

SPECIAL LECTURE
BASE STATION PHYSICIANS COMMITTEE

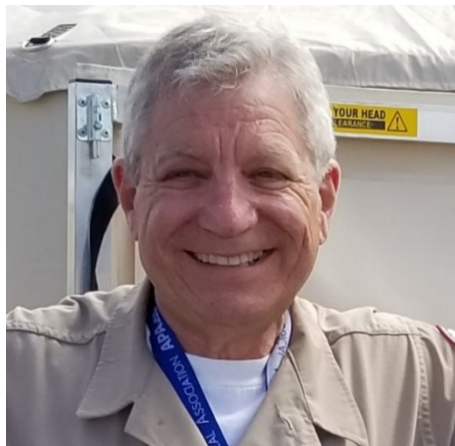
Evidence Based Presentation

June 24, 2021 11:30-12:30pm

**Toward the Way Forward in Managing
Risk and Resilience in EMS Clinicians**

- Non-COVID related mental health risk in prehospital and hospital disaster responders
- Impact of COVID-19 on hospital-based emergency medicine clinicians
- Comprehensive approach to pre-event, response and recovery phase resilience and psychological risk management, from individual and population levels
- Real world examples and a current longitudinal research project

Merritt D. Schreiber, PhD



Merritt D. Schreiber is a professor of clinical pediatrics in the department of pediatrics at Harbor-UCLA Medical Center Lundquist Institute and the David Geffen School of Medicine at University of California, Los Angeles. Schreiber created the PsySTART Rapid Mental Health Triage Incident Management System for stepped triage to care via rapid identification of at-risk victims and emergency responders. PsySTART has been used throughout the US and internationally. Schreiber also developed “Anticipate, Plan and Deter,” a disaster responder resilience system. As reserve Captain in the US Public Health Service, Schreiber has served on detached service to the Office of the Command Surgeon, NORAD-USNORTHCOM since 2007. In this role, he supports the NORTHCOM Surgeon General in the development of force mental health protection and resilience strategies and response to mental health issues in catastrophic medical events for the DoD Defense Support to Civilian Authority mission.

A Quarterly Technical Assistance Journal on Disaster Behavioral Health
Produced by the SAMHSA Disaster Technical Assistance Center

the Dialogue

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Lessons Learned From the Ebola Response

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The Dialogue is a quarterly technical assistance journal on disaster behavioral health which is produced by the Substance Abuse and Mental Health Services Administration (SAMHSA) Disaster Technical Assistance Center (DTAC). Through the pages of *The Dialogue*, disaster behavioral health professionals share information and resources while examining the disaster behavioral health preparedness and response issues that are important to the field. *The Dialogue* also provides a comprehensive look at the disaster training and technical assistance services SAMHSA DTAC provides to prepare states, territories, tribes, and local entities so they can deliver an effective behavioral health (mental health and substance misuse) response to disasters. To receive *The Dialogue*, please go to SAMHSA's home page (<http://www.samhsa.gov>), enter your email address in the "Mailing List" box on the right, and mark the checkbox for "SAMHSA's Disaster Technical Assistance newsletter, The Dialogue," which is listed in the Newsletters section.

SAMHSA DTAC provides disaster technical assistance, training, consultation, resources, information exchange, and knowledge brokering to help disaster behavioral health professionals plan for and respond effectively to mental health and substance misuse needs following a disaster.

To learn more, please call 1-800-308-3515, email DTAC@samhsa.hhs.gov, or visit the SAMHSA DTAC website at <http://www.samhsa.gov/dtac>.

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INTERVIEW

Ebola in Africa:

Q&A With a U.S. Public Health Service Commissioned Corps Officer

Commander Jamie Seligman, LMSW-C, BCD, Program Project Officer in SAMHSA's Center for Mental Health Services, talks about his experience and lessons learned in Liberia, Africa, during the ongoing Ebola crisis.

How did you prepare for this Ebola mission and where did you serve in Africa?

I served on the U.S. Public Health Service (USPHS) Commissioned Corps Ebola Response Mission at the Monrovia Medical Unit (MMU) in Margibi County, Liberia. We received 7 days of Ebola-specific preparation and training in Anniston, Alabama, and deployed to Liberia for 59 days. The MMU was a 25-bed Ebola Treatment Unit focused on providing care to Liberians and international health care workers and responders that may have been infected with Ebola. The MMU was staffed by USPHS officers that included trained clinicians (doctors, physician assistants, nurse practitioners, and nurses), infection control officers, pharmacists, laboratory workers, behavioral health specialists, and administrative management staff.

What was your mission in Liberia?

The USPHS mission in West Africa was to provide hope through care to Liberian and international health care workers and responders who may have the Ebola virus disease and continuing efforts with the

Liberian government and internal partners to build capacity for additional care.

What was your behavioral health team role?

As the Section Chief of the Behavioral Health Branch, I supervised three psychologists, one psychiatrist, and one social worker. Our behavioral health team provided force health protection, spiritual care, direct patient and family care, and collaboration with stakeholders such as the Liberian Ministry of Health and Social Welfare and the Carter Center staff. In our force health protection role, we conducted daily checks with officers who experienced challenges with the intensity of the work and high operation tempo, interpersonal relationship difficulties with colleagues, sleep hygiene problems, and coping with family issues back home. Our behavioral health team provided strategies and interventions that ensured the best possible care for our patients and self-care for each officer. In addition, the Behavioral Health Branch cross-trained in donning, doffing, chlorine mixing, and other collateral duties as needed.

The Behavioral Health Branch provided support with consultation regarding MMU staff retention, personnel conflicts, reintegration issues, and problem-solving strategies. In addition, SAMHSA Region 5 Administrator, Captain Jeff Coady, Psy.D., played a vital role as the lead of the Behavioral Health Operations Group (BHOG) for the entire mission, coordinating behavioral health activities for officers beginning during the pre-deployment process, training, operations, and up through reintegration. The BHOG was instrumental and ensured that vital information was flowing from Washington, DC, to Liberia and vice versa. (For more detail on BHOG's role, see "A Public Health Approach to Resilience.")

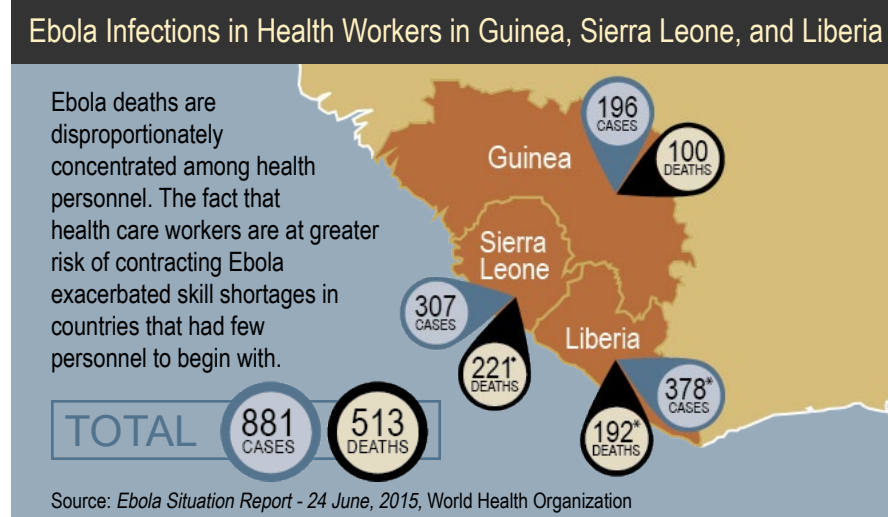
How did the Behavioral Health Branch approach responder resilience?

The behavioral health team piloted the use of the "Anticipate, Plan, and Deter" (APD) Responder Resilience System. For the Ebola response teams, APD included a pre-deployment responder stress inoculation training, customized for this deployment. During this

training, each responder developed an APD personal resilience plan that incorporated the training concepts for a personal strategy, taking into account anticipated stressors and individual coping and resilience resources.

In addition, as part of APD, the officer responders were trained in the **PsySTART** Responder Self Triage System. **PsySTART** Responder is a rapid mental health triage tool for disaster or humanitarian missions.

PsySTART Responder allowed our officers to triage themselves daily. This empowered the officers to track the presence of their own risk markers and resilience daily and cumulatively across the extended course of the deployment. Over a period of days or weeks of deployment, officers tracked their own trending of risk factors over time. Armed with this information, the officers could elect to employ their “personal resilience plan” developed during our initial training session in Anniston, Alabama, or they could share their daily triage or cumulative triage with the embedded behavioral health providers for additional coping ideas or support. Officers were then empowered by awareness of their own self-triage risk to be proactive and engage their personal resilience plan or seek other support resources in a timely manner. The self-triage information was de-identified of personal information and aggregated automatically using the **PsySTART** Responder System. Rather than



waiting for risk to become distress and disorder, this approach allowed information to mitigate risk factors trending early, at both the individual and total team levels.

For example, one **PsySTART** risk factor is “I have a concern about possible chemical, biological, or radiological exposure(s) to myself.” Within a 24-hour window, the behavioral health team observed a large spike on this risk factor that had been not present in the team-level (aggregated) daily situational report. The team initially hypothesized a biological exposure, since the officers were working in a high-risk environment with patients who were infected with Ebola. However, further investigation identified that the spike was actually because of concerns over possible chemical exposure from the chlorine used as part of the decontamination process. The behavioral health team shared this information with the command staff and the safety team. As a result, we identified a

health risk to officers that caused concern and stress. We decided to discontinue the use of powder mix, as the concentration levels were inconsistent, and start using a liquid mixing system. We provided health risk information about chlorine exposures and were available for any officers who wanted to talk about their concerns. Within 1 or 2 days, the team-level aggregated **PsySTART** reports found this risk factor quickly diminished. Using **PsySTART** for the first time to mitigate real-time risks proved to be effective. Officers could anonymously report a risk factor that could seemingly cause prolonged distress, and the behavioral health team investigated and mitigated the factor. It provided “actionable intelligence” in the form of a concrete risk factor and allowed the behavioral health team to tackle the issue at the “population” level. To our knowledge, the use of the **PsySTART** Responder System for real-time direct risk factor

Health care workers are
21–32 times

more likely to
be infected with
Ebola than the
general public.



Source: World Health Organization

mitigation is a further refinement to this approach pioneered by the behavioral health team in the Ebola response.

What were some of the biggest challenges regarding reintegration back into the community?

The reintegration process was a great challenge and concern for most officers. The behavioral health team spearheaded the effort in gathering pertinent information on officers to help develop their reintegration plans. Many officers' family members were conflicted about their loved ones coming home after being in Liberia for over 2 months. While most families knew they couldn't catch Ebola from their spouse or partner, other people in their lives might be afraid. Because of these concerns, each officer received psycho-educational materials, including information about self-care for family members and even supervisors along with federal and state guidelines—which was a challenging endeavor because each state has different requirements.

The USPHS had a Family Support Network to support and assist (via

one-on-one calls, conference calls, and email) our families while the team was deployed to Liberia. Together, we ensured consistent messaging and provided officers and family members with tools assisting in a safe reintegration to home. To alleviate concerns with reintegration, USPHS leadership provided officers with the option to postpone their return home until their self-monitoring period had ended. With appropriate justification, officers were given the option to complete the required 21-day self-monitoring in alternative housing in Maryland. As an example, I had originally planned to complete my 21-day self-monitoring period away from my family because my wife works for the school system. In the end, I decided to complete the self-monitoring period at home for the 21 days and had no issues. I think it is important to note and respect that officers have their own reintegration plans and no one size fits all.

Ultimately, due to the complexities of reintegration, USPHS leadership created a 3-day debriefing for all officers upon their arrival back in the United States. These 3 days were

intended to assist officers as they decompressed and acclimated to being back home.

How did your family feel when they heard you were being deployed to Liberia?

For the past 8 years, I have worked on disaster grants and have been deployed for disaster response many times. To be honest, my family would have been surprised if I had not been deployed. They are proud of the work that I do on a daily basis and even more proud of my work when I can make a difference during such deployments.

What is the most important thing you learned during your time in Liberia?

I learned that Ebola is a caregiver's disease—the people who are at greatest risk for infection are the caregivers. It's a brother, sister, uncle, aunt, mother, father, or medical staff member who are taking care of the person who are at the greatest risk of contracting the disease. Ebola affects the whole community and not just an individual. ■

About USPHS

The U.S. Public Health Service Commissioned Corps is part of the U.S. Department of Health and Human Services. The Commissioned Corps is an elite uniformed service with more than 6,800 full-time, highly qualified public health professionals, serving the most underserved and vulnerable populations domestically and abroad. To learn more, visit the USPHS's website at <http://www.usphs.gov/>.

Maximizing the Resilience of Healthcare Workers in Multi-hazard Events: Lessons from the 2014–2015 Ebola Response in Africa

Merritt Schreiber*; David S. Cates†; Stephen Formanski‡; Michael King§

ABSTRACT There is increasing knowledge that health care workers (HCWs) can experience a variety of emotional impacts when responding to disasters and terrorism events. The Anticipate, Plan and Deter (APD) Responder Risk and Resilience Model was developed to provide a new, evidence-informed method for understanding and managing psychological impacts among HCWs. APD includes pre-deployment development of an individualized resilience plan and an in-theater, real-time self-triage system, which together allow HCWs to assess and manage the full range of psychological risk and resilience for themselves and their families. The inclusion of objective mental health risk factors to prompt activation of a coping plan, in connection with unit leadership real-time situational awareness, enables the first known evidence-driven “targeted action” plan to address responder risk early before Post Traumatic Stress Disorder and impairment become established. This paper describes pilot work using the self-triage system component in Alameda County’s Urban Shield and the Philippines’ Typhoon Haiyan, and then reports a case example of the full APD model implementation in West Africa’s Ebola epidemic.

INTRODUCTION

There is increasing knowledge that health care workers (HCWs) experience a variety of psychological consequences when responding to diverse “all hazards” disaster and terrorism events.^{1,2} There is also evidence that incidents involving chemical, biological, radiological, or nuclear scenarios (CBRN), as well as incidents in which workers are exposed to secondary hazardous materials during the response, are associated with increased psychological health risk extending years after the event.³ Yet, despite this evidence, most models of psychological support for HCWs who respond to emergencies have structural limitations that fail to address the full complexity and continuum of possible outcomes, such as new incidence co-morbid disorders like post-traumatic stress disorder (PTSD) and depression.

Historically, popular models of psychological support for HCWs in disasters, such as Critical Incident Stress Debriefing (CISD), have focused on providing a “one size fits all” single encounter “recital of events or strong emotions” limited to the immediate post response phase of a disaster. This practice continues despite international consensus findings regarding the

potential harm of such an approach.⁴ It seems clear based on the available literature that a one size fits all approach, accomplished by “chasing tears” (Yin R. Personal communication to M Schreiber. 2012) or singular focus on what is often expectable non-pathologic distress, is inadequate if not harmful to disaster responders.^{4,5} More recent work has focused on increasing HCW resilience, with emphasis on educating HCWs to identify roles, likely stressors, possible reactions and symptoms, and/or to develop various cognitive and behavioral coping strategies.⁶ However, to date there have been no known randomized controlled trials of preventive interventions to mitigate psychological distress in disaster responders. Moreover, strategies to meet the needs of families of responders have been largely ignored.²

With the increase in prevalence of both natural disasters and terrorist attacks, the need to protect the physical and mental health of HCWs has become even more essential. In order for HCWs to continue to care for patients effectively (i.e., “mission assurance”), it is important that their mental health risk status be monitored and a continuum of timely interventions be made available to support them. The Anticipate, Plan and Deter (APD) Responder Risk and Resilience Model was developed to provide a new, evidence-informed method for understanding and managing psychological impacts among HCWs, including strategies to manage the full range of risk and resilience in the responder workforce and their families. Specifically, APD focuses on operational actions to enhance worker resilience by offering “hazard specific stress inoculation” training in the pre-incident period that requires participants to create individualized resilience plans prior to deployment. The APD model also integrates the Psychological Simple Triage and Rapid Treatment – Responder (PsySTART-R) self-triage tool. The PsySTART-R allows individual responders to monitor their exposure to risk factors throughout their deployment on a daily and cumulative basis as part of both

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All views and opinions are solely those of the authors and do not reflect official policy or positions of any entity of the U.S. Government.

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the “plan” and more specifically the “deter” stage of the APD model, which is outlined below. It also allows incident commanders or mental health unit leaders to monitor overall population-level risk for an identified group of responders.

This paper describes the APD model and how the PsySTART-R system is integrated to provide objective “self-triage” metrics for HCWs. Furthermore, this report documents initial piloting of the PsySTART-R self-triage system component in a disaster training exercise and a real-world event, and a case example of the full APD model implementation during the 2014–2015 Ebola response.

The Anticipate, Plan, and Deter Responder Risk and Resilience model

The Anticipate, Plan and Deter (APD) Responder Risk and Resilience model focuses on HCW resilience across pre-incident, response, and recovery phases in public health emergencies (e.g., emerging infectious diseases such as Ebola Virus Disease). Components of the APD responder resilience model for HCWs include:

Anticipate

Participants receive a pre-event stress inoculation training that focuses on the psychosocial impact of mass casualty events on emergency HCWs in the hospital, clinic, pre-hospital, and field disaster settings. The training explains the nature of traumatic and cumulative responder stressors and the impact of these factors on staff, including expected stress reactions and response challenges. Images pertinent to the disaster response hospital environment are also provided as a part of the training. Current versions include presumptive inoculation components specific to both no-notice penetrating trauma incidents and special pathogen scenarios.

Plan

During the training, participants are given the opportunity to develop a “personal resilience plan” (Fig. 1), which involves asking them to identify and document their anticipated response challenges (i.e., the stressors in the incident-specific scenarios they believe would be most difficult to manage) as well as a range of coping resources, including social support systems, concrete strategies for positive coping they already use, and “resiliency factors” such as a life mission or sense of purpose in their work.

Deter

Participants learn how to use the personal resilience plan that they developed in the “plan” component during a response. An essential component of this training is learning to monitor one’s own stress exposure so that responders know when to invoke their personal resilience plans. Responders are encouraged to use the PsySTART-R self-triage system, described below, as a “personal stress dosimeter,” to assist them in identifying their level of risk for negative mental

health outcomes which then serves as a trigger to implement their coping plan.

PsySTART-Responder Self Triage System

The PsySTART-Responder Self Triage System (PsySTART-R) is a mobile-optimized web-based application that prompts responders to indicate which of 19 traumatic stress risk factors they experienced over a given operational period (e.g., 24 hours). Items are based on prior research relating risk factor exposure to subsequent clinical or presumptive (based on questionnaires) PTSD.^{7,8}

PsySTART does not measure thoughts or symptoms of acute distress; rather, it measures exposure to objective features of the event itself, including the nature of the patients (e.g., severe burns or dismemberment), standards of care (e.g., being forced to abandon patients) and impact on providers (e.g., toxic exposures) and their families (e.g., unable to return home). Healthcare workers are asked to log in to the system daily to complete a self-assessment using the PsySTART-R web-based triage tag (Fig. 2). PsySTART-R tracks cumulative exposure to stressors and provides confidential feedback to the responder. As risk exposure increases, the PsySTART-R feedback encourages the individual to use his or her personal resilience plan developed as a part of the APD training and to seek out mental health providers as needed. PsySTART-R does not and cannot share individual triage information with group leaders or incident commanders, although it does provide de-identified, aggregated data, as described below. PsySTART-R uses a simple smartphone application and has now been used with varied domestic and international emergency medical response teams during events including the Haitian catastrophic earthquake, Hurricane Maria, and Hurricane Harvey in the US and its territories.

Organizations can use the information generated by the self-triage system to maintain aggregated, de-identified real-time situational awareness of the dynamic risk trending of a defined workforce or team to develop and provide strategies during the response that address the specific risk factors the team is encountering.⁹ This monitoring capability provides those in disaster incident command with a way to understand acute and cumulative risk by location and discipline using evidence-based risk metrics as they occur, affording a “common operating picture” of workforce risk on par with other disaster information systems.⁹ This model provides flexibility to mitigate risk factors real-time in the midst of the response as a form of early prevention.

CASE DESCRIPTIONS

Pilot Use of the PsySTART-R Self-Triage System Homeland Security Exercise and Evaluation Program (HSEEP)

The Alameda County EMS Agency of Northern California began use of PsySTART-R in a large multi-agency exercise

Step 1 - Anticipate

Understand Your Stress Reactions

There are two main kinds of responder stressors you can expect. Planning your response to these stressors will maximize your resilience during disasters.

"Traumatic Response Stress" can include exposure and loss factors such as:

- Witnessed severe burns, dismemberment or mutilation
- Witnessed pediatric death(s) or severe injuries
- Witnessed an unusually high number of deaths
- Responsible for expectant triage decisions
- Injury, death or serious illness of coworkers
- At work, you were treated for injury or illness
- Felt as if your life was in danger

These current stressors may also be "Trauma Triggers", activating memories of other past experiences or losses. "Cumulative Response Stress" can include factors such as:

- Exposure to patients screaming in pain/fear
- Forced to abandon patient(s)
- Unable to meet patient needs (such as patient surge, crisis standards of care)
- Direct contact with grieving family members
- Asked to perform duties outside of current skills
- Hazardous working conditions (such as extreme shift length, compromised site/safety or security or lack of PPE)
- Unable to return home
- Worried about safety of family members, significant others or pets
- Unable to communicate with family members or significant others
- Health concerns for self due to agent/toxic exposure (infectious disease, chemical, radiological nuclear, etc.)

These current stressors may also be "Trauma Triggers" that activate memories of past experiences or losses.

Step 2 - Plan

Plan for Your Response Challenges

Your Expected Stress Reactions

List your stress reactions. These may include thoughts, feelings, behaviors, and physical symptoms.

-
-
-
-
-

Your Expected Response Challenges

List what you think the most stressful aspects of working on a disaster will be for you. (If you are unsure what you might find stressful, review situations typically experienced by healthcare workers shown on the PsySTART Staff Self Triage System in this brochure.)

-
-
-
-
-

Your Social Support Plan

Who is in your social support system? List people who can support you and who you can provide support to during and after a disaster:

-
-
-
-

Your Positive Coping Plan

Everyone has different ways of coping with stress. What positive ways of managing stress works best for you every day? What positive ways of managing stress do you think will work for you following a disaster? Strategies you might consider include limiting your exposure to media reports, focusing beyond the short term, taking frequent short breaks. List your healthy coping plan here:

-
-
-
-

Your Resilience Factors

People often find that there are some positive things about working on a disaster. For example, people might feel good about being able to "make a difference" when their community needs them most. Positive resilience factors help you as a healthcare worker to cope better with the stressors associated with responding to a disaster in your facility or community. Below please list positive factors that might give you a sense of mission or purpose following a disaster:

-
-
-
-

Step 3 - Deter

Monitor your stress reactions and activate your Coping Plan (see step 2) early to maximize your resilience during a disaster response. Fill out and review the PsySTART Staff Self Triage form at the end of the disaster (for a one day disaster response) or at the end of your shift each day for a disaster response that occurs over a number of days. If you have any of the PsySTART stress factors present:

Review your Personal Resilience Plan, including activating your positive coping plan. If you have not already done so, consider your co-workers as part of your Social Support Plan. Know who to call in your facility if you find that you are dealing with a particular stressor(s) or your reactions to the stressors are intense, disruptive, or lasts longer than a few days or weeks.

Consider visiting Bounce Back Now™ a confidential internet self-help tool as an additional resource for your post disaster coping at: <http://cent.musc.edu/>

Monitor your stress during the disaster response and activate your responder resilience plan early. Review and revise your plan to maximize your resilience.

| PsySTART Staff Self Triage System | |
|---|--|
| Please check if you've experienced any of the following more than usual at your workplace, due to the incident. | |
| 1 | WITNESSED SEVERE BURNS, DISMEMBERMENT, OR MUTILATION? |
| 2 | EXPOSURE TO PATIENTS SCREAMING IN PAIN/FEAR? |
| 3 | WITNESSED PEDIATRIC DEATH(S) OR SEVERE INJURIES? |
| 4 | WITNESSED AN UNUSUALLY HIGH NUMBER OF DEATHS? |
| 5 | FORCED TO ABANDON PATIENT(S)? |
| 6 | UNABLE TO MEET PATIENT NEEDS? |
| 7 | RESPONSIBLE FOR EXPECTANT TRIAGE DECISIONS? |
| 8 | DIRECT CONTACT WITH GRIEVING FAMILY MEMBERS? |
| 9 | ASKED TO PERFORM DUTIES OUTSIDE OF CURRENT SKILLS? |
| 10 | EXPERIENCE HAZARDOUS WORKING CONDITIONS? |
| 11 | INJURY, DEATH, OR SERIOUS ILLNESS OF COWORKERS? |
| 12 | UNABLE TO RETURN HOME? |
| 13 | WORRIED ABOUT THE SAFETY OF YOUR FAMILY MEMBERS/ SIGNIFICANT OTHERS? |
| 14 | UNABLE TO COMMUNICATE WITH FAMILY MEMBERS/ SIGNIFICANT OTHERS? |
| 15 | HEALTH CONCERNS FOR SELF DUE TO AGENT/TOXIC EXPOSURE? |
| 16 | AT WORK, WERE YOU INJURED OR BECAME ILL AND TREATED? |
| 17 | DIRECTLY IMPACTED BY INCIDENT AT WORK OR AT HOME? |
| 18 | FEEL AS IF YOUR LIFE WAS IN DANGER? |
| 19 | OTHER CONCERNS (SEE) |

Building Your Responder Personal Resilience Plan™

Anticipate Plan Deter

Maximizing Resilience For Healthcare Workers

EMERGENCY MEDICAL SERVICES AGENCY
LOS ANGELES COUNTY

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This project was completed with funds from the Hospital Preparedness Program, Office of the Assistant Secretary for Preparedness and Response, Office of Preparedness and Emergency Operations, Division of National Healthcare Preparedness Programs (Grant number: 5U49CE000203)

FIGURE 1. Anticipate plan deter personal resilience plan. Anticipate.Plan.Deter is copyright 2018, merritt schreiber.

called "Urban Shield 2013." This was a multi-hazard scenario involving local and national first responders and EMS agencies. Medical responders who participated in Urban Shield completed PsySTART-R self-triage in three different response scenarios: an active shooter, an explosion, and a complicated search and rescue. This exercise provided support for ease of use, acceptability and face

validity of the in-theater, web-based PsySTART-R self-triage system.

Typhoon Haiyan

In November 2013, the strongest typhoon ever recorded struck the Philippines. Through a special request from colleagues at



| | |
|---|--|
| Date: | |
| | |
| DID YOU WITNESS ANY SEVERE BURNS, DISMEMBERMENT, OR MUTILATIONS? (FOR EXAMPLE: CHILD WITH BURN TO MOST OF HIS/HER BODY SURFACE) | |
| WERE YOU EXPOSED TO PATIENTS WITH PROLONGED SCREAMING DUE TO PAIN OR FEAR? | |
| DID YOU WITNESS ANY PATIENT DEATH OR OTHER SEVERE INJURIES? (FOR EXAMPLE: AMPUTATION, EVISCERATION, OR DEATH OF PATIENTS WHO WERE UNDER YOUR CARE OR UNDER THE CARE OF YOUR TEAM) | |
| WERE YOU ASKED TO PERFORM DUTIES OUTSIDE OF YOUR CURRENT SKILLS? (FOR EXAMPLE: TREATING ADULTS ALTHOUGH YOU ARE A PEDIATRICIAN OR DOING A MAJOR SURGICAL PROCEDURE ALTHOUGH YOU ARE NOT A SURGEON) | |
| DID YOU EXPERIENCED ANY HAZARDOUS WORKING CONDITIONS? (FOR EXAMPLE: EXTREME SHIFT LENGTH, COMPROMISED SITE SAFETY/SECURITY, OR OTHER ISSUES) | |
| DID ANY SERIOUS INJURY, ILLNESS, OR DEATH OCCURS AMONG YOUR COWORKERS? | |
| WERE YOU UNABLE TO COMMUNICATE REGULARLY WITH YOUR OWN FAMILY OR SIGNIFICANT OTHERS? | |
| DID YOU FEEL YOUR LIFE WAS IN DANGER? | |
| WERE YOU FORCED TO ABANDON A PATIENT? (FOR EXAMPLE: LEAVING A LIVING PATIENT BECAUSE OF UNSAFE SITUATION OR OTHER FACTORS) | |
| WERE YOU DIRECTLY IMPACTED BY THE INCIDENT AT WORK OR AT HOME? | |
| WERE YOU RESPONSIBLE FOR MAKING EXPECTANT TRIAGE (TRIAGE AS BLACK AND LEFT TO DIE) DECISIONS? (FOR EXAMPLE: DETERMINING THAT UNDER EXISTING CARE/SURGE CIRCUMSTANCES THAT NO EMERGENT CARE WAS OFFERED) | |
| WERE YOU UNABLE TO MEET YOUR PATIENTS' CRITICAL NEEDS AT TIMES? (FOR EXAMPLE: LACK OF RESOURCES SUCH AS A DRUGS, LABORATORY, IMAGING, PATIENT SURGE, OR CRISIS STANDARD OF CARE CONDITIONS) | |
| DID YOU HAVE DIRECT CONTACT WITH MANY GRIEVING FAMILY MEMBERS? | |
| DID YOU HAVE CONCERNS ABOUT THE SAFETY OR WELL-BEING OF YOUR OWN FAMILY MEMBERS, SIGNIFICANT OTHERS, OR PETS WHILE YOU WERE DEPLOYED? | |
| DID YOU EXPERIENCE ANY SERIOUS INJURY OR ILLNESSES AS A RESULT OF YOUR DEPLOYMENT ? | |
| DID YOU WITNESS PEDIATRIC DEATHS OR SEVERE INJURIES? | |
| DID YOU WITNESS AN UNUSUALLY HIGH NUMBER OF DEATHS? | |
| UNABLE TO RETURN HOME? | |
| DO(DID) YOU HAVE HEALTH CONCERNS FOR SELF DUE TO POSSIBLE AGENT/TOXIC EXPOSURE(BIOLOGICAL,CHEMICAL, RADIOLOGICAL/NUCLEAR)? | |
| I AM NOT RECEIVING SUFFICIENT SUPPORT FROM OTHERS | |
| NO TRIAGE FACTORS | |

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Confidential Information

FIGURE 2. PsySTART-R web-based self-triage tag.

the NIH Emergency Medicine Group in the Philippines, the PsySTART-R system was utilized during recovery efforts for Typhoon Haiyan. This version of the system included the evidence-based risk factors from the version of PsySTART-R that had been simulated in the disaster drill setting described above. The study evaluated the relationship between exposure to PsySTART-R risk factors and PTSD/depression in a sample of deployed health workers from Typhoon Haiyan. The Post Traumatic Stress Disorder Checklist was utilized to measure PTSD and the Patient Health Questionnaire 8 (PHQ-8) to measure depression, assessed approximately 90 days after return home. These three components were then analyzed to determine the relationship between acute deployment exposures on the one hand and presumptive PTSD and depression outcomes on the other. The results suggested that endorsement of six or more of the traumatic or cumulative stress factors, or a

combination of three specific factors (performing duties outside of perceived skillset; injury, death or serious illness of coworker; felt own life was in danger) put responders at increased risk for development of PTSD. Overall, the emergency medical responders in Haiyan who participated in this study demonstrated moderate risk for mental health disorders in the context of a catastrophic disaster with substantial morbidity and mortality.

Implementation of the Full APD System During the Ebola Response in West Africa 2014–2015

Ebola medical providers from one U.S.-based medical effort were trained in the full APD model, including development of a personal resilience plan and use of the PsySTART-R self-triage system, during pre-deployment training with

instructors who had previously completed APD “train the trainer” education. For this response, a modified version of a mental health coordination structure was utilized known as the Behavioral Health Incident Coordination Team (BHICT).¹⁰

The BHICT coordinated resilience activities and mission assurance across the lifespan of the deployment and was responsible for developing 24, 48, and 72-hour behavioral health operations plans for HCWs throughout their deployment and their reintegration home. The BHICT was composed of non-deployed mental health team leadership and subject matter experts in the continental United States (CONUS) who provided real-time coordination with the deployed mental health assets and leadership team. The deployed HCWs were encouraged, but not required, to complete daily de-identified self-triage of their risk factors for traumatic stress during the past operational period (24 hours) using the PsySTART-R system. The goal was to have each responder complete PsySTART-R once per 24-hour operational cycle. This simultaneously provided individual responders with a real-time index of their level of risk and equipped the embedded behavioral health providers and BHICT with a de-identified, aggregated incident report of population-level risk events in the previous 24 hours and cumulative risk since the mission launch. This timing coincided with the mission operational cycle and allowed for integration of force behavioral health risk information into the overall command level mission awareness and planning cycle.

Based on the real-time situational awareness capability, aggregated PsySTART-R reports alerted the embedded behavioral health providers and BHICT that certain risk patterns were present. For example, the PsySTART-R aggregated data for one operational period indicated that some members witnessed the gruesome death of a pediatric patient. The embedded behavioral health team was unaware of this until they received the daily aggregated PsySTART-R situation report. Armed with this information, they confirmed that a small group of providers had been visiting another Ebola site and while there were exposed to a child’s death from Ebola. The embedded behavioral health provider then checked in with those team members and, for those who expressed need, provided Psychological First Aid as well as encouragement to invoke their personal resilience plans developed during pre-deployment APD training.

Additionally, in one 24-hour period, the aggregated PsySTART-R team report indicated a sudden increase in one of the risk markers that previously had been near zero, namely, “concerned about my possible exposure to chemical, biological or radiological agents.”

At first, the assumption was that this reflected concern regarding team member exposure to Ebola, given this was an Ebola setting. However, prompted by the PsySTART-R data, the embedded behavioral health providers determined that this risk factor was related to concern with chemical exposure, specifically involving the chronic exposure to

chlorite decontamination as part of the Ebola decontamination process. As a result of the PsySTART-R situational awareness, small changes were made to decontamination procedures that eliminated this risk factor within two operational cycles.

Given the unfolding nature of the Ebola event and the varied responses of American states to returning “hot zone” health care workers, another of the actionable PsySTART-R reports was related to a rise in the “I am unable to return home” PsySTART-R risk factor and concerns about stigma the returning provider or their family members may encounter. Many states were following the Center for Disease Control (CDC) guidelines regarding returning health care workers and some, such as the State of New Jersey, did not follow CDC guidelines. Unlike returning from a combat zone where the combatant comes home and the threat stays there, the Ebola fighters faced a situation in which their homes and communities feared the HCWs might bring the threat home with them, or be a source of Ebola infection themselves. The fear of Ebola, and subsequent unfounded fear of those HCWs who went to fight it, was an unfortunate part of the reintegration process. The BHICT used this PsySTART-R information to develop a “just in time” anticipatory intervention for coping with stigma on the return home. Scenarios related to home reintegration along with a personal risk communication plan were distributed to HCWs by the behavioral health staff who were assisting with reintegration. In addition, some staff proactively used their individual resilience plans to manage reintegration concerns, including contacting the social supports identified in their plans and engaging in the active coping strategies previously selected. At other times, the embedded behavioral health team reminded team members to engage their individualized resilience plans.

As part of demobilization, HCWs were also asked to view their own aggregated self-triage encounters over the course of their deployment to determine their own time trending and qualitative and quantitative patterns from their cumulative PsySTART-R encounters to help them better understand their experiences and possible follow-up strategies they might wish to take. Through the APD system and the creation of the BHICT concept, individual team members and behavioral health team leadership were able to identify and address a number of unique psychological challenges encountered during the deployment.

Analysis of Aggregated PsySTART-R Triage Encounters from Ebola Response

A retrospective, qualitative, completely de-identified analysis of 186 self-triage encounters from the PsySTART-R system was conducted using data from the first two groups of HCWs deployed to Africa to assist with Ebola. Responders completed PsySTART-R self-triage every few days during their Ebola deployment. Responders were quickly able to

learn the PsySTART-R self-triage tool as part of the integrated Ebola pre-deployment training that included the full APD system along with medical response procedures, use of personal protective equipment and decontamination techniques.

1. Aggregated, de-identified PsySTART-R triage data were recorded with 186 self-triage encounters among 45 clinical staff included in the first two deployed groups responding to Ebola in West Africa for a two-month period at the end of 2014, reflecting approximately 75% of the total deployed force. Because anonymity is essential to the PsySTART-R system, no demographic or individual identifiers were obtained. Team members were men and women between the ages of 25 and 60, all with postsecondary education, representing a mix of ethnicities, predominantly Caucasian, African-American, and Asian-American.
2. The initial deployed team members had a greater number of cumulative PsySTART-R risk factors compared to the second deployment group (10% vs. 1% above presumptive clinical algorithm), consistent with operational differences, including greater distance between living quarters and the Ebola treatment setting and more uncertainty about disease transmission for the first compared to the second group, the latter also benefitting from mentoring by the former.
3. The vast majority of HCWs (approximately 90%) were below the presumptive PTSD clinical cut off for PsySTART-R.
4. Dynamic trending of risk allowed for real-time identification of the following risk factors which were then a focus of targeted mitigation efforts, including encouraging team members to use their personal resilience plans developed during pre-deployment APD training.
 - Witnessing pediatric death
 - CBRN exposure concerns
 - Concerns for family members facing stigma at home
 - Challenges pertaining to demobilization and returning home due to varied state regulations on returning hot zone workers that in some cases exceeded recommended CDC guidelines.
5. Provided real-time, de-identified situational awareness to embedded behavioral health field team with reach back to CONUS supports and leadership.

CONCLUSIONS

Current literature reveals a significant mental health burden for HCWs who respond to disasters and a paucity of models to provide a continuum of evidence-based care to HCWs and their families. Healthcare workers and their families face unique stressors and a continuum of risk as a result of their disaster work. This report describes a proactive approach using a model with three components: pre-deployment training about the unique cumulative and traumatic stressors that HCWs may face during deployment (“Anticipate”); development of a personal resilience plan (“Plan”); monitoring stress

exposure during deployment using the PsySTART-R web-based system and invoking the personal resilience plan when risk is elevated (“Deter”). The inclusion of objective, evidence-informed risk factors for psychological distress (PsySTART-R) to prompt activation of a coping plan as well as to proactively monitor the exposure of a group of HCWs constitutes the first known evidence-driven targeted action plan to address responder risk early before PTSD and impairment become established. Pilot testing of the PsySTART-R system in Alameda County’s Urban Shield and in the Philippines’ Typhoon Haiyan was briefly described. Implementation of the full Anticipate, Plan and Deter (APD) model during West Africa’s Ebola epidemic was highlighted. The West Africa APD experience demonstrates the viability of a system designed to protect HCWs in high-risk deployments from the negative psychological consequences of potentially traumatic acute and cumulative stressors. Areas for future work include randomized, controlled field studies to evaluate the effectiveness of APD versus “deployment as usual” and dismantling studies to determine which APD system components, such as self-triage data for responders, aggregated triage data for leadership, anticipating stressors and development of the personal resilience plan, are essential.

PREVIOUS PRESENTATIONS

Abstract # MHSRS-17-1499 – Rapid Triage for Targeted Acute Intervention for Medical Providers in Mass Casualty and Infectious Disease Deployments (PTSD Treatment: Updates & Innovations). 2017 MHSRS Conference, Orlando, FL.

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Rapid Triage of Mental Health Risk in Emergency Medical Workers: Findings From Typhoon Haiyan

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ABSTRACT

Objective: To determine the ability of a novel responder mental health self-triage system to predict post-traumatic stress disorder (PTSD) in emergency medical responders after a disaster.

Methods: Participants in this study responded to Typhoon Haiyan, which struck the Philippines in November 2013. They completed the Psychological Simple Triage and Rapid Treatment (PsySTART) responder triage tool, the PTSD Checklist (PCL-5) and the Patient Health Questionnaire-8 (PHQ-8) shortly after responding to this disaster. The relationships between these 3 tools were compared to determine the association between different risk exposures while providing disaster medical care and subsequent levels of PTSD or depression.

Results: The total number of PsySTART responder risk factors was closely related to PCL-5 scores ≥ 38 , the threshold for clinical PTSD. Several of the PsySTART risk factors were predictive of clinical levels of PTSD as measured by the PCL-5 in this sample of deployed emergency medical responders.

Conclusions: The presence of a critical number and type of PsySTART responder self-triage risk factors predicted clinical levels of PTSD and subclinical depression in this sample of emergency medical workers. The ability to identify these disorders early can help categorize an at-risk subset for further timely “stepped care” interventions with the goals of both mitigating the long-term consequences and maximizing the return to resilience. (*Disaster Med Public Health Preparedness*. 2017;page 1 of 4)

Key Words: mental health triage, disaster response, medical workers

Disasters are associated with a continuum of mental health consequences. Although emergency medical responders exhibit considerable resilience, 10%-20% may also develop single or comorbid psychiatric disorders, including post-traumatic stress disorder (PTSD) and depression.¹ For example, 11.7% of emergency medical responders responding to the September 11, 2001 terrorist attacks were found to have clinical PTSD 3 years after the event.² Natural disasters have also demonstrated psychological risk in emergency responders. One month after the 1999 Chi-Chi Earthquake in Taiwan, 19.8% of professional responders and 31.8% of volunteer responders were found to have provisional clinical levels of PTSD.³ Although PTSD has been identified in emergency medical responders, the process of identifying those at risk early in the response period has not been studied as extensively or used to develop timely early evidence-based intervention strategies. It is important to counteract the risk from response in emergency medical responders to not only protect the mental health of these individuals and their families, but to also preserve their ability to carry out their life saving missions.

There is now evidence regarding the salience of “dose of exposure” to predict psychological risk in disaster victims. For example, the Psychological Simple Triage and Rapid Treatment (PsySTART)⁴ mental health triage system has demonstrated a predictive relationship for clinical PTSD and depression in victims of a disaster. This tool, initially designed for disaster victims, relies not on symptoms but on discrete, observable doses of exposure, traumatic loss of loved ones, and other discernible disaster adversities such as displacement from home. The PsySTART mental health triage system for victims is the first step of a “stepped care” approach to matching those at risk with secondary assessment and access to acute evidence-based interventions that have shown to reduce or prevent PTSD when applied within 30 days after the event.⁵ A comparable approach specifically focused on emergency medical responders has not yet been reported. With this in mind, a cohort of deployed emergency medical responders involved in Typhoon Haiyan completed a novel PsySTART responder version to assess the ability of PsySTART risk factors to predict levels of PTSD and/or depression in a responder population. The PsySTART responder version utilized in this study includes

candidate risk factors derived from the PsySTART mental health triage victim version as well as emergency medical role-specific exposure factors hypothesized to be predictive based on previous pilot testing in a simulated large-scale mass casualty disaster drill in which emergency medical responders rated both the frequency and perceived stressfulness of each candidate risk factor.⁴

In November 2013, Typhoon Haiyan made landfall in the Philippine province of Eastern Samar, and subsequently made its path across Leyte, Northern Cebu, Capiz, Aklan, Northern Iloilo, and Northern Palawan. The official death toll reached 6069 according to the Philippine National Disaster Risk Reduction and Management Council and affected nearly 16 million people. There was a significant medical response, which heavily involved emergency medical responders, including nurses, physicians, and emergency medical technicians (EMTs). These response teams moved in from other areas of the country to augment the local response.

METHODS

A convenience sample of 75 emergency medical responders were recruited 60 days after the event by the National Institute of Health (NIH) of the Philippines as part of a comprehensive worker follow-up strategy. Of the 75 eligible responders, 46 (response rate = 61.3%) completed consent forms and all measures including the PsySTART responder version, PTSD Checklist (PCL-5), and Patient Health Questionnaire-8 (PHQ-8) ~4 months after Typhoon Haiyan hit the Philippines. Responders who completed the survey were nurses ($n = 22$), EMTs ($n = 8$), physicians ($n = 7$), medical students ($n = 4$), and other health professions ($n = 5$). The 46 respondents cared for 27,523 patients during their 60-day period in the Philippines. Caring for trauma patients and treating communicable diseases were the 2 most common tasks performed by the cohort with primary casualties (drowning, hypothermia, failed resuscitation) outnumbering secondary casualties (diabetes, hypertension). This is a similar context to other reported medical responses during Typhoon Haiyan.⁶

The PsySTART responder version assessed exposure-based risk factors specific to the responder medical response role as well as evidence-based risk factors adapted from the PsySTART mental health triage system for victims. PsySTART items for the responder version are displayed in Figure 1. The PCL-5 was utilized to measure PTSD.⁷ Scores created from this checklist range from 20 to 100. A score of ≥ 38 is the threshold for a provisional diagnosis of PTSD. The PHQ-8 measured depressive symptoms with possible scores ranging from 0 to 24. For the PHQ-8, a score of ≥ 10 is the threshold for a provisional diagnosis of clinical depression.⁸ Individual risk factors and the total number of risk factors were used to predict provisional PTSD and depression diagnoses based on the triage tool threshold scores.

RESULTS



















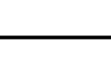
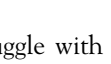
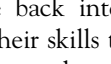
Responders indicated positive responses ranging from 0 to 11 for the 14 PsySTART risk factors [median = 6 (95% CI 5-8), interquartile range 4-9]. A total of 14 responders (30%) had $PCL-5 \geq 38$, indicating PTSD, and 3 (7%) had $PHQ \geq 10$, suggesting clinical depression. The number of positive PsySTART risk factors positively correlated with the number of both PCL-5 and PHQ-8 symptoms (Table 1). In addition, the total number of PsySTART risk factors was significantly related to PCL-5 scores ≥ 38 indicating a provisional clinical PTSD diagnosis⁷ (Figure 2). A cut-off point of 6 on PsySTART identified all 14 responders with $PCL-5 \geq 38$ (sensitivity = 100%, 95% CI 81-100%) and 11/32 responders with lower PCL-5 scores (specificity = 66%, 95% CI 47-81%). This yielded an area under the receiver operating curve of 0.80, meaning PsySTART ≥ 6 would correctly classify 80% of pairs of $PCL-5 \geq 38$ respondents (95% CI 0.68-0.93). Of these, 3 risk factors, "Were you ever asked to perform duties outside of your current skills?," "Did any serious injury, illness or death occur among your coworkers?," and "Did you ever feel your life was in danger?," were independently associated with $PCL-5 \geq 38$. The sum of these 3 risk factors yielded an area under the receiver operating curve of 0.88 (95% CI 0.79-0.97).

DISCUSSION

A subset of deployed emergency medical responders in Typhoon Haiyan demonstrated a risk for the development of provisional PTSD diagnoses and subclinical depressive symptoms based on their PHQ-8 and PCL-5 scores. Despite the small number of subjects, the PsySTART Responder version predicted provisional clinical PTSD and subclinical depressive symptoms ~4 months after Typhoon Haiyan deployment. The preliminary data presented here support the continued study of the PsySTART responder version to quickly identify the emergence of risk for clinical PTSD and subclinical depressive symptoms in emergency medical responders working in a catastrophic medical context. It also supports the feasibility of responders to efficiently and effectively use a self-triage tool to identify a risk to themselves and linkage to stepped care. The combination of PsySTART responder risk factors: "Were you ever asked to perform duties outside of your current skills?," "Did you ever feel your life was in danger?," and "Did any serious injury, illness or death occur among your coworkers?" were associated with clinical levels of PTSD in health-care responders independent of the total number of positive PsySTART risk factors. These findings are consistent with the literature, which shows direct personal threat of harm to self or coworkers demonstrates a positive predictive relationship with the occurrence of clinical PTSD.⁹ The finding regarding increased risk associated with performing duties outside of current skills is a novel finding. The potential use of the PsySTART responder version as a component of a comprehensive strategy to manage responder mental health consequences may identify

FIGURE 1

PsySTART Responder Version Triage Form.

| | |
|--|---|
| DID YOU WITNESS ANY SEVERE BURNS, DISMEMBERMENT, OR MUTILATIONS? (FOR EXAMPLE: CHILD WITH BURN TO MOST OF HIS/HER BODY SURFACE) |  |
| WERE YOU EXPOSED TO PATIENTS WITH PROLONGED SCREAMING DUE TO PAIN OR FEAR? |  |
| DID YOU WITNESS ANY PATIENT DEATH OR OTHER SEVERE INJURIES? (FOR EXAMPLE: AMPUTATION, EVISCERATION, OR DEATH OF PATIENTS WHO WERE UNDER YOUR CARE OR UNDER THE CARE OF YOUR TEAM) |  |
| WERE YOU ASKED TO PERFORM DUTIES OUTSIDE OF YOUR CURRENT SKILLS? (FOR EXAMPLE: TREATING ADULTS ALTHOUGH YOU ARE A PEDIATRICIAN OR DOING A MAJOR SURGICAL PROCEDURE ALTHOUGH YOU ARE NOT A SURGEON) |  |
| DID YOU EXPERIENCED ANY HAZARDOUS WORKING CONDITIONS? (FOR EXAMPLE: EXTREME SHIFT LENGTH, COMPROMISED SITE SAFETY/SECURITY, OR OTHER ISSUES) |  |
| DID ANY SERIOUS INJURY, ILLNESS, OR DEATH OCCURS AMONG YOUR COWORKERS? |  |
| WERE YOU UNABLE TO COMMUNICATE REGULARLY WITH YOUR OWN FAMILY OR SIGNIFICANT OTHERS? |  |
| DID YOU FEEL YOUR LIFE WAS IN DANGER? |  |
| WERE YOU FORCED TO ABANDON A PATIENT? (FOR EXAMPLE: LEAVING A LIVING PATIENT BECAUSE OF UNSAFE SITUATION OR OTHER FACTORS) |  |
| WERE YOU DIRECTLY IMPACTED BY THE INCIDENT AT WORK OR AT HOME? |  |
| WERE YOU RESPONSIBLE FOR MAKING EXPECTANT TRIAGE (TRIAL AS BLACK AND LEFT TO DIE) DECISIONS? (FOR EXAMPLE: DETERMINING THAT UNDER EXISTING CARE/SURGE CIRCUMSTANCES THAT NO EMERGENT CARE WAS OFFERED) |  |
| WERE YOU UNABLE TO MEET YOUR PATIENT'S CRITICAL NEEDS AT TIMES? (FOR EXAMPLE: LACK OF RESOURCES SUCH AS A DRUGS, LABORATORY, IMAGING, PATIENT SURGE, OR CRISIS STANDARD OF CARE CONDITIONS) |  |
| DID YOU HAVE DIRECT CONTACT WITH MANY GRIEVING FAMILY MEMBERS? |  |
| DID YOU HAVE CONCERNS ABOUT THE SAFETY OR WELL-BEING OF YOUR OWN FAMILY MEMBERS, SIGNIFICANT OTHERS, OR PETS WHILE YOU WERE DEPLOYED? |  |
| DID YOU EXPERIENCE ANY SERIOUS INJURY OR ILLNESSES AS A RESULT OF YOUR DEPLOYMENT ? |  |
| DID YOU WITNESS PEDIATRIC DEATHS OR SEVERE INJURIES? |  |
| DID YOU WITNESS AN UNUSUALLY HIGH NUMBER OF DEATHS? |  |
| UNABLE TO RETURN HOME? |  |
| DO(DID) YOU HAVE HEALTH CONCERNS FOR SELF DUE TO POSSIBLE AGENT/TOXIC EXPOSURE(BIOLOGICAL,CHEMICAL, RADIOLOGICAL/NUCLEAR)? |  |
| I AM NOT RECEIVING SUFFICIENT SUPPORT FROM OTHERS |  |
| NO TRIAGE FACTORS |  |

potential risk trajectories early without disclosure of more stigmatizing psychiatric symptoms as is common practice at present. In addition, the potential to build resilience to these risk factors before deployment/response with proper training is another important potential benefit. In the aftermath of response, early identification of any of these areas of concern after exposure can identify those at highest risk for mental health disorders so that early evidence-based acute interventions such as trauma-focused cognitive behavioral therapy can be provided¹⁰ to reduce the risk for poor outcomes.

CONCLUSIONS

First-line medical responders can struggle with PTSD symptoms as they continue to acclimate back into their daily routines at home and further utilize their skills to respond to disasters.¹¹ There is emerging evidence that certain early interventions can prevent or reduce the long-term consequences of PTSD.⁴ For those that put their lives at risk for others, such as the emergency medical responders described here, the PsySTART responder version can be utilized as a tool to quickly identify those most at risk for PTSD and depression. PsySTART triage enables a "stepped care"

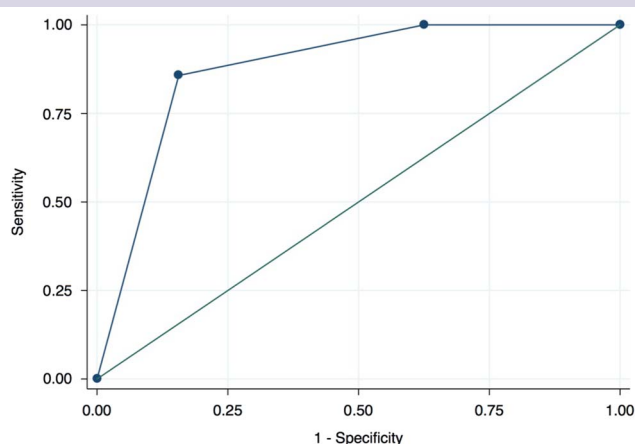
TABLE 1

Correlation Coefficients with *P*-values Among 3 Scores Derived from PsySTART, Post-Traumatic Stress Disorder-5 (PCL-5) Score, and Patient Health Questionnaire-8 (PHQ-8) Score (n = 46).

| | PsySTART Items | PCL-5 | PHQ-8 |
|----------------|----------------|----------|--------|
| PsySTART items | 1.0000 | | |
| PCL-5 | 0.5101 | 1.0000 | |
| | <0.0003 | | |
| PHQ-8 | 0.3311 | 0.6645 | 1.0000 |
| | <0.0246 | <0.00005 | |

FIGURE 2

Plot of Post-Traumatic Stress Disorder Checklist (PCL-5) Scores by PsySTART Positive Items with Regression Line (n = 46).



The horizontal line shows the threshold for the clinical diagnosis of post-traumatic stress disorder.

approach starting with triage, followed by secondary clinical assessment, and finally providing access to early evidence-based interventions to maximize medical responder resilience. The data presented here suggest that the PsySTART mental health triage system originally designed for victims can be translated to use with emergency medical responders. However, further work to replicate and refine the PsySTART

responder version with larger groups of responders across a variety of disaster settings and events is urgently needed.

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