# Intensive Treatment Models to Address Posttraumatic Stress Among Post-9/11 Warriors: The Warrior Care Network

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Since September 11, 2001, more than two million U.S. service members have deployed to Iraq or Afghanistan, many returning home with posttraumatic stress disorder (PTSD) and additional psychological and general medical complaints. Nonetheless, many do not seek care or may not respond to traditional outpatient approaches, warranting innovative, multidisciplinary treatment approaches. To help address these complex needs, the Wounded Warrior Project has funded four academic medical centers to develop a care network across the nation. As part of this Warrior Care Network, the Emory Healthcare Veterans Program in Atlanta; the Home Base Program at Massachusetts General Hospital, in collaboration with the Red Sox Foundation, in Boston; Road Home at Rush Medical Center in Chicago; and Operation Mend at the University of California, Los Angeles, have each developed innovative, intensive programs to treat PTSD among post-9/11 veterans and service members. The programs offer two- to three-week intensive PTSD treatment programs with evidence-based approaches embedded in a broader program. To date, 328 post-9/11 veterans and active-duty service members have received care in these intensive outpatient programs. The average completion rate is approximately 95%, which demonstrates the acceptability of this brief but intensive care model for a complex population who can be challenging to engage or retain in care.

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Post-9/11 veterans often present for care with a complex constellation of concerns regarding their general medical and mental health. An estimated 12%-20% of those returning from Operation Iraqi Freedom, Operation Enduring Freedom, and Operation New Dawn meet criteria for posttraumatic stress disorder (PTSD) (1-4). Approximately 10%-23% of post-9/11 veterans meet criteria for having sustained a traumatic brain injury (TBI) (2, 5), and 6%-7% have experienced both of these invisible wounds of war (6). In addition, post-9/11 veterans often struggle with multiple psychiatric and general medical conditions, including depression, substance misuse, chronic pain, and sleep disorders (3, 7). These co-occurring diagnoses often seen among post-9/11 veterans and service members are associated with greater disability (8) and a more complicated set of treatment needs.

Although effective treatments for many of these presenting concerns are available, many veterans do not receive evidence-based PTSD interventions, and some do not access care at all (9). There are several barriers to seeking treatment, including difficulties with access because of a discharge status that makes one ineligible for Veterans Healthcare Administration (VA) care, financial difficulties that interfere with the ability to take time off from work or school, inability to manage other costs associated with care, or geographic locations where specialty services may not

be available. Additional barriers include stigma, some aspects of military culture, and practical considerations, all of which may discourage care seeking for PTSD. The lack of access to trained clinicians and insufficient time to attend to all patient concerns during a treatment session also have been identified as barriers to care or reasons for dropout (2, 10).

Treating post-9/11 warriors with PTSD and complicated co-occurring disorders in a manner that overcomes the various barriers to treatment and fills critical gaps in care requires innovative, multidisciplinary approaches to treatment. The Warrior Care Network was developed to fill this need.

#### THE WARRIOR CARE NETWORK

The Warrior Care Network was established with funding support from the Wounded Warrior Project (WWP), as well as other supporting philanthropy, to treat the invisible wounds of war among post-9/11 warriors and their families. WWP is a nonprofit veteran's service organization funded through philanthropy that offers a broad range of programs and support services to thousands of veterans, military family members, and caregivers. The Warrior Care Network is one of WWP's signature programs and represents a \$100 million commitment to filling gaps in care of the invisible

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wounds of war (https://www.woundedwarriorproject.org/ programs/warrior-care-network).

The Warrior Care Network provides evidence-based treatment services for post-9/11 veterans, active-duty service members, and their families, as well as the assessments required to document and evaluate those services. The Warrior Care Network currently includes four academic medical center (AMC) treatment programs geographically located around the continental United States, including the Emory Healthcare Veterans Program in Atlanta; Home Base at Massachusetts General Hospital, in collaboration with the Red Sox Foundation, in Boston; Road Home at Rush Medical Center in Chicago; and Operation Mend at the University of California, Los Angeles (UCLA). Although the programs accept insurance if applicable, all treatment to qualified post-9/11 veterans and service members is at no cost, regardless of discharge status. All four programs offer a two- or three-week intensive outpatient program (IOP) that provides daily PTSD treatment as well as other interventions, including wellness. Three of the four programs (all except UCLA, at present) offer outpatient services for local veterans and military family members, which may be available for care independently or in addition to IOP services.

In February 2016, the VA signed a memorandum of agreement with WWP and the Warrior Care Network. This agreement provides, among other things, collaboration of care between the Warrior Care Network and VA hospitals nationwide. Four VA employees act as liaisons between each site and the VA, spending 1.5 days per week at their respective AMC to facilitate this coordination of care and meet with patients, families, and the care team.

The Warrior Care Network has a structure in place to facilitate network functions, data sharing, collaboration among the four sites, and the sharing of best practices, including a series of committees that meet by telephone conferences, with quarterly in-person meetings rotating location among the sites. The Warrior Care Network is governed by an executive committee with representation from WWP and AMC site leadership and includes partnership representation from the VA. The executive committee oversees additional committees, as follows: The clinical committee is focused on enhancing coordination of care across the network and on establishing best practices. It includes subcommittees focused on PTSD, TBI, and military families. A data and outcomes committee is dedicated to the development, collection, and assessment of shared data elements and metrics and supports statistical analyses to inform the clinical committee's decisions about best practices. The data and outcomes committee recommended a set of common data elements that serve as the core assessments at each site. Finally, a marketing and communications committee focuses on outreach, communications about the program and its services, and shared branding, and a development committee is focused on fundraising opportunities to support the network.

The WWP facilitates a national base of referrals, as warriors contact WWP for initial triage and referral to the Warrior Care Network site that seems to be the best fit, depending on geography and presenting concerns. At the time of publication, referrals to the four AMCs have originated from 49 states; Washington, D.C.; Puerto Rico; Guam; and the Armed Forces Pacific. In addition, the memorandum of agreement between WWP and the VA enables the VA to refer those who are not qualified or who need services outside the VA to the network.

Once a warrior is referred to one of the four sites, the admission process starts. This includes telephone intake screens with the potential participant, the gathering of releases of information and records related to previous care, and, in some cases, discussions with family members or caregivers. The multidisciplinary treatment teams at each site review records and communications to confirm the appropriateness of fit to the treatment program focus.

If a warrior would be better served at a different Warrior Care Network site, an intersite referral is made with the approval of the warrior. Once an applicant is approved for participation and a start date is agreed on, travel and lodging arrangements are made at no cost to the warrior. On arrival and at the end of the program, participants complete a series of common assessments, including an endpoint program satisfaction questionnaire.

# WARRIOR CARE NETWORK INDIVIDUAL PROGRAM DESCRIPTIONS

Table 1 describes the different components of the intensive programs that are described in detail below.

#### **Emory Healthcare Veterans Program**

Emory Healthcare Veterans Program's IOP is a two-week, coed, cohort-based intervention designed to treat militaryrelated PTSD. Both combat trauma and military sexual trauma (MST) are targeted. A multidisciplinary case conference is held weekly to discuss the patients assessed in the previous week. Team members present include psychologists, psychiatrists, neurologists, social workers, a clinical nurse specialist, neuropsychologists, physiatrists, a sleep specialist, an addiction psychiatry specialist, psychiatry residents, psychology postdoctoral fellows, the VA liaison, and patient care specialists.

After the clinical intake evaluation and multidisciplinary and holistic treatment planning, IOP participants are scheduled for the program, which centers on prolonged exposure (PE) for PTSD, with wellness and additional interventions to support maintenance of gains and increased general function. These additional components include family intervention by telehealth, career and finance, sleep enhancement, yoga, and nutrition and exercise. As needed, individual warriors receive cognitive testing and rehabilitation, consultation on psychopharmacology, acupuncture for pain, and support for substance use harm reduction or abstinence. The IOP combines both

TABLE 1. Warrior Care Network (WCN) Brief Program Descriptions<sup>a</sup>

Feature	Emory Healthcare Veterans Program (Atlanta)	Home Base (Boston)	Rush Road Home Program (Chicago)	UCLA Operation Mend (Los Angeles)
Full-time employees Intensive outpatient program (IOP) format	38 PTSD, 2 weeks on site; TBI, 4 weeks on site	35 <sup>b</sup> 2 weeks on site	35 3 weeks on site	21 3 weeks on site with 3 weeks telepsychiatry
Conditions treated	PTSD, MST, TBI, depression, co-occurring substance use disorders	PTSD, TBI, depression, anxiety, co-occurring substance use disorders	PTSD, MST, substance abuse	PTSD, TBI, depression
Treatment interventions and modalities	PTSD: PE, CPT, pharmacotherapy; TBI: cognitive rehabilitation	PTSD: PE, CPT, pharmacotherapy; TBI: cognitive rehabilitation, pharmacotherapy	PTSD/MST: CPT, mindfulness-based resiliency training <sup>c</sup>	PTSD: CPT; TBI: cognitive training
Typical day of IOP treatment	Case management, individual PE, group in vivo exposure, medication management, yoga, other groups (nutrition, sleep, family and relationships, substance abuse, finance and careers, acupuncture)	Case management, individual PE/CPT, group in vivo exposure, dialectical behavior therapy, cognitive health, resilience, and stress management skills; dual-diagnosis and stuck-point groups; yoga, nutrition, fitness, Tai Chi, and art therapy; family groups and psychoeducation	Case management, individual/group CPT, mindfulness group, medication management, yoga and fitness (other groups: nutrition, sleep, family relations, financial management, art therapy, spiritual fitness, and making meaning of service)	Care management; individual CPT; caregiver group; daily groups on mindfulness, distress tolerance, emotional regulation, inter- personal effectiveness, motivation; individual cognitive training; biofeedback; medi- cation manage- ment (other groups: acupuncture, Qigong, art therapy, equine therapy)

<sup>&</sup>lt;sup>a</sup> PTSD, posttraumatic stress disorder; TBI, traumatic brain injury; MST, military sexual trauma; PE, prolonged exposure; CPT, cognitive processing therapy.

individual and group approaches to take advantage of the accelerated progress of individual trauma work and social support from group interventions.

Veterans receive individual imaginal exposure and group in vivo exposure sessions daily. The rolling admissions process, with new veterans beginning each Monday, allows for quick access to care and transition in roles. The new warriors in the first week can play a senior role in their second week to support the new entries.

Over the course of the two weeks, IOP participants receive approximately 13.5 hours of individual PE and 18 hours of group PE, six hours of family intervention, four to six hours of yoga, and eight hours of additional wellness programming. Emory is also involved in training community mental health providers in military culture, evidence-based treatment for military and veteran patients, and translational and clinical research aimed at developing and testing new effective treatments, particularly for PTSD and TBI.

# The IOP at the Rush Road Home Program

The IOP at the Rush Road Home Program is a three-week, coed, cohort-based intervention designed to treat PTSD secondary to military trauma. After the clinical intake evaluation, IOP participants are assigned to one of two IOP tracks. The first is a combat track designed to meet the needs of veterans experiencing PTSD secondary to combat or war-zone stressors. The second is an MST track for veterans

with PTSD who experienced MST and reported a sexual trauma as their index event.

Interventions offered in both tracks are largely the same, although minor modifications are made to address issues specific to each population. The primary IOP intervention components include daily trauma-focused treatment composed of group and individual cognitive processing therapy (CPT), as well as daily group integrative health treatment consisting of mindfulness-based resiliency training and yoga. Over the course of the three weeks, IOP participants receive approximately 22.75 hours of group CPT (1.75 hours daily), 10.5 hours of individual CPT (0.75 hours daily), 19.5 hours of group mindfulness (1.5 hours daily), and 12 hours of yoga (one hour, four times per week). In addition to these primary intervention components, several secondary intervention components are offered during the three-week program, including psychoeducation on relevant topics (e.g., sleep, pain, relationships), nutrition and physical activity, art therapy, medication management, and case management.

# The Intensive Treatment Program (ITP) at UCLA Operation Mend

The ITP at UCLA Operation Mend provides holistic veteranand family-centered care for the complex medical and neuropsychiatric complications of PTSD, TBI, and depression. Operation Mend's ITP uses a cohort model, operating groups for dyads (veteran and caregiver), families (including children

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<sup>&</sup>lt;sup>b</sup>WCN-related employees

<sup>&</sup>lt;sup>c</sup> Also used to treat MST in this program

ages four years to 15 years), and singles (veteran only), with five to 10 veterans per group, depending on cohort type.

The ITP includes three weeks on site at UCLA and three weeks of facilitated peer-to-peer support by teleconferencing to help warriors transition from treatment to home. UCLA Operation Mend has long recognized the significant role of caregivers in the healing of a warrior's visible and invisible wounds of war. As such, the veteran's caregiver is a full patient participant in the six-week ITP, with caregiver and relational challenges included as part of the focus of treatment.

The ITP provides more than 112 sessions per individual participant, 24 of which include two core anchor treatments: CPT to address symptoms related to PTSD and cognitive training sessions designed to address cognitive complaints due to PTSD and TBI. Each veteran receives 12 individual sessions of CPT (60 minutes of CPT, 30 minutes of homework), and the caregiver participates in 12 caregiver-focused group sessions. Additionally, each dyad receives 12 sessions of family-focused cognitive training (adapted from CogSMART) tailored to improve the veteran's skills in prospective memory, attention, learning and memory, and executive functioning and to help the dyad improve everyday activities and reach goals pertaining to work, school, social functioning, and independent living.

Each ITP attendee participates in group-format sessions that include life tools and integrative therapies. Life tools (12 sessions) are based on dialectical behavior therapy, mindfulness, and cognitive-behavioral therapies that emphasize strength-based, problem-focused instrumental coping strategies directed at the impact and symptom management of PTSD and TBI for veterans and families. Providing holistic well-being remains a core program objective. Integrative therapies include multispecialty interventions designed to address the mind-body-spirit and increase physical and psychological well-being. ITP participants receive biofeedback (five sessions), art therapy (six sessions), equine-assisted psychotherapy (three sessions based on the Eagala model), trauma-sensitive hatha yoga (two sessions), community acupuncture (three sessions), and daily Qigong. Additionally, each veteran meets weekly with his or her ITP psychiatrist for medication management.

# The IOP at Home Base

The IOP at Home Base, located at Massachusetts General Hospital, is a two-week, coed, cohort-based intervention focused primarily on the treatment of PTSD and TBI. Evaluations are completed to determine whether the participant will participate in the PTSD or TBI track, which informs his or her individual treatment plan. Individual therapy is the primary intervention and includes daily trauma-focused treatment, which is either PE or CPT for the vast majority, depending on the individual presentation. Flexibility is accorded to individual therapy providers should the patient's clinical needs occasionally call for a focus instead on depression while he or she participates in the rest of the PTSD program elements.

Individual TBI care is a combination of cognitive rehabilitation and specialty services, depending on patient needs. All participants are provided with a pharmacotherapy consultation, and individual pharmacotherapy management is available as needed. All IOP participants participate in a series of group therapies, including PE-based in vivo exposure, mindfulness-based stress reduction, dialectical behavior therapy skill building, and cognitive skill improvement. A dual diagnosis group is offered to participants with co-occurring substance use disorders. All warriors engage in integrative therapies, such as nutrition, fitness, art therapy, yoga, and Tai Chi.

During the end of the first week of treatment, a family member or close friend may be invited to attend the two-day family education series. During these days, family members attend educational groups regarding the presentation and treatment of PTSD and TBI; how they can affect relationships, parenting, and substance use; and how to improve their own stress management skills, including a yoga or Tai Chi sample session. Some family groups are also attended by the warrior. The family education component is approximately 12 hours throughout the two days. The two weeks of care for the warrior comprise approximately nine hours of individual therapy, up to three hours of individual pharmacotherapy, 42 hours of group therapy, and 14 hours of combined integrative therapies.

#### CASE MANAGEMENT AND PEER SUPPORT

In addition to the above interventions and integrative therapies offered to warrior participants and family members at each AMC's IOP, case management and peer support are critical components of the services offered throughout the Warrior Care Network. Case management is important to facilitate continued improvement and engagement in any needed services after Warrior Care Network program completion. Each participant works with a social worker or nurse case manager to streamline the return to previous providers or to identify new sources of care and support for the veteran participant as well as his or her family member.

The memorandum of agreement with the VA further enables successful discharge planning; each Warrior Care Network site has a local VA liaison who facilitates national referrals throughout the VA system as indicated for mental health or other needs. After completion of the intensive program, case management staff contact participants to determine whether they attended appointments that were arranged during discharge planning and to assess whether further case management assistance is needed.

Inclusion of veteran peer support offers several benefits, including social connectedness, positive role modeling, destigmatization, and encouragement around care seeking (11). At all four Warrior Care Network sites, post-9/11 veterans are on staff as veteran outreach coordinators or clinical staff. A veteran peer is often the first person a warrior speaks to when seeking services and is recognized

by the warrior participants as a welcoming, supportive presence. In addition, veteran peers on staff help to inform each program and the nonmilitary staff regarding military culture. Finally, veteran peers serve an outreach and community engagement function and help to facilitate referrals into the programs through extensive outreach efforts.

#### PARTICIPANTS AND PROGRAM SATISFACTION

From its inception in June 2015 to March 2017, the Warrior Care Network served a total of 328 post-9/11 veterans in its intensive outpatient programs. The veterans entering these programs were largely male (N=251, 77%), white (N=232, 71%), non-Hispanic (N=260, 79%), married (N=180, 55%), Army service members (N=244, 74%), midsenior-level enlisted (E-4 to E-9; N=256, 78%), and honorably discharged (N=230, 70%). On average, at entry, patients were 39.9±8.3 years old. Nearly half of IOP participants (N=133) had multiple co-occurring diagnoses, with depression and substance use disorders the most common.

The overall rate of program completion to date is high at 95% (N=313). Of those who completed the satisfaction survey (N=287), patients reported high satisfaction with the program across the Warrior Care Network sites: 96% (N=274) agreed with the statement "Overall, I feel satisfied with the clinical care I have received," and 91% (N=259) agreed with the statements "The care I received has improved the problem(s) I needed help with" and "The care I received has helped me to function better in my life." When asked about barriers to care, 89% (N=252) of patients agreed with the statement "The AMC program helped me to overcome barriers or obstacles to seek care that I needed, whether at the AMC or somewhere else." Reports of treatment outcome have not been released publicly, but early analyses indicate large treatment effects for PTSD and depression across all four sites.

### **CONCLUSIONS AND FUTURE DIRECTIONS**

Collectively, our experience to date suggests that this model of two- to three-week intensive PTSD treatment programs with evidence-based approaches embedded in a broader program is acceptable to patients, provides clinical services that patients see as beneficial, and may help to fill the gap in veteran care by reducing barriers to treatment access. The average retention rate of 95% of veterans is alone notable for keeping complex and inherently avoidant patients in treatment. Moreover, this retention rate clearly is higher than what is usually seen in standard weekly outpatient delivery of a comparable "dose" of evidence-based PTSD treatment.

There are a number of similarities across the four Warrior Care Network sites. All sites offer evidence-based individual psychotherapy for PTSD, including PE or CPT in an intensive two- to three-week format with multiple sessions per week, with patients dedicating their full-time effort away from home to their treatment. All sites offer

several integrative therapy options for warriors to improve stress management and to give warriors the opportunity to try new wellness approaches through yoga, art therapy, acupuncture, Tai Chi, mindfulness, or more traditional means, such as fitness. Furthermore, the presence of veteran peers has been a key contributor to the success of these largely civilian, AMC-based programs in supporting and addressing the needs of veterans and military families. Finally, the integration of case management services with the sites and WWP, as well as coordination with the VA, has been a critical component to ensuring that all participants around the country can access postprogram care as indicated when they return to their community.

Although creating these programs has led to a clinical product that is, overall, effective and acceptable, because this is the first network of AMCs to step into the complex world of care for post-9/11 veterans, more work is needed to optimize the model. The identification and evaluation of potential participants distally requires a substantial effort to ensure adequate screening and sufficient psychiatric and medical record or provider reviews. Matching programs and participant schedules also can result in challenges to a smooth flow of participants in a cohort model. Last-minute cancellations have occurred at sites not infrequently, and significant case management effort is needed to manage wait lists, screening, and postprogram care planning. Furthermore, despite best efforts at preprogram evaluations, issues may emerge on site that require additional attention for nonrelated medical needs or co-occurring substance use disorders, which might interfere with successful participation in the intensive PTSD treatment environment.

In addition, although some programs have attempted to address the needs of affected family members and engage them in the care of their veteran or service member, there are, at times, unidentified or unmet needs of the family members themselves. Additional efforts at enhancing care for family members, as well as for co-occurring substance use disorders, are being considered, including specific dual-diagnosis cohorts at some sites. Finally, there is a need for greater access to and integration of TBI-related services. Perhaps the greatest challenge of all is fitting all desired services in a two- or three-week block.

Nonetheless, this brief but intensive model has the potential to provide evidence-based care to warriors around the country who otherwise might not engage in or continue care long enough to experience treatment benefits. Future studies will add to our initial data supporting high effectiveness, satisfaction, and a remarkably high completion rate by examining specific PTSD and quality of life outcomes, particularly during the critical period after warriors return home.

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