

Chapter 7

US MARINE CORPS AND NAVY COMBAT AND OPERATIONAL STRESS CONTINUUM MODEL: A TOOL FOR LEADERS

WILLIAM P. NASH, MD*

INTRODUCTION

COMBAT AND OPERATIONAL STRESS CONTINUUM

Background and Development

Ready: The Green Zone

Reacting: The Yellow Zone

Injured: The Orange Zone

Ill: The Red Zone

FIVE CORE LEADER FUNCTIONS FOR PSYCHOLOGICAL HEALTH

Strengthen Service Members

Mitigate Stressors

Identify Stress Reactions, Injuries, and Illnesses

Treat Stress Injuries and Illnesses

Reintegrate Stress Casualties

SUMMARY

**Captain, US Navy (Retired); Assistant Clinical Professor, Department of Psychiatry, University of California at San Diego; formerly, Senior Consultant, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, Rosslyn, Virginia*

INTRODUCTION

In the US military, the overall responsibility for preserving the health of operationally deployed service members is assigned to commanders of combatant commands.¹ Only operational commanders are in a position to balance the evolving tactical requirements that inevitably place service members in harm's way against the enduring strategic imperative to preserve the health of the force. Only line commanders can lead the full spectrum of force health protection activities necessary to "promote, protect, improve, conserve, and restore the mental and physical well being of Service members across the range of military activities and operations."^{1(p10)} And only trusted leaders and mentors can reduce the stigma associated with acknowledging mental health problems, and make it acceptable for service members to receive help for them. Even in garrison, line commanders cannot delegate their force health protection responsibilities to medical or religious ministry support personnel, although such support is crucial to accomplishing the health protection mission. The dual goals of force health protection are force conservation and long-term physical and psychological health and well-being for service members and their families.

Military commanders and their health and religious ministry advisors have historically approached psychological health (PH) protection, including combat and operational stress control (COSC), somewhat differently from physical health protection because of the "demedicalized" model of combat stress reactions that has persisted since World War I.²⁻⁴ In this model, combat and operational stress reactions have been viewed not as injuries or illnesses but as temporary and reversible responses to stress over which the individual is believed to retain a significant degree of control. Principles of forward management of stress reactions based on this model, summarized in the acronyms PIES (proximity, immediacy, expectancy, simplicity) and BICEPS (which adds brevity and contact or centrality), recommend that service members suffering from combat and operational stress reactions not be permitted to perceive themselves as sick, ill, or injured (see also Chapter 4, Combat and Operational Stress Control).⁵ Early screening and treatment for significant symptoms of mental illness is eschewed

in favor of "normalizing" stress reactions and using the power of suggestion ("expectancy") to encourage return to previous occupational functioning. The approach to be taken to service members suffering from combat stress in a war zone, according to this demedicalized model, is summarized in the words of Colonel (Retired) Franklin D Jones, former psychiatry and neurology consultant to the US Army surgeon general, writing in *War Psychiatry* in 1995: "You are neither sick nor a coward. You are just tired and will recover when rested."^{5(p9)}

However, evolving scientific thought provides a strong argument, in this author's opinion, for developing a model that bases PH protection and COSC on the same preventive medicine principles that underlie physical health protection. Posttraumatic stress disorder (PTSD), for example, is now known to be a relatively common, potentially disabling, and possibly preventable illness with significant biological, psychological, and social-spiritual components.⁶ The risk for PTSD rises in direct proportion to the level of exposure to combat,⁷ and the symptoms of PTSD and other stress-related mental disorders are clearly present in personnel in deployed operational settings.⁸ Also, the overlap between PTSD and mild traumatic brain injury, both in symptoms and underlying brain pathology, argues for adopting similar approaches to recognizing and managing these two separate but related health problems.⁹ Furthermore, PH protection efforts based on previous, demedicalized models have failed to prevent significant postdeployment PTSD in veterans of the wars in Vietnam¹⁰⁻¹⁴ and Iraq.^{7,15,16}

In recent years, operational commanders in the US Marine Corps and Navy have collaborated with mental health and religious ministry professionals to develop new PH protection tools for the operating forces. Based on the science of preventive medicine and the art of leadership, these tools have been crafted to fit the needs of commanders and subordinate leaders at all levels. The most basic of these tools is the combat and operational stress continuum doctrinal model (also known as the stress injury continuum model, as described in Chapter 8, Expeditionary Operational Stress Control in the US Navy).

COMBAT AND OPERATIONAL STRESS CONTINUUM

Background and Development

The February 1996 Department of Defense (DoD) inspector general report on combat stress control in the military defined comprehensive COSC as consisting of

three key activities—(1) prevention, (2) identification, and (3) treatment—to be applied before, during, and after deployment.¹⁷ Three years later, DoD directed all services to implement COSC programs that included these key activities.¹⁸ However, the imperative to

implement PH prevention, identification, and treatment based on the normalizing, demedicalized model has posed two challenges:

1. If all reactions to stress in operational environments are truly “normal,” then what is there to prevent and treat? After all, normality is neither prevented nor treated.
2. If all reactions to stress are normal, whereas PTSD and other stress-induced mental disorders are clearly not normal, where is the line to be drawn between them? Where does normality end and pathology begin?

To meet these challenges, the bridging concept of “stress injuries” was developed in the Marine Corps in 2004.¹⁹ Independently, and for similar reasons, the term “operational stress injury” had been established in the Canadian Forces by Lieutenant Colonel Stephane Grenier, a veteran of the 1994 United Nations mission to Rwanda.²⁰ The validity of the idea that overwhelming or persistent stress can inflict literal injuries to the brain, mind, and spirit is supported by two lines of reasoning. First is the argument that the only alternative to acknowledging that humans can be literally injured by stress is to posit that human brains, minds, and spirits are invincible and unbreakable regardless of the forces acting on them, which cannot be true because the mind and brain are material living systems that are susceptible to damage, senescence, and death. The second argument is based on the assertion that some (though not all) stress responses or outcomes in operational environments fully meet the definitions of the terms “injury” or “wound” as commonly used in medical and nonmedical discourse.²¹ In common usage, an injury can be defined as something that

- happens to a person rather than being chosen,
- involves a loss of normal integrity,
- causes at least a temporary loss of function,
- provokes predictable self-protective and healing responses, and
- cannot be undone, although it usually heals over time.

The element of volition in this definition, when applied to stress outcomes, is hard to prove; there is a long tradition of viewing all stress “responses” as chosen by the individual on at least an unconscious level. However, the universal experience of individuals who experience traumatic stress involving terror, horror, or helplessness is one of being acted upon rather than acting. In fact, it may be that the loss of volition during a traumatic event partly defines it as traumatic. Fur-

thermore, the most disabling symptoms of unhealed traumatic stress, such as panic attacks, flashbacks, and rage outbursts, are disabling to the extent they cannot be predicted or prevented by conscious choice.

The second element in the list, loss of integrity, is certainly not externally evident in the same way that loss of the integrity of skin or bone is obvious in the case of physical injury. However, the preponderance of evidence from preclinical studies suggests that acute or chronic stress can cause a loss of the normal integrity of the neurobiological systems necessary for effectively coping with stress, particularly those responsible for regulating arousal and emotional intensity.⁶ And the integrity of necessary and deeply held beliefs and attachments are clearly compromised by trauma or loss.⁶

The loss of function caused by a stress injury, the third listed item, is likely the most evident and observable feature, although sometimes only to stress-injured individuals themselves, or those closest to them. Little is known about normal self-protective and healing responses to stress injuries (the fourth item listed), but included in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, diagnostic criteria for PTSD and acute stress disorder are the characteristic avoidance of reminders of traumas and efforts to reduce excessive arousal through isolation.²²

Finally, the assertion that stress injuries cannot be undone, although also not yet convincingly shown empirically, is strongly supported by the characteristic and lasting vulnerabilities (or increased growth, in many cases) demonstrated by individuals following acute traumatic stress or stress-induced depressive or anxiety disorders.¹⁹ Certainly, traumatic memories and losses of close comrades cannot be undone.

The concept of stress injuries, as a bridging construct between reversible stress reactions at one end of the stress response spectrum and stress illnesses at the other, has gained partial acceptance in the US sea services. Analogous to physical injuries, stress injuries may be seen as less the fault of the individual than how they are considered in the demedicalized model, which implied that disabling and persistent stress reactions were due to preexisting weakness.³ However, in 2007, the commanding generals of the three Marine Expeditionary Forces expressed concern that a doctrine based on the stress injury conception could be problematic if it did not give sufficient attention to promoting and restoring resiliency before stress reactions progressed to become injuries, or injuries became illnesses. Therefore, in September 2007, the three forces convened a working group including line commanders, senior enlisted leaders, chaplains, medical and mental health professionals, and Marine Corps Headquarters policy

makers. The resulting discussion yielded the combat operational stress continuum model, Figure 7-1, which has since become the foundation for all PH and COSC doctrine, training, and early interventions in both the Marine Corps and Navy.²³

The continuum model is a paradigm that recognizes the entire spectrum of stress responses and outcomes, from adaptive coping and full readiness (color-coded green as the “ready” zone), to mild and reversible distress or loss of function (the yellow “reacting” zone), to more severe and persistent distress or loss of function (the orange “injured” zone), to clinical mental disorders arising from stress and unhealed stress injuries (the red “ill” zone).

Ready: The Green Zone

The green “ready” zone can be defined as encompassing adaptive coping, effective functioning in all spheres, and personal well-being. The green zone is not conceived to represent the absence of stress, but rather its effective mastery without significant distress or impairment. One important goal of all selection, training, and leadership in the military is to promote green zone readiness, or to restore individuals and units to the green zone once they have experienced distress or loss of function because of stress. The ability to remain in the green zone under stress, and to return quickly to it once impaired or injured by stress, are two crucial aspects of resiliency. Both individual service or family members and entire military or family units can

be said to operate in the green zone.

The following are some of the attributes and behaviors characteristic of the green “ready” zone:

- remaining calm and steady;
- being confident in self and others;
- getting the job done;
- remaining in control physically, mentally, and emotionally;
- behaving ethically and morally;
- retaining a sense of humor;
- sleeping enough;
- eating the right amount;
- working out and staying fit;
- playing well and often; and
- remaining active socially and spiritually.

Reacting: The Yellow Zone

The yellow “reacting” zone can be defined as encompassing mild and temporary distress or loss of function due to stress. By definition, yellow zone reacting is always temporary and reversible, although while stress reactions are occurring it is hard to know whether they will be temporary and leave no lasting scars. Yellow zone reactions can be inferred by their time course, relative mildness, and commonness. Although no research has yet been done on the prevalence of subclinical distress or loss of function in operational settings, it is likely that such yellow zone stress reactions may be extremely common, if not

READY	REACTING	INJURED	ILL
<p>DEFINITION</p> <ul style="list-style-type: none"> • Adaptive coping • Effective functioning • Well-being <p>FEATURES</p> <ul style="list-style-type: none"> • In control • Calm and steady • Getting the job done • Playing • Sense of humor • Sleeping enough • Ethical and moral behavior 	<p>DEFINITION</p> <ul style="list-style-type: none"> • Mild and transient distress or loss of function <p>FEATURES</p> <ul style="list-style-type: none"> • Anxious • Irritable, angry • Worrying • Cutting corners • Poor sleep • Poor mental focus • Social isolation • Too loud and hyperactive 	<p>DEFINITION</p> <ul style="list-style-type: none"> • More severe and persistent distress or loss of function <p>TYPES</p> <ul style="list-style-type: none"> • Trauma • Fatigue • Grief • Moral injury <p>FEATURES</p> <ul style="list-style-type: none"> • Loss of control • Can't sleep • Panic or rage • Apathy • Shame or guilt 	<p>DEFINITION</p> <ul style="list-style-type: none"> • Clinical mental disorders • Unhealed stress injuries <p>TYPES</p> <ul style="list-style-type: none"> • PTSD • Depression • Anxiety • Substance abuse <p>FEATURES</p> <ul style="list-style-type: none"> • Symptoms persist > 60 days after return from deployment

Figure 7-1. The combat and operational stress continuum model with its four color-coded stress zones. PTSD: posttraumatic stress disorder

universal. Figure 7-2 depicts the time course of green zone adaptation and yellow zone reactions in the face of a new challenge such as an operational deployment or combat mission.¹⁹ As depicted in this diagram, the times of greatest risk for yellow zone stress reactions are just before or at the onset of a new challenge, and at the very end or immediately following that challenge.

The following experiences, behaviors, and symptoms may be characteristic of the yellow “reacting” zone:

- feeling anxious,
- worrying,
- cutting corners on the job,
- being short-tempered or mean,
- being irritable or grouchy,
- having trouble falling asleep,
- eating too much or too little,
- feeling apathetic or losing energy or enthusiasm,
- not enjoying usual activities,
- keeping to oneself,
- being overly loud or hyperactive,
- being negative or pessimistic, and
- having diminished capacity for mental focus.

Injured: The Orange Zone

The orange “injured” zone can be defined as encompassing more severe and persistent forms of distress or loss of function that may not completely reverse over time. Whereas yellow zone reactions, by definition,

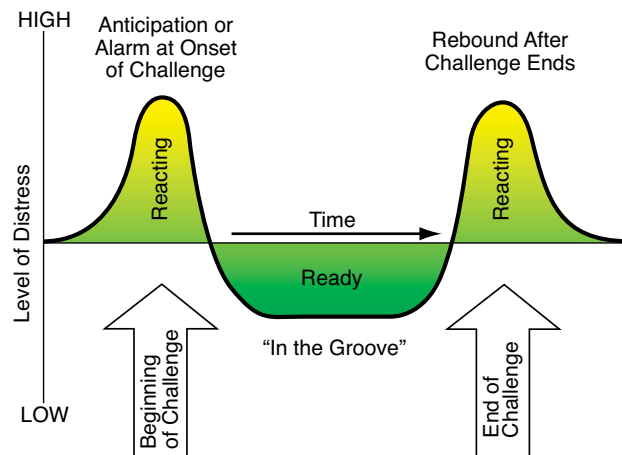


Figure 7-2. Time course of coping and adaptation to a new challenge.

are like a tree branch bending with the wind—always capable of springing back into place once the wind calms—orange zone injuries, by definition, are like a branch breaking, to some extent, because it was bent beyond its limits. Although stress injuries cannot be undone, like physical injuries, their usual course is to heal over time. But as with physical injuries, healed stress injuries may leave behind a “scar”—a mental or physical remnant, vulnerability, or weakness that will likely fade but may never disappear. As with yellow zone stress reactions, the more lasting nature of stress injuries in the orange zone cannot be easily discerned in their early stages. However, stress injuries may be identified in their early stages both by the severity and persistence of the symptoms they provoke and the intensity of the stressors that cause them. Because stress injuries are not clinical mental disorders, they do not require clinical mental health expertise to recognize them, although operational commanders and small unit leaders rely heavily on their chaplains and organic medical personnel to identify and help take care of orange zone stress injuries.

Combat and operational stress injuries have four different possible mechanisms or causes¹⁹:

1. **Life threat:** exposure to life-threatening situations provoking terror, horror, or helplessness.
2. **Wear and tear:** the accumulation of stress from all causes, including from nonoperational sources, without sufficient sleep, rest, and restoration.
3. **Loss:** separation from cherished people, objects, or portions of oneself.
4. **Inner conflict:** carrying out or bearing witness to acts of omission or commission that violate or disrupt deeply held moral values and beliefs.

Although stress injuries may be caused by one or more of these four different mechanisms, the experiences, behaviors, and symptoms that characterize them are similar regardless of mechanism. They include

- losing control of one’s body, emotions, or thinking;
- being frequently unable to fall or stay asleep;
- waking up from recurrent, vivid nightmares;
- feeling persistent, intense guilt or shame;
- feeling unusually remorseless;
- experiencing attacks of panic or blind rage;
- losing memory or the ability to think rationally;

- being unable to enjoy usually pleasurable activities;
- losing grounding in previously held moral values;
- displaying a significant and persistent change in behavior or appearance; and
- harboring serious suicidal or homicidal thoughts.

III: The Red Zone

The red “ill” zone can be defined as including all mental disorders arising in individuals exposed to combat or other operational stressors. Because red zone illnesses are clinical mental disorders, they can only be diagnosed by health professionals. However, commanders, other leaders, peers, and family members can and should be aware of the characteristic symptoms of stress illnesses. The most widely recognized stress illness is PTSD. However, stress illnesses may take many different forms, often co-occurring in the same individual at the same time or at different times. Common red zone illnesses include

- PTSD;
- depressive disorders, especially major depression;
- anxiety disorders, including generalized anxiety and panic disorder; and
- substance abuse or dependence.

Although the relationship between orange zone

stress injuries and red zone stress illness has not yet been well studied, the presence of a stress illness should be strongly suspected whenever symptoms of a stress injury either do not improve or worsen even after removal of the sources of stress. Specific indicators for possible stress illnesses—and the need for mental health evaluation—include

- stress injury symptoms or behaviors that do not significantly improve within 60 days of returning from operational deployment;
- stress injury symptoms that worsen over time rather than improving;
- stress injury symptoms that return after improving or resolving; and
- significant and persistent distress or loss of function that arises after removal from the sources of stress.

The 60-day duration threshold suggested above for diagnosing stress illnesses is somewhat arbitrary. However, it is believed to represent the best compromise between the competing priorities of quickly identifying problems that may not get better without clinical help, and hesitating to clinically label stress problems that may yet resolve on their own. Again, military leaders need not be concerned about whether particular service members do or do not suffer from diagnosable mental disorders, as much as whether the individuals warrant immediate referral to a mental health professional for evaluation of fitness for duty or treatment requirements.

FIVE CORE LEADER FUNCTIONS FOR PSYCHOLOGICAL HEALTH

The combat and operational stress continuum model is broad in its scope, encompassing all conceivable responses and outcomes to stress, both for service members and their families. Clearly, no one group of individuals can manage the entire stress continuum as defined. At the far left of the continuum—the green and yellow zones—the activities of line leadership predominate to promote resiliency. Here, prevention is paramount. At the far right of the continuum—the orange and red zones—medical and mental health professionals are most critical to providing necessary treatment. Chaplains act in operational units both to promote green zone resiliency and to recognize and respond to yellow, orange, and red zone reactions, injuries, and illnesses, including making appropriate referral decisions, although they usually cannot provide definitive treatment for stress injuries or illnesses. Individual service members and family members bear responsibility for maintaining their own psychological

health across the stress continuum, including building their own resiliency, managing their own stress reactions, and recognizing and getting help for stress injuries and illnesses when needed. Even though managing the stress continuum requires the involvement and expertise of several groups of stakeholders, the overall PH promotion effort remains the primary responsibility of operational commanders, as previously stated. Line commanders and their subordinate small unit leaders are responsible for coordinating PH and COSC efforts across the stress continuum to preserve both fighting strength and the long-term health and well-being of service members and families.

The Marine Corps and Navy have identified five core leader functions for the promotion of PH across the stress continuum: (1) strengthen, (2) mitigate, (3) identify, (4) treat, and (5) reintegrate. These five core leader functions are defined below as the context within which the stress continuum model is utilized.

Strengthen Service Members

Building resiliency in individuals, units, and families is the first core PH function of military leaders. Individuals enter military service with a set of preexisting strengths and vulnerabilities based on genetic makeup, prior life experiences, personality style, family supports, and a host of other factors that may be largely immutable. However, centuries of experience in military organizations, as well as a number of research studies, have demonstrated that commanders of military units can do much to enhance the resilience of unit members and their families. Activities available to commanders to strengthen their troops fall into three main categories: (1) training, (2) unit cohesion, and (3) leadership.

Training

Tough, realistic training develops physical and mental strength and endurance, enhances service members' confidence in their ability as individuals and as members of units to cope with the challenges they will face, and inoculates them to future stressors. Exactly how preexposure to stress enhances hardiness is not well understood, but emerging evidence suggests that resilience secondary to stress inoculation has both psychological and biological components. Hardy service members have lower heart rates and higher levels of peptides in the brain that are essential for staying calm in the face of severe stress.²⁴ They also face familiar challenges with greater confidence and less anxiety-induced loss of mental focus or dissociation.²⁵ One particular challenge for unit leaders is to deliver training that is tough and realistic enough to build resilience, without making it so tough that it inflicts orange zone injuries on the training field.

Unit Cohesion

Unit cohesion, defined broadly as mutual trust and support in a social group, is developed through sharing adversity over time in a group with a stable membership. Two-way communication, both horizontally among peers and vertically between leaders and subordinates, is essential to unit cohesion. Seamless teamwork is a well-known outcome of unit cohesion. Less well known is how membership in a cohesive unit strengthens unit members against the damaging effects of stress, but it is likely that unit cohesion has both biological and psychological impacts. As psychiatrist and author Jonathan Shay has repeatedly pointed out, "the human brain codes social recognition, support, and attachment as physi-

cal safety."²⁶(p210) Most leaders know how to build cohesive units given enough time and unit stability, but an all too common challenge is to maintain unit cohesion in the face of rotations into and out of the unit, including casualties and combat replacements. Certainly, the unit rotation policies currently practiced in the US military are more conducive to unit cohesion than the individual rotations common during the Vietnam era, but individual augmentees and members of reserve or National Guard units may still be disadvantaged in this important component of resilience. Another challenge for unit leaders is how to forge mutual trust and peer support among families left behind; they are no less part of the unit than the active duty service members who deploy in cohesive units, but they often have much less opportunity to develop social cohesion with other families.

Leadership

Although complex and multifaceted, leadership is an essential factor for the strengthening of unit members and families. Unit members are strengthened by leaders who teach and inspire them, keep them focused on mission essentials, instill confidence, and provide a model of ethical and moral behavior.²⁷ Another crucial way in which leaders enhance the resilience of their unit members is by providing a resource of courage and fortitude on which unit members can draw during times of challenge.^{28,29} The influence leaders have over their subordinates is a sword that can cut both ways—leaders who are in the yellow, orange, or red zones themselves may become detriments to their units unless their own stress is effectively managed.

Mitigate Stressors

Because no service member, however strong and well prepared, is immune to stress, the prevention of stress injuries and illnesses requires continuous mitigation of the stressors to which individuals and units are exposed. Optimal mitigation of stress requires balancing competing priorities. On one side is the intentional subjection of service members to stress in order to train and toughen them, and to accomplish assigned missions while deployed. On the other side are the imperatives to reduce or eliminate stressors that are not essential to training or mission accomplishment, and to restore the biological, psychological, social, and spiritual resources for resilience that are depleted under stress. As depicted in Figure 7-3, each individual's stores of resources for resilience can be likened to a leaky bucket constantly being drained

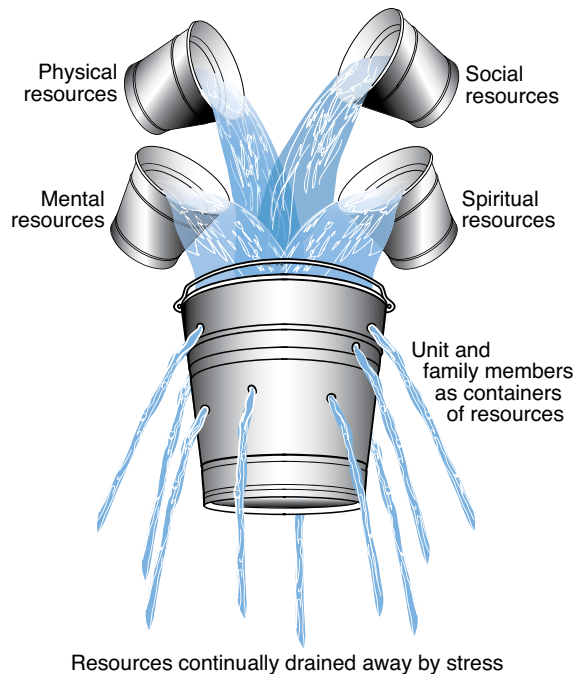


Figure 7-3. “Leaky bucket” metaphor for stress. Each individual’s stores of resources for resilience are continually depleted by stress, as if contained in a leaky bucket.

by stress. To keep it from running dry, it must be constantly refilled through sleep, rest, and other forms of replenishment.

Mitigation is a prevention activity, aimed at keeping unit members in the green “ready” zone in the face of operational challenges, and to return them to the green zone after yellow zone reactions. A few of the tactics that can be used by unit leaders to mitigate stress are the following:

- ensure and enforce adequate sleep—7 hours per day for most people;
- ensure physical fitness and recreation;
- encourage spiritual fitness and religious participation;
- enforce ethical standards and the “rules of war”;
- rotate units to the rear periodically for rest and replenishment, if possible;
- rotate individual assignments to reduce boredom and complacency;
- protect unit members from scenes of gore whenever possible;
- anticipate and discourage excessive self-blame (guilt or shame); and
- use after-action reviews to give meaning to sacrifices and losses.

Identify Stress Reactions, Injuries, and Illnesses

Even the best PH prevention efforts cannot eliminate all stress problems that might have an effect on occupational functioning or health. Therefore, effective PH protection requires continuous monitoring of stressors and stress outcomes. Operational leaders must know the individuals in their units, including their specific strengths and weaknesses, and the nature of the challenges they face both in the unit and in their home lives. Leaders must recognize when individuals’ confidence in themselves, their peers, or their leaders is shaken, or when units have lost cohesion because of casualties, changes in leadership, or challenges to the unit. Most importantly, every unit leader must know which stress zone each unit member is in at every moment, every day. Service members cannot be depended upon to recognize their own stress reactions, injuries, and illnesses, particularly while deployed to operational settings. The external focus of attention and denial of discomfort necessary to thrive in an arduous environment also make it harder to recognize a stress problem in oneself. And stigma can be an insurmountable barrier to admitting stress problems to someone else. Therefore, the best and most reliable method of ensuring that everyone who needs help gets it is for small unit leaders to continually watch out for their subordinates, and for peers to watch out for each other.

To help with this crucial stress zone assessment function, the Marine Corps and Navy have developed the combat and operational stress decision flowchart, Figure 7-4. The flowchart is made up of just four questions. The first is whether there are signs of distress or loss of function, both of which are briefly defined with examples. In the continuum model and decision flowchart, the threshold for recognizing yellow zone reactions is set intentionally low. In other words, to qualify as “distress” or “loss of function,” subjective feelings of uneasiness or observable behaviors that interfere with optimal function need not be profound, but merely noticeable. The point is to recognize yellow zone stress reactions early and consistently so they can be monitored and mitigated by leaders, chaplains, and medical support personnel before they progress to orange zone injuries. This is not to say that service members in the yellow zone cannot be pushed harder—just that they may require reassessment and at least stress mitigation as soon as operational requirements permit.

If neither distress nor loss of function is present, then the individual is judged to be in the green zone, and no further action is required other than continuing to monitor for stress. If either distress or loss of

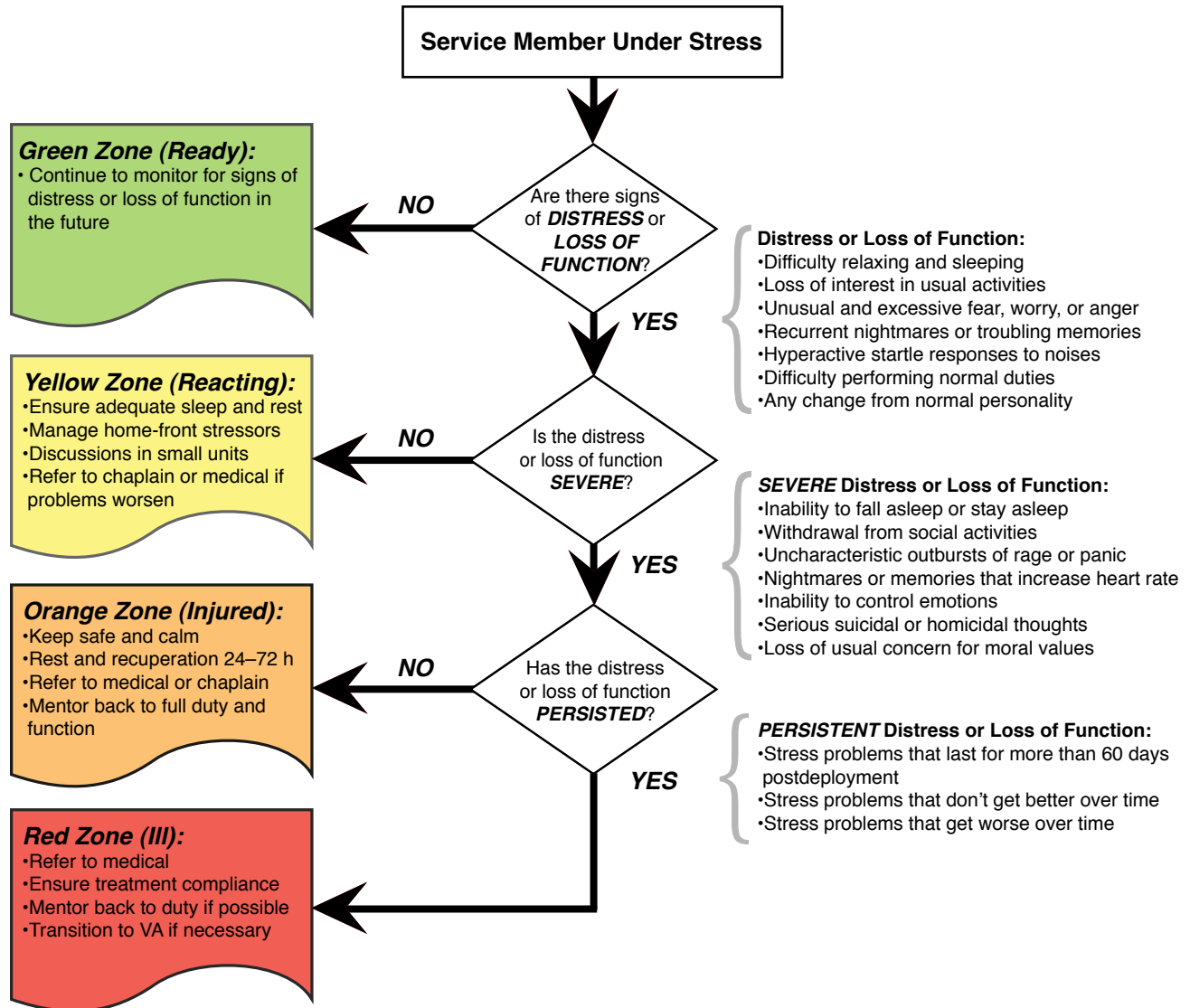


Figure 7-4. The combat and operational stress decision matrix flowchart. VA: Department of Veterans Affairs

function is present, the individual is at least in the yellow “reacting” zone, and the next question to be answered is whether distress or loss of function is severe. The decision about whether distress or loss of function is severe is admittedly one of the most challenging judgments to be made in the decision matrix, but it is also one of the most important. By definition, stress responses that involve severe distress or loss of function are at least in the orange zone—at least stress injuries, if not diagnosable stress illnesses. These are stress outcomes that may significantly interfere with effective occupational functioning, may persist or leave a mental or emotional “scar,” and may confer increased risk for long-term mental health problems.

Because of these risks associated with orange and red zone stress, it is imperative that unit leaders quickly and consistently identify service members with severe distress or loss of function that places them in these two zones. Orange and red zone stress injuries and illnesses all potentially benefit from care and treatment, and all deserve to be closely monitored to ensure recovery.

If severe distress or loss of function is present, the next question—whether these severe stress symptoms have persisted long enough to meet criteria for diagnosis of a clinical mental disorder—is not as crucial for operational commanders to answer. Clinical medical and mental health professionals are normally

consulted to help form that judgment. However, the importance to commanders of having a service member in the red zone is significant because a number of important leader decisions follow, including whether the red zone service member is fit to deploy or remain deployed, and whether and how soon the individual can be mentored back to full duty after receiving treatment.

Treat Stress Injuries and Illnesses

As in the case of physical injuries and illnesses, available tools for the treatment of stress injuries and illnesses exist along a broad spectrum, including: (a) self- or buddy-applied aid; (b) supportive care and advanced aid from a buddy, leader, chaplain, or family member; and (c) definitive psychological or medical treatment. Although some of these forms of treatment can clearly be delivered only by a trained medical or mental health provider, others require little special training and can be provided by a small unit leader, peer, or spouse. However, as with the rest of the core functions required to manage the combat and operational stress continuum, the primary responsibility for ensuring that every service member receives the appropriate level of care for orange zone injuries or red zone illnesses rests with operational commanders.

Combat and Operational Stress First Aid

The core principles for immediate, preclinical care of stress injuries, like those for first aid of physical injuries, are built on a simple hierarchy of three priorities: (1) sustain life, (2) minimize further damage, and (3) decide whether further care is needed. For physical first aid, life is sustained through the “ABCs” of basic life support or cardiopulmonary resuscitation—airway, breathing, and circulation—and further damage is minimized through the cleaning and covering of wounds, rest, immobilization, and other basic protective actions. To provide military personnel and their families a set of procedures for the care of stress wounds analogous to those of physical first aid, the Navy, Marine Corps, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, and the Veterans Affairs (VA) National Center for PTSD collaborated to develop combat and operational stress first aid (COSFA),³⁰ based on the evidence-based principles and procedures of psychological first aid previously created by the National Child Traumatic Stress Network and the National Center for PTSD.³¹ The seven core components (the “seven Cs”) of COSFA are as follows:

1. **Check:** assess continuously for distress or changes in functioning suggestive of a possible stress injury and need for further intervention; reassess after every intervention; continue to assess for delayed or persistent problems.
2. **Coordinate:** continuously inform those who need to know, such as leaders or family members, about identified stress problems; enlist further help from others, as indicated; and ensure that help is obtained.
3. **Cover:** ensure the safety (get to cover) of those experiencing acute distress or alterations in functioning, and ensure the safety of others until normal functioning returns.
4. **Calm:** reduce the intensity of physiological arousal (heart rate and blood pressure) and potentially destructive emotions such as fear or anger; practice deep, diaphragmatic breathing, mental grounding, and other relaxation techniques.
5. **Connect:** ensure peer support in the aftermath of a stress reaction, injury, or illness; restore normal unit or family cohesion as a protective and healing factor; listen empathically and reassure.
6. **Competence:** restore capabilities and effectiveness in all areas of function, including occupational, family, and other social function; mentor back to full duty, if possible.
7. **Confidence:** restore self-esteem and the trust of others in the unit and family in the aftermath of a stress reaction, injury, or illness; restore hope.

Definitive Psychological or Medical Treatment

Definitive clinical care can be delivered in forward operational settings by mental health professionals, such as those attached to Marine Corps Operational Stress Control and Readiness (OSCAR) teams,³² or it can be delivered in higher echelon treatment facilities in theater or in garrison. The principles of evidence-based care for traumatic stress injuries and illnesses, including PTSD, are contained in the current VA/DoD clinical practice guideline for the treatment of post-traumatic stress.³³ Some of these treatment principles can be applied only by a mental health specialist, but others can be delivered by primary care providers organic to, or in support of, operational units. Regardless of who delivers definitive clinical care, the crucial role of operational commanders and their subordinate small unit leaders in this segment of the treatment continuum is to ensure that treatment is

afforded to all service members who need it, and that barriers to care such as stigma and ongoing training or operational time commitments do not preclude care. The earlier stress-injured or ill service members receive definitive clinical care, the more likely they are to recover quickly and fully. Operational commanders bear great responsibility for reducing the stigma associated with receiving mental healthcare because of their influence on the attitudes and behaviors that underlie stigma.

Reintegrate Stress Casualties

As stated above, the normal course for a stress injury, as for a physical injury, is to heal over time. The vast majority of these injuries do heal, with or without treatment. Similarly, the normal course for a stress illness, especially if properly treated, is to improve significantly over time, perhaps even to remit. For example, of all active duty marines diagnosed

and treated for PTSD between the start of the war in southwest Asia in 2003 and the end of 2006, fewer than 10% received a medical disability discharge for PTSD.³⁴ Therefore, operational commanders face one final challenge in their management of service members treated for stress injuries or illnesses—that of continually monitoring their fitness for duty, including worldwide deployment, and mentoring them back to full duty as they recover. This is the challenge of reintegration. For stress casualties to be effectively reintegrated in their units, stigma must be continually addressed. Confidence in stress casualties, both in themselves and their peers and small unit leaders, must be restored. This process may take months to bring to successful conclusion, for recovery from a stress injury or illness can take several months. In cases in which substantial recovery and return to full duty is not anticipated, the challenge for operational commanders is to assist service members as they transition to civilian life and VA care.

SUMMARY

The US Marine Corps and the US Navy, in collaboration with the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, have developed and adopted a new model for the promotion of psychological health in service members and operational units based on the health sciences and leadership arts. The core of this new paradigm—the combat and operational stress continuum—recognizes that stress responses and outcomes occur across a broad spectrum, whose zones can be color coded green (for “ready,” adaptive coping); yellow (for “reacting,” mild and reversible distress or loss of function); orange (for “injured,” more severe and persistent distress or loss of function); and red (for “ill,” a diagnosable mental disorder). Although chaplains and medical and mental health professionals are important for the management of yellow, orange, and red zone stress, operational commanders and small unit leaders bear primary responsibility for the effective management of the entire stress spectrum. The five core psychological health leader functions developed by the Marine Corps and Navy are: (1) strengthen, (2) mitigate, (3) identify, (4) treat, and (5)

reintegrate.

The new PH and COSC model described in this chapter has gained traction in the Marine Corps and Navy partly because it reduces stigma and demystifies aspects of PH promotion. It has also gained acceptance because it forms an effective bridge between the worlds of the troops, the chaplain, the family member, and the medical or mental health professional. Only through a shared language and set of tools can all these stakeholders combine forces to address the challenges posed by warfare to the psychological health of service members and their families.

The stress continuum model and associated core leader functions described in this chapter have not yet been empirically tested, although they are solidly informed by scientific evidence. It is anticipated that empirical evaluation will validate some aspects of the model while suggesting improvements to other aspects. Regardless of these outcomes, the approach to combat and operational stress described here lends itself more fully to empirical assessment than previous models based on a less medical view of adverse stress outcomes.

Acknowledgment

The author wishes to thank Brett Litz, Patricia Watson, Mark Smith, Jeffrey Rhodes, and Eduardo Leardo for helpful comments on the manuscript.

REFERENCES

1. US Department of Defense. *Force Health Protection (FHP)*. Washington, DC: DoD; 2004. DoD Directive 6200.04.
2. Shephard B. *A War of Nerves: Soldiers and Psychiatrists in the Twentieth Century*. Cambridge, Mass: Harvard University Press; 2001.
3. Lerner P. *Hysterical Men: War, Psychiatry, and the Politics of Trauma in Germany, 1890–1930*. Ithaca, NY: Cornell University Press; 2003.
4. Wessely S. Risk, psychiatry, and the military. *Brit J Psychiatry*. 2005;186:459–466.
5. Jones FD. Psychiatric lessons of war. In: Jones FD, Sparacino LR, Wilcox VL, Rothberg JM, Stokes JW, eds. *War Psychiatry*. In: Zajtcuk R, Bellamy RF, eds. *Textbook of Military Medicine*. Washington, DC: Department of the Army, Office of The Surgeon General, Borden Institute; 1995: Chap 1.
6. Nash WP, Baker DG. Competing and complementary models of combat stress injury. In: Figley CR, Nash WP, eds. *Combat Stress Injury: Theory, Research, and Management*. New York, NY: Routledge; 2007.
7. Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med*. 2004;351:13–22.
8. US Army Office of the Surgeon General. *Operation Iraqi Freedom Mental Health Advisory Team Report, 16 December 2003*. Washington, DC: OTSG; 2003.
9. Kennedy JE, Jaffee MS, Leskin GA, Stokes JW, Leal FO, Fitzpatrick PJ. Posttraumatic stress disorder and posttraumatic stress disorder-like symptoms and mild traumatic brain injury. *J Rehabil Res Dev*. 2007;44(7):895–920.
10. Kulka RA, Schlenger WE, Fairbank JA. *Trauma and the Vietnam War Generation: Report of Findings From the National Vietnam Veterans Readjustment Study*. New York, NY: Brunner/Mazel; 1990.
11. Dohrenwend BP, Turner JB, Turse NA, Adams BG, Koenen KC, Marshall R. The psychological risks of Vietnam for U.S. veterans: a revisit with new data and methods. *Science*. 2006;313:979–982.
12. Schlenger WE, Kulka RA, Fairbank JA, et al. The psychological risks of Vietnam: the NVVRS perspective. *J Trauma Stress*. 2007;20(4):467–479.
13. McNally RJ. Revisiting Dohrenwend et al's revisit of the National Vietnam Veterans Readjustment Study. *J Trauma Stress*. 2007;20(4):481–486.
14. Kilpatrick DG. Confounding the critics: the Dohrenwend and colleagues reexamination of the National Vietnam Veterans Readjustment Study. *J Trauma Stress*. 2007;20(4):487–493.
15. Hoge CW, Auchterlonie JL, Milliken CS. Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *JAMA*. 2006;295:1023–1032.
16. Smith TC, Ryan MA, Wingard DL, Slymen DJ, Sallis JF, Kritz-Silverstein D. New onset and persistent symptoms of post-traumatic stress disorder self-reported after deployment and combat exposures: prospective population based US military cohort study. *BMJ*. 2008; 336:366–371.
17. US Department of Defense Inspector General. *Evaluation Report on the Management of Combat Stress Control in the Department of Defense*. Arlington, Va: DoD IG; 1996. Report No. 96-079.
18. US Department of Defense. *Combat Stress Control (CSC) Programs*. Washington, DC: DoD; 1999. DoD Directive 6490.5.
19. Nash WP. Combat/operational stress adaptations and injuries. In: Figley CR, Nash WP, eds. *Combat Stress Injury: Theory, Research, and Management*. New York, NY: Routledge; 2007.

20. Grenier S, Darte K, Heber A, Richardson D. The operational stress injury social support program: a peer support program in collaboration between Canadian Forces and Veterans Affairs Canada. In: Figley CR, Nash WP, eds. *Combat Stress Injury: Theory, Research, and Management*. New York, NY: Routledge; 2007.
21. Nash WP. Combat/operational stress injuries (COSIs): fact or fiction? Paper presented at: Marine Corps Combat and Operational Stress Control Conference; June 18, 2007; Arlington, Va.
22. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Washington, DC: APA; 1994.
23. US Marine Corps. *Tri-MEF Combat Operational Stress Conference*. Camp Pendleton, Calif: I, II, and III Marine Expeditionary Forces. Letter to the Commandant, 12 September 2007. Available at: <http://www.mca-marines.org/Gazette/PDF/USMCLetterPP.pdf>. Accessed March 30, 2009.
24. Morgan CA 3rd, Wang S, Mason J, et al. Hormone profiles in humans experiencing military survival training. *Biol Psychiatry*. 2000;47:891-901.
25. Morgan CA 3rd, Hazlett G, Wang S, Richardson EG, Schnurr P, Southwick SM. Symptoms of dissociation in humans experiencing acute, uncontrollable stress: a prospective investigation. *Am J Psychiatry*. 2001;158:1239-1247.
26. Shay J. *Odysseus in America: Combat Trauma and the Trials of Homecoming*. New York, NY: Scribner; 2003.
27. US Marine Corps. *Leading Marines*. Washington, DC: Headquarters USMC; 2002. MCWP 6-11.
28. Moran CMW. *The Anatomy of Courage*. Boston, Mass: Houghton Mifflin; 1967.
29. Grossman D. *On Killing: The Psychological Cost of Learning to Kill in War and Society*. Boston, Mass: Little, Brown; 1995.
30. Nash WP, Westphal R, Watson P, Litz B. Combat and operational stress first aid (COSFA): A toolset for military leaders. Presented at: Defence Centers of Excellence Warrior Resilience Conference, November 18, 2008; Vienna, Virginia. Available at: [http://www.dcoe.health.mil/event_docs/WRC/COSFA Nash DCoE Conf Nov 08 %5bCompatibility Mode%5d.pdf](http://www.dcoe.health.mil/event_docs/WRC/COSFA%20Nash%20DCoE%20Conf%20Nov%2008/CompatibilityMode%5d.pdf). Accessed April 29, 2009.
31. Brymer M, Jacobs A, Layne C, et al; National Child Traumatic Stress Network and National Center for PTSD. *Psychological First Aid: Field Operations Guide*. 2nd ed. July 2006. Available at: http://www.ncptsd.va.gov/ncmain/ncdocs/manuals/PFA_2ndEditionwithappendices.pdf. Accessed April 29, 2009.
32. Nash WP. *Operational Stress Control and Readiness (OSCAR): The United States Marine Corps (USMC) Initiative to Deliver Mental Health Services to Operational Units*. Quantico, Va: Headquarters USMC; 2006. NATO RTO-MP-HFM-134-25.
33. Department of Veterans Affairs, Department of Defense. DoD/VA clinical practice guideline for the treatment of post-traumatic stress. 2004. Available at: http://www.oqp.med.va.gov/cpg/PTSD/PTSD_Base.htm. Accessed March 12, 2008.
34. Gaskin TA. US Marine Corps combat/operational stress control program update. Paper presented at: Marine Corps Combat and Operational Stress Control Conference; June 18, 2007; Arlington, Va.

