

**Traumatic Stress Disorders in Medically Ill Patients  
An Evidence-Based Medicine (EBM) Monograph for  
Psychosomatic Medicine Practice**

**Published jointly by  
The Guidelines and Evidence-Based Medicine Subcommittee of the Clinical  
Practice Committee, Academy of Psychosomatic Medicine (APM)  
and  
The European Association of Psychosomatic Medicine (EAPM)**

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Version 11 May 2013

## **Traumatic Stress Disorders in Medically Ill Patients – EBM Summary**

### **INTRODUCTION**

Objective and methods: This monograph summarizes current knowledge related to the diagnosis, epidemiology, etiology, and management of Acute Stress Disorder (ASD) and Posttraumatic Stress Disorder (PTSD). The monograph is based on systematic reviews and pivotal trials. Readers are encouraged to consult the recommended readings for more detailed information (Appendix A). The quality of the evidence discussed in this monograph is graded as ‘high’, ‘moderate’, ‘low’ or ‘very low’, following the ‘Grading of Recommendations Assessment, Development and Evaluation’ (GRADE) system, which was developed by the Cochrane Center ([http://www.cebm-institute.org/fileadmin/upload/refman/J Clin Epidemiol 2011 64 4 401 Balshem.pdf](http://www.cebm-institute.org/fileadmin/upload/refman/J_Clin_Epidemiol_2011_64_4_401_Balshem.pdf)). Appendix A is a list of additional readings to supplement information in this monograph or to explore clinical issues that are beyond the scope of this document.

Relevance to Psychosomatic Medicine practice: Having a life-threatening medical or surgical condition, or having surgical injuries, burns, a traumatic ICU stay, or medical conditions following a disaster or a terrorist attack increase the likelihood of having a psychiatric condition including traumatic stress disorders. Much of the literature related to traumatic stress disorders at the interface with medical illness has emerged from military populations and victims of motor vehicle accidents and head trauma [1]. There are a number of factors which may make elevate risk for traumatic stress disorders and functional impairments during and after hospitalizations for burns, injuries, and ICU stays for other critical illnesses, including past psychiatric history, past trauma history, injury severity, subjective sense of life threat, ICU admission and benzodiazepine use in the post-trauma period [2].

In recent years, terrorist attacks and fear of terrorism has resulted in psychological and behavioral reactions that may affect delivery of effective health and mental health care. For example, fear of exposure to toxic agents can drive many times more patients to medical facilities than actual toxic exposure [1]. Careful medical-psychiatric differential diagnosis and timely communication to the public lessen the risk of misdiagnosis and mass psychological reactions, thereby protecting health care systems from being overwhelmed [3]. Psychiatric symptoms in victims of actual disasters or terrorist events should be evaluated within the context of concurrent medical-surgical assessment and treatment [1].

Definition and symptoms: Traumatic stress disorders (ASD and PTSD) develop in people exposed to traumatic events that approach the level of threat of death or serious injury. The definition of trauma was expanded in DSM-IV, compared to previous editions, to include serious physical injury and disease in addition to psychological trauma. People exposed to traumatic events are likely to be seen by a health care system or provider during the aftermath of the traumatic event. Patients may re-experience the event with recollections or more vivid intrusive images, and may experience nightmares. Avoidance of symbolic reminders of the event and hyperarousal are common. Patients may startle easily and exhibit irritability, insomnia, and concentration problems. The literature related to PTSD is more comprehensive than the literature related to ASD. Throughout the monograph, literature cited is from the PTSD literature unless

ASD findings are specifically referred to. The phrase traumatic stress disorders encompasses ASD and PTSD together.

Diagnosis: Diagnostic criteria for PTSD are similar in the International Classification of Disease, 10<sup>th</sup> Edition (ICD-10, code F43.1) [4] and Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV, code 309.81) [5]. Both emphasize re-experiencing, avoidance, and hyperarousal symptom clusters. The ICD-10 does not specify a functional impairment criterion. ASD in DSM-IV (code 308.3) [5] has a parallel diagnosis in ICD-10 (acute stress reaction, code F43.0) [4]. While ASD criteria also include re-experiencing, arousal and avoidance symptoms, dissociative symptoms are also emphasized. Examples of dissociative symptoms include numbing, reduced awareness of surroundings, derealization, depersonalization, and dissociative amnesia). ASD lasts for at least two days and a maximum of four weeks, and occurs within four weeks of the traumatic event [6]. Proposed changes in DSM-5 (not yet finalized) include a better, age-appropriate symptom profile description for pre-school children exposed to trauma (for detailed proposed changes see [www.dsm5.org](http://www.dsm5.org)).

Prevalence and incidence: The occurrence of ASD and PTSD vary internationally across studies, because of varying study methodologies and the dependence of rates of the disorders on the frequency, duration, and severity of events that could result in development of ASD and PTSD symptoms. Reported ASD rates are 13%-21% after motor vehicle accidents, 7% after a typhoon, 19%-25% following a violent assault, and 33% in witnesses of a mass shooting [6]. Internationally studied one-year prevalence rates of PTSD range from 0.12%-3.9%; lifetime prevalence rates range from 0.6%-11.2% [7]. Prevalence estimates among medical patients is higher, ranging from 7% to 36% [8]. Comorbid PTSD and depression among medical patients is associated with increased illness burden, higher health care utilization, poorer prognosis, and delayed response to treatment [8].

Exposure to traumatic stress in the medical setting. There is a growing body of low to moderate quality evidence literature indicating that specific situations in the medical setting (e.g. organ transplantation, stay in an Intensive Care Unit) are related to subsequent development of clinically significant PTSD. After an acute coronary event the prevalence of PTSD across studies varies between 0-38% [9]. Thirty percent of patients were reported to develop PTSD after a myocardial infarction [10]. Six months after cardiac surgery 18.2 % of patients met PTSD criteria [11]. Eight percent of patients receiving Internal Cardiac defibrillators (ICD) met criteria for PTSD after 18 months [12]; PTSD risk increases with number of ICD firings. A review of PTSD symptoms following treatment in an Intensive Care Unit showed a median point prevalence of questionnaire-ascertained PTSD of 22%, while the median point prevalence of clinician-diagnosed PTSD was 19% [13]. Higher number of ICU days is a risk factor for PTSD. The prevalence of PTSD across a wide range of situations and conditions, including organ transplant [14, 15, 16] preeclampsia [17], and miscarriage or stillbirth [17], is approximately 12%-26%. Up to 45% of burn unit patients meet criteria for PTSD [18]. Low to moderate quality evidence also suggests that PTSD is associated with higher mortality after ICD implantation [19] and with increased risk for hospital readmission after an acute coronary event [20].

Risk factors: Not everyone exposed to a traumatic event develops ASD or PTSD. Moderate to low quality evidence identifies several possible PTSD risk factors, including [21,22]:

- Higher level of exposure (frequency, severity, duration) to traumatic events
- Multiple simultaneous stressors
- Psychiatric predisposition
- Physical injury
- Witnessing deaths or atrocities
- Extreme fear
- Limited or absent social support after a traumatic event
- Limited social support and social support perception (family and friends)
- Ineffective coping strategies
- Ambivalent or guilty feelings about one's own actions during and in the aftermath of a traumatic event
- Being unable to act and respond effectively in the context of fear

Psychiatric comorbidities: Moderate to low quality evidence indicates a high rate of lifetime psychiatric comorbidities among patients with PTSD. Comorbid lifetime risk in one study was [23]:

- Depression: 48% of women and men
- Alcohol abuse or dependence: 28% of women and 52% of men
- Simple phobia: 30% of women and men
- Social phobia: 28% of women and men
- Dysthymia: 23% of women and 21% of men

Prognosis: PTSD may occur at any age. Symptom duration is variable and is affected by the proximity, duration, and intensity of the trauma, as well as comorbidity with other psychiatric disorders and several psychosocial factors, including quality of social support. Moderate quality evidence suggests that more than one third of patients who have PTSD from a broad range of traumatic stressors never fully recover [24]. Moderate to low quality evidence indicates that factors associated with a good prognosis include rapid engagement of treatment, early and ongoing social support, avoidance of retraumatization, positive premorbid function, and an absence of other psychiatric disorders or substance abuse [25,26].

## **SCREENING AND ASSESSMENT**

Symptom Overlap: Anxiety provoked by news of a life-threatening condition or by having been potentially exposed to a toxic substance or disease can complicate medical-psychiatric differential diagnosis. Physiological signs of autonomic nervous system arousal and dysphoria can mimic symptoms and signs of toxic exposure or medical diseases. Signs and symptoms of medical illness or toxic exposures, and effects of treatment, can be nonspecific and mimic neuropsychiatric syndromes. Differential diagnosis by skilled clinicians is crucial to effective triage of individuals as well as large populations. In the case of a potential infectious agent exposure related to terrorism, presence or absence of fever may be the only reliable early

differentiator between those exposed to a biological agent and those not exposed but fearful they may have been [3].

**Rating Scales:** A number of rating scales have been developed to assist clinicians with screening for and diagnosing traumatic stress disorders. A positive response to a PTSD or traumatic stress disorder screen does not necessarily indicate that a patient has PTSD or ASD. However, a positive response does indicate that a patient may have trauma-related problems, and further investigation of trauma symptoms by a mental health professional or with a structured interview for PTSD may be warranted. There are provider-administered screens, adult self-report questionnaires, adult structured diagnostic interviews, and measures for children and adolescents. Appendix B has a list of representative screens and diagnostic interviews. Links to the measures and information about each is included..

**Triage Concepts in the Setting of Disaster or Terrorism:** Advanced Trauma Life Support® (ATLS®) operates under the premise that the greatest threats to life are treated first—loss of airway, loss of breathing ability, loss of circulating blood volume, and effects of an expanding intracerebral mass [27]. The ATLS® Primary Survey is a rapid, targeted examination necessary to identify life-threatening injuries to the airway and blood circulation. The Secondary Survey is a “head to toe” evaluation of the trauma patient. Each region of the body is systematically examined. Available medical history is reviewed; allergies, current medications, significant past illnesses, and events related to the injury or exposure are recorded.

**Psychiatric Triage and Screening:** Though factors predicting development of ASD or PTSD have still not been established [28] for every potential traumatic event contingency, post-disaster or post-terrorism psychiatric screening examination to triage and identify early psychiatric casualties focuses on the most common psychiatric sequelae [2] and those most likely to adversely affect medical outcomes. Evidence does not support psychiatric screening of all persons exposed to a traumatic event [28]. It is difficult to proactively study this scenario and document whether early case-finding is associated with better longitudinal outcomes, so decisions about psychiatric triage and screening should be based on assessment of the specific contingency. If psychiatric triage or screening is implemented because of perceived risk for patients with unexplained medical symptoms overwhelming a contingency medical response, the screening psychiatric examination of the traumatized victim is easier if the primary and secondary surveys are unremarkable. Psychiatric symptoms are then more likely to represent primary psychiatric disorders. When there are psychiatric signs as well as significant primary and secondary survey findings, differential diagnosis can be complex, and multiple disorders may be present. Psychosomatic Medicine psychiatrists may be most effectively used in assessment and management of these patients with comorbid medical and psychiatric syndromes. DSM-5 is contemplating using the National Stressful Events Survey PTSD Short Scale (NSESSS) to rate severity of PTSD symptoms (see [www.dsm5.org](http://www.dsm5.org) for scale items)

## TREATMENT

### *Non-pharmacological treatment*

Two major reviews highlight the possible efficacy of non-pharmacological interventions in preventing or treating ASD or PTSD. In 2008, the Institute of Medicine's Committee on Treatment of Posttraumatic Stress Disorder [29] was asked by the Department of Veterans Affairs to review the literature on various treatment modalities for individuals with PTSD. A major Cochrane review [30] has separately studied evidence related to prevention or treatment of ASD and PTSD with early psychological interventions, psychological debriefing, psychological treatment of chronic PTSD, and combined psychological and pharmacological interventions. Key findings from these studies are summarized below.

Early psychological interventions to treat ASD symptoms. Moderate to low quality evidence suggests that individual trauma-focused cognitive behavioral interventions are effective, in the short-term, for acute stress symptoms, compared to supportive counseling and waiting list comparison groups [31]. The quality of these trials was variable and sample sizes were small. It is not known whether these interventions prevent the development of PTSD in the longer term.

Psychological debriefing to prevent PTSD. Psychological debriefing was originally developed for first responders, not patients. Attempts to generalize and broaden its use to a variety of groups were studied. There is low to high quality evidence related to the studies of efficacy of single-session psychological debriefing in reducing acute distress and in preventing PTSD [32]. Studying the results of 15 randomized controlled trials, the Cochrane Group concluded that single session psychological debriefing is either no better than, or worse than, control or education in preventing or improving the symptoms of PTSD and frequently comorbid psychiatric conditions. The routine use of single session debriefing for trauma victims is not supported and is recommended against.

Other psychological interventions to prevent PTSD. Moderate to low quality evidence suggests that no multiple session psychological intervention, team sport, or board or computer game has current evidence to support efficacy in preventing PTSD [33, 34]. Some interventions may have an adverse impact on some people. At this time, psychological interventions should not be routinely used in trauma victims to try to prevent PTSD. Decisions about psychological interventions and patients should be based on individual patients' clinical situations. Better studies are needed.

Psychological treatment of PTSD. In 2008, the Institute of Medicine's Committee on Treatment of Posttraumatic Stress Disorder [29] was asked by the Department of Veterans Affairs to review the literature on various treatment modalities for individuals with PTSD. The committee reviewed over 2,700 studies and determined that 52 studies met their randomized control trial criteria for inclusion in the review article. Based on conservative study quality criteria (comparable randomized groups, minimal attrition, use of intention to treat analysis, valid and reliable measures, and appropriate statistics), the committee found that evidence was sufficient to conclude there is efficacy for exposure therapies in treatment of PTSD. The concept of posttraumatic personal growth may be a valuable new concept in trauma psychotherapy and

deserves further study. A large proportion of the well-studied exposure therapies were conducted as a part of a cognitive-behavioral therapy [29]. High to low quality evidence, based on a Cochrane review of 33 randomized control trials of psychological therapies suggests that individual cognitive behavioral therapy/exposure therapy (CBT/ET), individual eye movement desensitization and reprocessing (EMDR), and group CBT/ET are effective in the treatment of PTSD [35].

### ***Pharmacological symptomatic treatment***

High to moderate quality evidence, based on a Cochrane review of 35 randomized controlled trials, involving 4,597 participants), of pharmacotherapy for PTSD [24] suggested that medication was superior to placebo in reducing the severity of PTSD symptoms clusters, comorbid depression, and disability. Long term medication may be needed in management of PTSD. Their review supports the use of SSRIs as first line agents in the pharmacotherapy of PTSD.

In contrast, in 2008, the Institute of Medicine's Committee on Treatment of Posttraumatic Stress Disorder [29] was asked by the Department of Veterans Affairs to review the literature on various treatment modalities for individuals with PTSD. The committee reviewed over 2,700 studies to identify 37 randomized control trials (RCTs) on pharmacotherapies. Based on very conservative study quality criteria (comparable randomized groups, minimal attrition, use of intention to treat analysis, valid and reliable measures, and appropriate statistics), they concluded that evidence was inadequate for any classes of pharmacotherapies to convincingly determine efficacy. A minority disagreed, and in a minority opinion, argued that available evidence supported recommendations for treatment of PTSD symptoms with some SSRIs and atypical antipsychotic medications.

At least five SSRIs have demonstrated efficacy in at least one double-blind placebo controlled trial, though up to 50% of patients may be treatment resistant [37]. The Institute of Medicine questioned the quality of the studies, but they serve as the basis for current recommendations for pharmacotherapy until higher quality studies are available. Paroxetine and sertraline have FDA indications for treatment of PTSD.

1) Sertraline [38,39]	2 studies	Mean dosages 133-146 mg
2) Paroxetine [40,41]	2 studies	Mean dosages 20-50 mg
3) Fluoxetine [42]	1 study	Mean dosage 57 mg
4) Citalopram [43]	1 study	Mean dosage 30 mg

Prazosin (mean dose 9 mg/day at bedtime) was shown superior to placebo for distressing dreams, insomnia, and functional status in one 20-week double blind, placebo-controlled, crossover study of PTSD patients [44]. Moderate evidence supports an association of risperidone with improving PTSD, alone, and in combination with an SSRI medication.(37) Moderate quality evidence suggests that short-term effectiveness of prazosin and quetiapine is similar for treating nightmares and insomnia, but prazosin is better tolerated and is more likely to be continued over time than quetiapine [45]. Research supporting development of more effective pharmacological strategies is needed [46].

### ***Combined pharmacotherapy and psychological therapies***

Low to very low quality evidence examined in a Cochrane intervention review [47] in 2010, based on four trials, one of which was in children, concluded that there is not yet enough evidence to support or refute the effectiveness of combined psychological and pharmacotherapy interventions for PTSD, compared to either intervention alone. Further research is needed. These findings do not necessarily apply to comorbid conditions, such as depression, where evidence supports combined treatment.

There is moderate evidence that collaborative, stepped care provided to patients who are post-injury and treated in surgical settings can improve clinical and functional outcomes [2]. Stepped collaborative care treatment of PTSD and/or depression involves collaboration between a patient's primary care physician, a psychiatrist and a non-physician (e.g., care manager) following acute care discharge [2]. Care managers provide enhanced education about PTSD and/or depression, track symptoms and adherence to mental health treatment and facilitate referral and recommendations about medications (based on caseload supervision by a psychiatrist) to a primary care physician and referral for evidenced-based psychotherapy to a mental health clinician. Persistent symptoms lead to a progressive, "stepped up" level of care, and intervention can begin in the acute care setting with the delivery of motivational interviewing and/or other evidence-based psychotherapies [2].

### ***Treatment of co-morbid conditions***

There can be a substantial burden of Acute Stress Disorder (ASD), acute Posttraumatic Stress Disorder (PTSD) following threats to life or limb, or to a major terrorist event. Among 1008 adults interviewed in New York City between one and two months after the attacks on the World Trade Centers, 7.5% reported symptoms consistent with a diagnosis of current PTSD [48]. ASD and PTSD are frequently comorbid with major depressive disorder, panic disorder, substance use disorder, and generalized anxiety disorder [49]. Having a physical injury increases the risk of ASD and PTSD [1]. Mild traumatic brain injury is associated with increased frequency of PTSD. Returning Iraq war veterans who reported injuries with loss of consciousness are three times more likely (27.3% vs 9.1%) than soldiers who reported no injuries to report PTSD symptoms [50].

Delirium: In the acutely injured accident victim, or in a disaster or terrorism victim with major illness or injuries, volume depletion and metabolic derangements can cause delirium symptoms: clouded consciousness, agitation or diminished responsiveness, and disorientation. Common causes of delirium in these settings include hypovolemia, hypoxemia, Central Nervous System mass effect, infection, and adverse effects of ATLS® and cardiac life support medications. Prevention of or resolution of the delirium etiology should be the main goal, and requires resolving the metabolic sequelae of the injury. While medication treatment of delirium symptoms can help decrease psychosis and agitation, and mitigate a safety problem, this is not the ideal management. Medications used to manage agitation can further complicate medical assessment, and can further complicate an already difficult clinical course. Symptomatic



management of the patient's behavioral problems with sedating medication should be initially reserved to protect the life or safety of the patient and other patients or staff.

Depression: Depressed mood or resignation in the aftermath of a life-threatening medical/surgical event, accident, disaster or terrorist event may be difficult to distinguish from the malaise and lassitude common among head trauma or post-surgical patients, or the prodromes of many chemical and bioterrorism exposures. Differential diagnosis is based on assessment of the patient's predisposition, timeline of syndrome development, and presence or absence of biological factors which could produce mood symptoms. Antidepressant medications and cognitive-behavioral psychotherapy are the mainstays of treatment for major depressive disorder following disaster or trauma, and may assist with managing subsyndromal depression.

Health Anxiety and hypochondriasis: In the generally anxious atmosphere and uncertainty following unwelcome medical diagnoses, physical trauma, disasters and terrorist events, patients who are prone to health anxiety or hypochondriasis may have problems managing their anxiety and beliefs. Six months of symptoms are required before making a diagnosis of hypochondriasis because of the generally increased climate of anxiety following a traumatic or stressful event. There is bodily preoccupation and vigilance regarding body sensations. Health anxiety and subsyndromal hypochondriacal fears may be widespread among the general population following a disaster or terrorist event, and should be managed with reassurance and a degree of tolerance for patients' requests for appointments and examinations by their primary care providers.

Conversion and other unexplained physical symptoms: Not all unexplained physical symptoms are conversion symptoms, though conversion is documented anecdotally after terrorist and combat events. Though there is at present little scientific basis for future prevention and care of unexplained physical symptoms following exposure to traumatic events [51], it may be important that persons with unexplained symptoms be identified in the triage process so that inappropriate and potentially harmful treatments are not conducted that could also draw resources away from victims needing them.

Dissociation and Dissociative Disorder: Dissociation is a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment. The centerpiece of diagnosing dissociative disorder is the presence of significant distress, or significant disruption in social or occupational functioning. Dissociation which falls short of diagnostic criteria for dissociative disorder is common in the context of any traumatic or terrorist event. Dissociation is generally under-recognized in the immediate aftermath of a traumatic event or terrorist event [1]. Dissociation may be adaptive in the immediate aftermath of a trauma—it may prevent the eruption of intolerable affects or the unleashing of potentially dangerous impulses or behaviors (e.g., to flee the scene). Identifying otherwise uninjured disaster victims who are simply dissociating frees up scarce evaluation and treatment resources for other emergency patients. It is easy to confuse dissociation and diminished neurological responsiveness. A key role for a consulting psychiatrist in the immediate aftermath of a disaster, while primary and secondary surveys are occurring, is to help identify dissociation. Gently tap the patient on the shoulder and ask if there is anything they need and do they know where they are/what day it is. Watch for a muted but appropriate response in a dissociating person; this indicates level of consciousness and orientation is grossly intact.

Substance Use Disorders: Following a traumatic event, people may increase their use of alcohol or drugs as a way to decrease the acute despair or anxiety associated with the event. Rescue and health care workers are at risk because of the types of scenes they may be participating in and repeatedly exposed to. Disaster response leaders must educate and model for their workers the avoidance of alcohol and drugs during the disaster management period and its aftermath. Patients who have substance related disorders are at baseline more likely to experience traumatic events, and in addition, may present at a triage or patient management area intoxicated or in withdrawal. Either can be confused with toxicities associated with chemical agents, biological agents, metabolic derangements, or medications used to treat patients' medical-surgical conditions. They may also present seeking prescription medications with the potential for abuse. Substance use disorders are a high priority for treatment in the trauma and disaster setting.

Effects of disaster response medications: It is important to find out what medications an injured or traumatized patient has received, in what amounts, over what time period. Disaster and resuscitation agents such as IV fluids (water), epinephrine, lidocaine, atropine, sedatives, nitroglycerin, and morphine are commonly used and have significant psychiatric or autonomic effects. Atropine causes significant anxiety and anticholinergic effects. Epinephrine causes blood pressure and heart rate elevations, and causes patients to feel anxious or panicky. Morphine causes sedation and impairs orientation and responsiveness.

## QUALITY INDICATORS

Available evidence does not allow for recommendation of a single model of organizational effectiveness for ASD and PTSD prevention and treatment. There are several performance indicators in practice tools suggested to monitor detection and treatment of ASD and PTSD [52]. PTSD screening in medical-surgical settings where the risk is highest for physical and emotional trauma is recommended, included but not limited to emergency departments, psychiatry and psychology clinics, neurosurgery units, neurology settings, oncology settings, and trauma surgery settings. Once ASD or PTSD is established, adequate pharmacological and non-pharmacological treatment should be provided, including provisions for ongoing care.

Specific quality indicators. The following indicators, supported by an evidence base with high to moderate quality of evidence [52], provide insight into the quality of the organization of detection, prevention, and management of traumatic stress disorders in medical surgical settings:

- The presence of a structured way to assess for trauma exposure and traumatic stress symptoms in clinical settings the healthcare organization has identified as high likelihood as a location where traumatized patients may present or be treated.
- Availability of professionals with expertise in traumatic stress, and frequently comorbid disorders, in clinical settings the healthcare organization has identified as high likelihood as a location where traumatized patients may present or be treated.
- When trauma or traumatic stress symptoms are identified in a medical surgical setting, assessment is conducted for pre-trauma risk factors for ASD/PTSD, including prior trauma exposure, adverse childhood, psychiatric predisposition, history of head trauma, younger age, female gender, and minority ethnic group.

- When trauma or traumatic stress symptoms are identified in a medical-surgical setting, assessment is conducted for functional impairment, suicide risk, and presence of frequently comorbid psychiatric disorders, e.g., anxiety disorders, depression, chemical dependency.
- When ASD or PTSD is recognized in a medical or surgical patient, pharmacotherapy is appropriately considered, including SSRIs as the first line consideration, with other medication categories considered as appropriate based on target symptoms; e.g., prazosin, tricyclic antidepressants.
- When ASD or PTSD is recognized in a medical or surgical patient, psychotherapy is appropriately considered, with available evidence suggesting the efficacy of exposure-based cognitive behavioral therapies and EMDR.
- Routinely conducted psychological debriefings in individual or group, and in single or multiple sessions, are avoided.

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## **Appendix (Additional Materials)**

- A) Recommended Readings
- B) Assessment and Scales
- C) Areas for Future Research
- D) Multiple choice question(s)

## APPENDIX A

**Recommended Readings**Relevant practice guidelines:

- American Psychiatric Association: Practice guideline for the treatment of patients with acute stress disorder and posttraumatic stress disorder (Guideline Watch update 2009). [www.psychiatryonline.com/pracGuide/pracGuideHome.aspx](http://www.psychiatryonline.com/pracGuide/pracGuideHome.aspx).
- Departments of Veterans Affairs and Defense: VA/DoD clinical practice guideline for the management of post-traumatic stress. 2004. [www.pdhealth.mil/clinicians/va-dod\\_cpg.asp](http://www.pdhealth.mil/clinicians/va-dod_cpg.asp)

Relevant literature:

Benedek DM, Friedman MJ, Zatzick D, Ursano RJ: Guideline Watch (March 2009): Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder. *Focus* 2009; 7:204-213.

Baker DG, Nievergelt CM, Risbrough VG: Post-traumatic stress disorder: emerging concepts of pharmacotherapy. *Expert Opin Emerg Drugs* 2009; 14:251-272.

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von Känel R, Baumert J, Kolb C, Cho EN, Ladwig K: Chronic posttraumatic stress and its predictors in patients living with an implantable cardioverter defibrillator. *Journal of Affective Disorders*, 2011; 131(1-3), 344-352. doi:10.1016/j.jad.2010.12.002

Guimaro MS, Lacerda SS, Aguilar MR, Karam CH, Kernkraut AM, Ferraz-Neto BH: Post-traumatic stress disorders, mood disorders, and quality of life in transplant recipients with acute liver failure. *Transplantation Proceedings* 2011;43(1), 187-188.

Engelhard IM, van den Hout MA, Kindt M, Arntz A, Schouten E: Peritraumatic dissociation and posttraumatic stress after pregnancy loss: A prospective study. *Behaviour Research & Therapy*, 2003; 41(1), 67-78.

Gotzmann L, Schnyder U: Posttraumatic stress disorder (PTSD) after heart transplant: The influence of earlier loss experiences on posttransplant flashbacks. *American Journal of*

Relevant websites:

Center for the Study of Traumatic Stress: <http://www.cstsonline.org/>

International Society for Traumatic Stress Studies: <http://www.istss.org/Home.htm>

European Society for Traumatic Stress Studies: <https://www.estss.org/>

US Department of Veterans Affairs National PTSD Center: <http://www.ptsd.va.gov/>

Centers for Disease Control Emergency Preparedness and Response website:

<http://www.bt.cdc.gov/>



## APPENDIX B

### Assessment and Scales

#### PTSD Screens

- Primary Care PTSD Screen:  
<http://www.ptsd.va.gov/professional/pages/assessments/pc-ptsd.asp>
- Trauma Screening Questionnaire :  
<http://www.ptsd.va.gov/professional/pages/assessments/tsq.asp>

#### Adult Self-Report

- Davidson Trauma Scale:  
<http://www.ptsd.va.gov/professional/pages/assessments/dts.asp>
- Impact of Events Scale-Revised :  
<http://www.ptsd.va.gov/professional/pages/assessments/ies-r.asp>

#### Adult Interviews

- Clinician-administered PTSD Scale:  
<http://www.ptsd.va.gov/professional/pages/assessments/caps.asp>
- PTSD Symptom Scale Interview :  
<http://www.ptsd.va.gov/professional/pages/assessments/pss-i.asp>
- Structured clinical interview for the DSM-IV Axis I disorders (SCID-PTSD Interview) : <http://www.ptsd.va.gov/professional/pages/assessments/scid-ptsd-module.asp>

#### Child Measures

- Childhood PTSD Interview :  
<http://www.ptsd.va.gov/professional/pages/assessments/child-ptsd-interview.asp>
- Child PTSD Symptom Scale :  
<http://www.ptsd.va.gov/professional/pages/assessments/cpss.asp>

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Orsillo SM: Measures for acute stress disorder and posttraumatic stress disorder. In Antony MM and Orsillo SM (Eds). *Practitioner's Guide to Empirically Based Measures of Anxiety*. New York, Kluwer Academic/Plenum, 2001, pp 255-307.

## APPENDIX C

### **Areas of Future Research**

- Determination of best pharmacological treatment
  - High quality trials with sufficient follow-up periods to identify more effective agents in managing ASD and PTSD
- Determination of best non-pharmacological treatment
  - High quality trials with longer follow-up periods to further test CBT and other psychological interventions
- Determination of efficacy of combined pharmacological and non-pharmacological treatment
  - Large randomized control trials comparing pharmacotherapy, psychological therapy, and combined therapy
- Effective prophylaxis (pharmacological and behavioural) and prevention strategies
- Identification of biomarkers and behavioural risk factors that could aid in detection, diagnosis, and determination of prognosis
- Identification of elements of underlying pathophysiology of ASD/PTSD and its symptoms
- Identification of elements of psychiatric consultation that have the most impact on clinical and financial outcomes of ASD/PTSD prevention and treatment
- Development of a new practice guideline that incorporate recent research findings as they apply to medical-surgical inpatients and outpatients

## APPENDIX D

### Self-assessment questions

1. Which of the following is NOT a specific quality indicator for PTSD management in medical-surgical settings?

- A. Psychological debriefings are routinely conducted
- B. Assessment is conducted for presence of pre-trauma risk factors for ASD/PTSD
- C. Assessment is conducted for functional impairment
- D. Pharmacotherapy is appropriately considered
- E. Psychotherapy is appropriately considered

(Correct answer: A.)

2. Which of the following medication or medication categories is considered first line pharmacological treatment for posttraumatic stress disorder?

- A. Prazosin
- B. SSRI antidepressant
- C. Tricyclic antidepressant
- D. Atypical antipsychotic
- E. Lamotrigine

(Correct answer: B.)

3. Which of the following is true about PTSD treatment?

- A. Exposure based cognitive behavioural therapy has been shown to have more favourable outcomes than pharmacotherapy.
- B. Pharmacotherapy has been shown to have more favourable outcomes than exposure based cognitive behavioural therapy.
- C. Exposure based cognitive behavioural therapy and pharmacotherapy have been shown to have equal efficacy.
- D. Combined cognitive behavioural therapy and pharmacotherapy has been shown superior to either intervention alone
- E. There is not yet enough evidence to support or refute the effectiveness of combined cognitive behavioral therapy and pharmacotherapy over either intervention alone

(Correct answer: E)

4. Which of the following has an FDA indication for treatment of PTSD?

- A. Citalopram
- B. Duloxetine
- C. Escitalopram
- D. Paroxetine
- E. Venlafaxine

(Correct answer. D)

5. Randomized controlled trials suggest that which of the following has the greatest efficacy for treating PTSD symptoms?

- A. Citalopram
- B. Duloxetine
- C. Escitalopram
- D. Paroxetine
- E. Venlafaxine
- F. None of these medications has been shown to have greater efficacy than the others

(Correct answer. F)