CEO. In this role, she represents RESOLVE at a number of national conferences, committees and organizations including the National Committee on the Oversight of Assisted Reproductive Technologies (NCOART); the American Society of Reproductive Medicine (ASRM); and the National Health Council. As the official spokesperson for RESOLVE, Barbara is frequently interviewed by the media and speaks at conferences and events on a variety of topics related to infertility.

**DAMON S. COONEY, MD, PHD**

Damon Cooney is an Assistant Professor of Plastic Surgery at Johns Hopkins. He earned his PhD in the field of molecular immunology and completed his residency in plastic surgery. A surgeon scientist who completed a microsurgery fellowship at the University of Pittsburgh, Dr. Cooney conducts basic science research in reconstructive transplantation; is a co-investigator and surgical team member for Johns Hopkins hand, face, and penile transplantation protocols; and is the Clinical Co-Director of the Johns Hopkins Penile Transplant Program. He is a specialist in microvascular reconstruction and has operative experience in human reconstructive transplantation, having participated in the bilateral hand/arm transplant surgeries of three patients and in the post-operative monitoring and clinical management of these patients. His laboratory work includes nerve

regeneration, microsurgical education, and reduction or elimination of systemic immunosuppression in transplantation patients. Dr. Cooney has published numerous peer-reviewed articles and book chapters in addition to being a reviewer for plastic surgery journals.

#### **COL ROBERT C. DEAN, MD**

Robert Dean is director of Andrology and program director of the Urology Residency program at Walter Reed National Military Medical Center (WRNMMC). He graduated from the University of Rochester, NY, with a Bachelor of Science in Cell Biology. He received his MD from the Uniformed Services University of the Health Sciences in 1989, and did his internship at Tripler Army Medical Center in Honolulu, HI. Dr. Dean completed his urology residency at Walter Reed Army Medical Center in 2000 and gained further training in male sexual health and infertility at the University of California, San Francisco in 2004. His military awards include the Bronze Star Medal, the Meritorious Service Medal with 3 Oak Leaf Clusters, the Army Commendation Medal, and the Army Achievement Medal with Oak Leaf Cluster. He also received several military service medals during Operation Iraqi Freedom and Operation Desert Falcon.

#### **ANNE MARIE DOUGHERTY**

Anne Marie Dougherty was appointed executive director of the Bob Woodruff Foundation (BWF) in December 2011. After joining the organization in 2008, she used her background in corporate consulting, marketing and communications to help develop BWF into a national nonprofit that stands on the reputation and credibility of the Woodruff family name to raise national awareness about the needs of injured service members, veterans and their families as they return to the homefront. Since its founding, the Bob Woodruff Foundation has invested more than \$22 million in programs serving more than 2 million service members, veterans, family members and support personnel. As the Foundation's national reputation and reach grows, Anne Marie is focused on making BWF the hub of a strong and growing collaborative network of grassroots organizations with innovative programs and outsized impact. A graduate of Drexel University, Dougherty is the spouse of a Marine combat veteran.

#### **KATHRYN ELLIS, MOT, OTR/L**

Kathryn Ellis has worked as an occupational therapist at Walter Reed National Military Medical Center in Bethesda since June 2011. She is the Occupational Therapy Department's subject matter expert for sexual health and intimacy with a focus on service members with polytrauma combat injuries. Ms. Ellis graduated with a master's degree in Occupational Therapy from James Madison University in 2010. She also attended undergraduate school there majoring in Health Sciences. Originally from Newark, DE, Kathryn now lives in Washington, DC.

#### **KELLY ENGSTROM, MBA, MPH**

Kelly Engstrom, with more than 15 years of consulting experience in the health, defense and financial services industries, focuses on helping clients identify and implement innovative solutions that address complex issues and capitalize on emerging opportunities. As managing director of Ward Circle Strategies, a veteran-owned small business, Kelly provides strategic communication and analytic consulting services to nonprofit and federal government clients such as the National Association of Community Health Centers, Paralyzed Veterans of America, the Department of Defense and the Department of Veteran Affairs. Her engagements include helping leaders from government, industry and the nonprofit sectors tackle issues such as complex care-coordination for injured service members and veterans. She led a series of "Innovation Deep Dive" meetings for the DoD Military Health System to tackle pressing public health issues such as high rates of tobacco use and obesity in the military.

#### **HANNAH FAIRMAN, MA**

Hannah Fairman is a health policy analyst with Wounded Warrior Project (WWP), a national veterans service organization dedicated to empowering those wounded in Iraq and Afghanistan. In that capacity, she engages in advocacy and does research and policy development for WWP's Washington, DC, Office of Policy and Government Affairs. Previously, she managed several research projects on PTSD, risk and resilience, and treatment efficacy and adherence at the Minneapolis VA Medical Center in the Center for Chronic Disease Outcomes Research (CCDOR). Ms. Fairman holds a master's degree in psychology from the University of Saint Thomas. She is the spouse of an Army veteran.

#### **STACY FIDLER**

Stacy Fidler lives in Berks County, PA, where she works as a farmhand on a family dairy farm. She is the mother of two daughters and of two sons, both of whom joined the Marine Corps. Stacy has been active in 4-H goat and beef clubs for many years and was previously a board member of the Strausstown Area Recreation Association. She is currently a full-time caregiver to her son, Lance Cpl. Mark Fidler, who was severely injured in Afghanistan in 2011.

#### **LTC DANIEL M. GADE, PHD**

LTC Gade is an assistant professor in the Simon Center for the Professional Military Ethic at the United States Military Academy, West Point, NY. In 2004 and 2005, he served in Iraq as a platoon leader and company commander, leading over 200 men in battle. He was wounded in action twice and was decorated for valor; the second time he was wounded he lost his entire right leg. LTC Gade is an expert on disability policy and veterans policy and is currently involved in a nonprofit project to incentivize veteran wellness rather than disability. He holds a master's degree and a PhD from the University of Georgia, and worked at the White House from 2007-2008. He and his wife Wendy have twin boys conceived through IVF in 2007 and a daughter who was born before his deployment.

#### **JAMES K. GILMAN, MD, FACC/FACF**

James Gilman became executive director of the Johns Hopkins Military & Veterans Health Institute in May 2013. In that capacity, he explores opportunities to apply the capabilities of both Johns Hopkins University and Johns Hopkins Medicine to solve health and healthcare issues facing service members, veterans and their families. Prior to joining Johns Hopkins, Dr. Gilman served as a physician in the United States Army for 35 years, retiring from active duty in the grade of Major General. A cardiologist by training, Dr. Gilman completed his career as Commanding General, US Army Medical Research and Materiel Command, Fort Detrick, MD. In addition to numerous military awards and decorations, Dr. Gilman is the recipient of an honorary doctorate in engineering from his alma mater, Rose-Hulman Institute of Technology and the Presidential Medal from Mount Saint Mary's University. He and his wife, Jeffri, have three "Army brat" daughters and a granddaughter.

#### **EMILIE E. GODWIN, PHD, LPC, MFT**

Emilie Godwin is an assistant professor and director of Psychotherapy and Family Services in the Department of Physical Medicine and Rehabilitation, Division of Neuropsychology, at Virginia Commonwealth University (VCU). Dr. Godwin also serves as project coordinator for the VCU Traumatic Brain Injury Model System's local project; the Therapeutic Couples' Intervention designed to improve post-injury relationship satisfaction; and as an interventionist for the TBIMS Resilience and Adjustment Intervention for TBI survivors. Her practice specialty is neuropsychological psychotherapy following neurological illness or injury, with a concentration on the development of healthy relationships following TBI. As clinical supervisor for the VCU Neuropsychology Fellows' Clinic, she trains post-doctoral fellows

in psychotherapeutic services for TBI survivors and family members. Dr. Godwin has published a number of peer-reviewed articles, book chapters, and consumer publications on topics related to post-TBI psychological health and family system changes. She frequently speaks on developing a resilient response to TBI.

#### **CDR PAUL A. GOBOURNE, BSN, MSN**

CDR Gobourne is a nurse practitioner at Walter Reed National Military Medical Center and director of the Warrior Clinic for Sea Services. He received his BSN and MSN from Howard University in Washington, DC and he is board certified as a family nurse practitioner in the District of Columbia and Maryland. CDR Gobourne is an adjunct professor of nursing at Howard University and Marymount University. He served in the US Army and is presently commissioned with the US Public Health Service. He is married with three children and resides in Washington, DC.

#### **MAJ STEVEN J. HUDAK, MD**

Dr. Hudak is a staff urologist at the San Antonio Military Medical Center and at the San Antonio Uniformed Services Health Education Consortium. He has academic appointments at the Uniformed Services University of the Health Sciences F. Edward Herbert School of Medicine and at the University of Texas Health Sciences Center San Antonio and regularly contributes to the academic programs at all of these institutions. His clinical training, current research interests, and ongoing clinical practice are focused on urologic trauma, prosthetics, and reconstructive genitourinary (GU) surgery. He serves on multiple organizations within the American Urological Association to further the advocacy, research, and training for GU trauma, including the AUA Urotrauma Clinical Guidelines Panel, the AUA Urotrauma Legislative Task Force, and the AUA Core Curriculum GU Trauma team.

#### **ANA S. ILTIS, PHD**

Ana Iltis is director of the Center for Bioethics, Health and Society, an associate professor of Philosophy, and an adjunct associate professor of Social Sciences and Health Policy at Wake Forest University. She holds a PhD in Philosophy from Rice University. Prior to joining Wake Forest University, she was an associate professor of Health Care Ethics and the PhD Program Director in the Center for Health Care Ethics at Saint Louis University. She also held an appointment in the Department of Medicine at Washington University in St. Louis where she taught research ethics. She has published widely in bioethics particularly in the area of research ethics; serves on several National Institutes of Health data safety monitoring boards; and holds a wide range of editorial positions to include co-editor of the Annals of Bioethics book series (Routledge), Senior Associate Editor of *The Journal of Medicine and Philosophy* (Oxford University Press), and co-editor of *Narrative Inquiry in Bioethics* (Johns Hopkins University Press).

#### **COL JAMES R. JEZIOR, MD**

COL Jezior is chief of Urology and director of Reconstructive Urology at Walter Reed National Military Medical Center in Bethesda, MD. He graduated from the United States Military Academy in 1985 and the Uniformed Services University of the Health Sciences in 1989. He completed his Urology Residency at Tripler Army Medical Center in Hawaii in 1996 and his genitourinary reconstruction training at Eastern Virginia Medical School under Dr. Gerald Jordan in 2001. He has been deployed to Iraq with the 28th Combat Support Hospital as a surgeon and Deputy Commander. He has cared for wounded warriors in Operations Iraqi and Enduring Freedom. He is a past member of the Board of Directors of the Genitourinary Reconstruction Society, an assistant professor of Surgery at the Uniformed Services University, and on

the faculty of both the Walter Reed Army Urology Residency Program and Female Pelvic Medicine and Reconstructive Surgery Fellowship. His areas of clinical interest include urethral reconstruction, genitourinary trauma, male incontinence, voiding dysfunction, and female pelvic reconstruction.

#### **JEFFREY KAHN, PHD, MPH**

Jeffrey Kahn is the Robert Henry Levi and Ryda Hecht Levi Professor of Bioethics and Public Policy at the Johns Hopkins Berman Institute of Bioethics, and a professor in the Department of Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health. He works in a variety of bioethics areas, exploring the intersection of ethics and health/science policy to include human and animal research ethics, public health, and ethical issues in emerging biomedical technologies. Dr. Kahn is chair of the Institute of Medicine (IOM) Board on Health Sciences Policy; he previously chaired the IOM committee on the Use of Chimpanzees in Biomedical and Behavioral Research (2011) and the IOM committee on Ethics Principles and Guidelines for Health Standards for Long Duration and Exploration Spaceflights (2014). He has served on numerous state and federal advisory panels and was a member and vice chair of the UNOS Ethics Committee. He was the founding president of the Association of Bioethics Program Directors, an office he held from 2006-2010. He is also an elected Fellow of The Hastings Center.

#### **TRACY KEIL**

Tracy Keil is the wife and caregiver of SSG Matthew Keil (USA, Retired), who was shot in the neck in 2007 and is paralyzed from the shoulders down. Since her husband's injury, Tracy has become an advocate for IVF and other reproductive interventions. She testified before Congress emphasizing her belief that these services should be provided by the federal government for those who have been injured in service to their country. Following their long journey to recovery, and armed with a strong desire to get their lives back on track after Matthew's severe injury, Tracy gave birth in 2010 to twins who were conceived via IVF. Matthew and Faith are now 4 years old.

#### **JACKSON KIRKMAN-BROWN, MBE, PHD**

Jackson Kirkman-Brown is the lead scientist for assisted conception (IVF) services with an interest in improving diagnosis and refining treatments while developing research into all aspects of patient treatment and care. Dr. Kirkman-Brown devised a care pathway for men with traumatic genital injuries and developed laboratory techniques and services for fertility preservation. For this work, undertaken at the Royal Centre for Defence Medicine, he was awarded an MBE and was named Chief Scientific Officer Health Care Scientist of 2014 by the National Health Service. Jackson has extensive research experience in his role as honorary Reader at the University of Birmingham's reproductive research laboratories.

#### **W. P. ANDREW LEE, MD**

W. P. Andrew Lee is the Milton T. Edgerton, MD, Professor and Chairman of the Department of Plastic and Reconstructive Surgery at the Johns Hopkins University School of Medicine. He established multi-disciplinary programs for hand transplantation at Johns Hopkins and University of Pittsburgh using an immunomodulatory protocol based on investigations in his laboratory. He led the surgical team that performed the first bilateral hand transplant (2009) and the first above-elbow transplant (2010) in the US. Dr. Lee has received more than 80 awards and honors, including achievement awards from the American Association of Plastic Surgeons, American Society for Surgery of the Hand, and the American Academy of Orthopaedic Surgeons. He is the author of 180 peer-reviewed publications and over 40 textbook chapters on hand surgery and transplant subjects and co-edited *Transplantation of Composite Tissue Allografts*. An invited speaker or visiting professor at about 50 institutions worldwide, Dr. Lee was chair of the American Board of Plastic Surgery (2012-13); president of the American Society for Surgery of the Hand (2011-12); and chair of the Plastic Surgery Research Council (2001-02).

### **ELUNED LEWIS, PHD**

Eluned Lewis is a UK Ministry of Defence subject matter expert in personal ballistic protection. She works at Defence Equipment and Support in Bristol and is a Visiting Fellow at the Defence Academy of the UK. For the past 13 years, she has managed research, development, procurement and testing of military personal ballistic protection such as body armour, helmets and pelvic protection. Dr. Lewis, who chairs the NATO Standardization Agreement (STANAG) 2920 on personal ballistic protection, is a member of many national and international panels including the Military Genitourinary Group. She has worked in Kuwait and Iraq, and as a scientific advisor in Task Force Helmand, Afghanistan.

### **JEAN LANGLOIS ORMAN, SCD, MPH**

Jean Orman is the chief of Epidemiology and Biostatistics at the US Army Institute of Surgical Research in San Antonio, TX. She obtained her master's and doctoral degrees from the Johns Hopkins University Bloomberg School of Public Health. Dr. Orman worked as a senior epidemiologist at the National Institutes of Health in Bethesda, MD, and at the Centers for Disease Control and Prevention in Atlanta, GA, and as the scientific program manager for traumatic brain injury and stroke research at the Department of Veterans Affairs Central Office in Washington, DC. She is an adjunct professor at the University of Texas School of Public Health and the University of Texas Health Science Center. Dr. Orman has received awards from the North American Brain Injury Society and the Brain Injury Association of Ohio for her research on traumatic brain injury and has more than 60 peer-reviewed publications. She is currently conducting research on the epidemiology and outcomes of combat-related injuries, including genitourinary trauma.

### **SHANNON MAXWELL**

Shannon Maxwell is vice president and co-founder of the SemperMax Support Fund, a nonprofit she started with her husband LtCol Tim Maxwell, USMC (ret), who received a penetrating traumatic brain injury (TBI) in 2004. As a member of the Traumatic Brain Injury Family Caregiver Panel, Shannon helped create training curriculum to assist caregivers in understanding TBI and participating in the care of wounded family members. For her efforts, she was recognized with the Presidential Call to Service Award and the Marine Corps League's 2013 Dickey Chapelle Award. She was the 2011 Ursula Laurus Award Recipient and one of five recipients of the 2007 National Military Family Association's Very Important Patriot Award. Shannon is an Elizabeth Dole Foundation Fellow and sits on the advisory boards of several wounded warrior programs. A co-founder of Hope For The Warriors™, she is also the author of *Our Daddy Is Invincible!* and *Big Boss Brain*. She has a degree in business administration and a master's in international management.

### **CAPT MOIRA G. MCGUIRE BSN, RN-BC**

CAPT McGuire is a nurse officer with the US Public Health Service. She has worked extensively on health disparities in behavioral health and oncology settings and most recently used her skills and experience to craft and enhance the care of our country's wounded, ill and injured service members as the program manager of the Warrior Clinic at Walter Reed National Military Medical Center. She currently serves as head of Integrative Health & Wellness at Walter Reed, Bethesda and is the co-chair of the sexual health and intimacy workgroup at that institution.

### **BENJAMIN MERKEL**

Ben Merkel has been a legislative aide in the office of Senator Patty Murray since February 2013 where he works on defense, veterans, technology, and intelligence issues. Previously, Ben served as a legislative aide on the Senate Committee on Veterans' Affairs from February 2012 to February 2013 where he conducted research on an array of veterans policy issues, including mental health care access, employment and education benefits, and information

technology programs in the Department of Veterans Affairs. Ben graduated from the University of Puget Sound in 2011 with a bachelor's degree in politics and government with an emphasis in international relations. He is a native of the San Francisco Bay Area and currently resides in Washington, DC.

### **KATHRYN MONET**

Kathryn Monet joined the staff of the Senate Veterans' Affairs Committee in 2009 as a staff assistant. Now a senior legislative assistant, she works on legislation and oversight related to a variety of issues including VA's Capital Asset Portfolio, Information Technology, Acquisitions & Logistics, and special veteran populations such as homeless and minority veterans, including Native Americans, Alaska Natives, and Native Hawaiians. A 2014 graduate of Villanova University, Kathryn holds a master's in Public Administration and a bachelor of science degree in diplomacy and international relations from Seton Hall University.

### **GLENN W. PARKINSON, MSW, MA**

Glenn Parkinson has worked in the field of traumatic brain injury for 10 years. A psychotherapist specializing in combat-related injuries, she works with active duty and retired military personnel and their families on the Traumatic Brain Injury service at Walter Reed National Military Medical Center. Prior roles include direct patient care as well as management positions at the Defense and Veterans Brain Injury Center, Walter Reed Army Medical Center, and at headquarters sites. Ms. Parkinson has degrees in social work and psychology and completed postgraduate training in international trauma studies. Her areas of clinical focus include traumatic brain injury, posttraumatic stress disorder, post-deployment adjustment, rehabilitation and sexual health and intimacy. She is currently pursuing AASECT certification to be a Certified Sex Therapist.

### **MARK PAYSON, MD**

Mark Payson received his MD degree through a combined program at Dartmouth Medical School and Brown University School of Medicine. He did his residency training in obstetrics and gynecology at the National Naval Medical Center and his fellowship training at the National Institutes of Health. He is the former director of the military's IVF program at Walter Reed National Military Medical Center. Dr. Payson is board certified in obstetrics and gynecology and in reproductive endocrinology and infertility (REI). He is on the core faculty of the Inova Fairfax OB/GYN residency program, and is also the director of REI research for Inova Fairfax Hospital. He is currently in private practice with Dominion Fertility in Arlington, VA.

### **COL STEPHEN C. PHILLIPS, DO, MPH, FAAFP**

COL Phillips graduated with honors in liberal arts from Ohio State University in 1983 with a Bachelor of Science degree in Psychology and Sociology. He joined the Army in 1983 as a Health Professions Scholarship student, attending Ohio University College of Osteopathic Medicine where he earned the Doctor of Osteopathy degree in 1987. Dr. Phillips is board certified in family practice, and is a fellow of the American Academy of Family Physicians. He earned his MPH from the Uniformed Services University of Health Sciences in 2003. He has served in multiple deployments as well as numerous clinical, operational and executive positions. He currently serves as the deputy chief, Clinical Support Division in the Health Care Operations Directorate at the Defense Health Agency.

### **RICHARD REDETT, MD**

Richard Redett specializes in pediatric plastic surgery and treats patients with cleft and craniofacial disorders, complex genitourinary deformities, facial paralysis, brachial plexus injuries and pediatric burns. He earned an MD with honors from Dartmouth Medical School, Hanover, NH, in 1995. He completed his General Surgery and Plastic Surgery residency at Johns

Hopkins Hospital in 2002 and did a Pediatric Plastic Surgery fellowship at the Hospital for Sick Children in Ontario, Canada. Dr. Redett is currently an associate professor of Plastic and Reconstructive Surgery at the Johns Hopkins School of Medicine. He has published several articles on complex genital reconstruction and co-edited a book entitled *Aesthetic and Functional Surgery of the Genitalia*.

#### **IHSAN S. ROGERS, LCSW-C**

Ihsan Rogers earned a degree in social work from the University of the District of Columbia and a master's of social work from Howard University. She is licensed in Maryland as a Certified Clinical Social Worker and in Washington, DC, as a Licensed Independent Social Worker-Clinical. Ms. Rogers joined the National Institutes of Health Clinical Center in 2000 where she worked in inpatient and outpatient medical/surgery services and was a senior social worker in the Clinical Center's social work department. She has worked with a variety of institutes, primarily the National Institute of Allergy and Infectious Diseases (NIAID) and the vascular medicine and cardiology branches of the National Heart, Lung and Blood Institute (NHLBI). In 2010, Ms. Rogers joined NICOE as a continuity manager where she implemented a relationships and intimacy education module and developed intimacy assessments for individuals and couples. She is currently serving as acting chief of Continuity and Family Services at NICOE.

#### **MARGARET RUKSTALIS, MD**

Margaret Rukstalis graduated from Dartmouth Medical School and did her post graduate training at Harvard (Boston's Beth Israel Hospital, Cambridge City Hospital); the University of Chicago (Psychiatry, Clinical Pharmacology Fellowship); and the University of Pennsylvania (Addiction Psychiatry Fellowship). She is currently a clinical investigator at the Geisinger Center for Health Research, established in 2003 as the research and development unit for the Geisinger Health System, and is a volunteer faculty member in the Department of Psychiatry at Wake Forest School of Medicine. Dr. Rukstalis is particularly interested in population mental health, with an emphasis on prevention, evidence based assessment, and treatments for medical, psychiatric and substance use disorders

#### **ANDREA SAWYER**

Andrea Sawyer is a family support coordinator for the Quality of Life Foundation and a caregiver for her husband Army Sgt. Loyd Sawyer, a veteran with severe PTSD and TBI who served in mortuaries at Talil and Balad, Iraq. Andrea left a 13-year teaching career to become a fulltime caregiver and an advocate for other wounded warrior families after she and her husband experienced difficulty finding treatment and services for his injuries. Using her history degree from Meredith College and her teaching experience, she focused on educating the public and lawmakers on the struggles caregivers, wounded warriors and their families have experienced. Andrea lobbied for the VA Caregiver Support Legislation; testified before the Senate and the House Veterans Affairs Committees on improvements to VA mental health care programs; and was a national spokesperson on caregiver issues for Wounded Warrior Project.

#### **WING COMMANDER DAVENDRA SHARMA, FRCS**

Davendra Sharma, a consultant reconstructive urologist, works at St Georges Hospital, London and holds honorary posts at the Royal Centre for Defence Medicine and the Defence Medical Rehabilitation Centre, Headley Court. He is the UK Armed Forces lead for urology and chairs the Military Genitourinary Group, which is responsible for the management of service personnel with genitourinary trauma. Wing Commander Sharma has served in Afghanistan,

Oman, and Northern Ireland. He is a member of the European Association of Urology trauma guideline panel and has presented and published several articles and book chapters related to trauma. He is committed to seeking best practice in the management of combat related genitourinary injuries.

#### **DIANA TABLER**

Diana Tabler served more than 30 years in the legislative and executive branches of the federal government. A professional staff member on the Senate Armed Services Committee from 2004 to 2013, she developed legislative proposals regarding care, management and transition of wounded warriors; support for military families; combat casualty care and research; access to care for behavioral health and traumatic brain injury; and full funding of TRICARE benefits. Diana also held executive positions in the Office of the Assistant Secretary of Defense (Health Affairs) where she helped implement major components of military health system reform to include establishment of the Defense Health Program and the TRICARE Management Activity. She is the recipient of numerous DoD awards to include the Presidential Rank Award for Distinguished Executives in 2003. Diana completed the Senior Executive Fellows Program in the Kennedy School of Government at Harvard University, and holds a bachelor's degree from Gettysburg College. Diana remains active in supporting military health and family issues and currently serves on the National Military Family Association Board of Governors.

#### **MITCHELL S. TEPPER, PHD, MPH**

Mitchell Tepper is AASECT certified as a sexuality educator, educator consultant, continuing education provider and sexuality counselor, and is a licensed PAIRS instructor. In 2006, Dr. Tepper joined former US Surgeon General Dr. David Satcher as a faculty member in the Center of Excellence for Sexual Health at Morehouse School of Medicine, where he launched the Wounded Troops and Partners: Supporting Intimate Relationship initiative in May 2008. He subsequently worked with the VA to develop their Chaplains Best Practice Award Marriage Enrichment Retreats and held a joint research appointment with the Atlanta VA Medical Center. Dr. Tepper left Morehouse in 2011 to focus on sexual health, disabilities and chronic conditions. In 2013, he worked with the Sexual Health and Intimacy Work Group at Walter Reed National Military Medical Center to deliver staff training on sexual healthcare for wounded warriors. He is currently working on an initiative called Making Love After Making War: Supporting Intimate Relationships for Wounded Warriors and Their Families.

#### **RYAN TERLECKI, MD**

Ryan Terlecki is a reconstructive Urologist at Wake Forest University. After training under a recognized world leader in reconstructive urology, he completed two separate fellowships in the field. He is now the director of the Men's Health Clinic at Wake Forest University and director of the Wake Forest University's fellowship in reconstructive urology, prosthetic urology, and infertility. Dr. Terlecki has received multiple grants and his research involves models of wound healing within the lower urinary and genital tracts. He is investigating novel clinical applications of cell and tissue based therapies for multiple urologic conditions.

#### **CATHERINE A.Y. VRIEND, PHD**

Catherine Vriend grew up in a military family and received her BA from the University of Texas at Austin. She received her doctoral degree in clinical psychology from the University of Manitoba in Winnipeg, Manitoba, having completed her pre-doctoral internship at the Audie L. Murphy Memorial VA Hospital in San Antonio, TX. Following completion of a fellowship in clinical health psychology at Brooke Army Medical Center (BAMC) in San Antonio, she joined the staff of the Clinical Health Psychology Service in the Department of Behavioral Medicine at BAMC. As chief of the Clinical Health Psychology Service, Dr. Vriend continues to serve as a primary supervisor

for psychology trainees working in the US Army Institute of Surgical Research (Burn Unit) and the Center for the Intrepid (amputation and limb salvage). She has been involved in pain management policy and in WTU/ WWB risk management. Her clinical practice consists primarily of treating service members suffering from combat injury related pain, sleep disorders, PTSD and the physiological sequelae of PTSD to include erectile dysfunction.

#### **SHERRIE L. WILCOX, PHD**

Sherrie Wilcox, a Marine Corps spouse, joined the University of Southern California (USC) School of Social Work in 2012 after serving as a research consultant at the USC Center for Innovation and Research on Veterans and Military Families. Dr. Wilcox is principal investigator on a study examining sexual functioning after experiencing physical and/or psychological combat injuries. She is also leading a randomized trial funded by DoD to evaluate the effectiveness of online courses to improve knowledge, confidence and skills in behavioral health providers working with military populations. Dr. Wilcox has been involved in a study assessing challenges and strengths to reintegrating National Guard members after returning from combat deployment. Her dissertation examined the protective impact of social support among US Marines. Dr. Wilcox is a reviewer for scientific journals, grants, and programs and is active in the American Psychological Association (APA) and the American Association of Suicidology. She is the co-chief editorial assistant of the APA's Trauma Psychology News and co-chairs an APA task force investigating the psychology of drones.

#### **LTC BELINDA YAUGER, MD**

LTC Yauger is division director of Reproductive Endocrinology and Infertility Service at Walter Reed National Military Medical Center. She was commissioned into the US Army through the Health Professions Scholarship Program and earned her medical doctorate at Washington University Medical School. She completed her Obstetrics and Gynecology residency at the National Capital Consortium and then did a fellowship in Reproductive Endocrinology and Infertility at the National Institutes of Health. Dr. Yauger is board certified in Reproductive Endocrinology and Infertility in Obstetrics and Gynecology. She is also an assistant professor of Obstetrics and Gynecology at the Uniformed Services University and has been published in several leading peer-reviewed journals as well as presented at multiple international meetings. She is active in ongoing in vitro fertilization (IVF) research protocols. In addition to her clinical performance, LTC Yauger proudly serves in the US Army and has completed a deployment in support of Operation Enduring Freedom in Afghanistan.

#### **LAURIE C. ZEPHYRIN, MD, MPH, MBA, FACOG**

Laurie Zephyrin is the director of reproductive health in the Office of Women's Health Services, Department of Veterans Affairs. Dr. Zephyrin is a board certified Obstetrician and Gynecologist with extensive leadership experience in health policy, public health and health systems domestically and internationally. She is on faculty at New York University School of Medicine in Obstetrics and Gynecology and has served as a White House Fellow and a Robert Wood Johnson Clinical Scholar. Her work in health systems and healthcare delivery has focused on translating evidence based research into effective policy and practice, with the overall mission of ensuring quality healthcare for all populations, especially vulnerable populations. She completed her training at Harvard's Integrated Residency Program in Obstetrics and Gynecology and holds a BS in Biomedical Sciences from the City College of New York, an MD from the New York University School of Medicine, and an MPH and MBA from Johns Hopkins University.



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The Bob Woodruff Foundation (BWF) is the nonprofit organization dedicated to ensuring injured service members and their families are thriving long after they return home. A national organization with grassroots reach, the Bob Woodruff Foundation complements the work of the federal government – diligently navigating the maze of more than 46,000 nonprofits providing services to veterans—finds, funds and shapes innovative programs, and holds them accountable for results. To date, BWF has invested more than \$25 million in public education and solutions, reaching more than 2 million service members, support personnel, veterans and their families. The Bob Woodruff Foundation was co-founded in 2006 by award-winning anchor Bob Woodruff and his family, whose own experiences inspired them to help make sure the nation's heroes have access to the high level of support and resources they deserve, for as long as they need it. For more information about the Bob Woodruff Foundation, please visit [bobwoodrufffoundation.org](http://bobwoodrufffoundation.org).



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The Johns Hopkins Military & Veterans Health Institute was created to support the Military Health System and improve the lives of service members, veterans and military families. It brings together a wide range of experts from Johns Hopkins Medicine, the Applied Physics Laboratory, the Johns Hopkins School of Nursing, the Bloomberg School of Public Health, the School of Engineering and other research and academic departments across Johns Hopkins. The four pillars of the Military & Veterans Health Institute are research, education, clinical care, and consultation.



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