PTSD and Prevention Strategies for First Responders

Biomedical and Psychosocial Components
Agenda

- Physiology of Stress
- PTSD
  - Diagnosis and Treatment
- Preventing PTSD
  - Research
  - Practical
A Police Officer During a Domestic Violence Scenario

- Scenario
- Encounters Angry Man
- Officer Shifts and Resets

Graph showing heart rate (BPM) over time with significant spikes indicating stress during the scenario.
Hypothalamus responds to level of cortisol (self-regulation)

HPA Axis (stress response system)

↑ Heart rate, respiration, motivation
Helps in short-term emergency
Cortisol floods receptors

Hypothalamus

Pituitary

CRH

ACTH

Adrenal Glands

Cortisol

Adrenaline

Pro-inflammatory Response

↑ Cholesterol

↑ Blood sugar

↓ Suppressed immune

10:08 AM
Prefrontal Cortex

Amygdala

Reason Suffers

PTSD

Addiction

Depression

Anger/fear

Increase

Reason Suffers
Criterion A:

- Stressor
- Experience/Witness
- Repeated indirect exposure
  - Death, injury, violence

PTSD

Death, injury, violence
Criterion B: Intrusive symptoms

- Upsetting memories
- Nightmares
- Flashbacks
Criterion C: Avoidance

- Thoughts/feelings
- External reminders
PTSD

Criterion D: Negative thoughts and mood (two required)

- Can’t recall key part of trauma
- Overly negative thoughts
- Blame
- Negative affect
- Decreased interest in activities
- Feeling isolated
- Difficulty experiencing positive feelings
Criterion E: changes in arousal (two required)

- Irritability or aggression
- Risky or destructive behavior
- Hypervigilance
- Heightened startle reaction
- Difficulty concentrating
- Difficulty sleeping
Criterion F: duration
Symptoms last more than 1 month

Criterion G: impairment
Social, occupational...

Criterion H: exclusion
Symptoms not due to drugs or other illness.
PTSD is all in your head
PTSD Symptom Study
Michigan

• 55 officers
• 38 agencies throughout state
Symptoms reported following traumatic events

- 38% nightmares
- 75% mind re-enactments
- 52% sleeping difficulties
- 28% guilt over outcome
- 51% attempts to avoid memory
PTSD Prevalence
Treatment

Cognitive Behavioral Therapy (CBT)
- Gradual/prolonged exposure

Cognitive Processing Therapy (CPT)
- Challenge unhelpful/distorted thoughts

Narrative Exposure Therapy
- Create revised narrative to put trauma in context

Mindfulness Based Stress Reduction (MBSR)

Eye Movement Desensitization Response (EMDR)
- Pairing memories with eye movements
Is everyone impacted equally by trauma?
• Ability to adapt in the face of trauma
• To reset HPA-Axis after stress
Genetic Component

• 30%
• Some individuals predisposed to be resilient
Developmental Components

1. Early adversity (e.g., abuse)

2. Family stability in face of trauma

HPA-axis programming
Oxytocin

• Neuropeptide that promotes social attachment

• Involved in attenuation of the fear response
Can we build resilience and prevent PTSD?
Can resilience be taught?

Review of 92 studies statistically significant positive effects from resilience training on 61% of the measured outcome variables:

- Physical health
- Mental health
- Performance
Stress Inoculation Training

• Mindfulness/Breathing Practices

RTI Study

351 Marines randomized into Tx and control groups pre-deployment

Tx group experienced 7x less PTSD than the control group after return

Toward Preventing Post-Traumatic Stress Disorder: Development and Testing of a Pilot Predeployment Stress Inoculation Training Program.
Hourani L1, Tueller S1, Kizakevich P1, Lewis G1, Strange L1, Weimer B1, Bryant S1, Bishop E1, Hubal R1, Spira J2.
Mindfulness Based Resilience Training (MBRT) for Police
Changes in Tx group vs control:

- **Reductions**
  - Aggression
  - Stress
  - Burnout
  - Sleep problems

- **Increases**
  - Flexible thinking
  - Non reactivity

N=61
Increasing resilience by 20% would reduce →

Save over $1 Billion

Scenarios

1. **Building Search**
   - Silent alarm; dim warehouse
   - Suspects reaches into jacket for identification

2. **High-speed Chase**
   - Suspects jumps from vehicle
   - Points gun at officers’ car

3. **Domestic Violence**
   - Woman crying with blood on her
   - Boy friend pulls weapon and points it at wife
   - Suspects then turns gun at officers and fires
Systolic Blood Pressure

Pre-Training

Post-Training

Avg Change

Building search

High-speed pursuit

Domestic violence

Tx

Control
Ability to Maintain Focus during the Scenario

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Pre-Training</th>
<th>Post-Training</th>
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</thead>
<tbody>
<tr>
<td>Building search</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>High-speed pursuit</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Domestic violence</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

- **Tx**
- **Control**
Personal & Organizational Quality Assessment

- ANGER: Treatment -14 vs Control -7
- DISTRESS: Treatment -20 vs Control -1
- DEPRESSION: Treatment -13 vs Control 16
- FATIGUE: Treatment -18 vs Control -1
- PEACEFULNESS: Treatment 8 vs Control -4
- VITALITY: Treatment 5 vs Control -3

Legend: Blue = Treatment, Brown = Control
How do we build resilience?

- Social support
- Self-regulatory skills
- Physical exercise
- Cognitive reappraisal
- Meaning making
- Purpose in life
- Altruism/compassion
- Gratitude
Cognitive Reappraisal

- Identify, challenge and replace stressful thought patterns and beliefs with more accurate and less rigid thinking.
Meaning Making

• Traumatic events disrupt sense of meaning.
• Meaning making restores congruency between life and appraisals of traumatic events.
Self-regulatory Skills

- Mindfulness
- Breathing
- Progressive relaxation
- Yoga
Compassion/Altruism

- Caring and giving to others boosts resilience

Research

- Comparison study: Compassionate subjects had lower blood pressure, heart rate, and levels of cortisol, buffering stress
- 5-year Study (n=846)
  - Stress linked to a higher chance of dying
  - But not among those who helped others
  - Helping others reduced mortality
Gratitude

Vietnam War veterans with higher levels of gratitude had lower rates of PTSD (2006).

Gratitude found to be major contributor to resilience following the terrorist attacks on September 11th (2003).
EAPFirst

Confidential Services for Vermont’s First Responders

Personal protective equipment must be worn
Prevention reduces claims

- Individual counseling
  - Financial
  - Legal
  - Family
  - Work
  - Mental Health
  - Substance
- Critical incident debriefings
Outreach

- Department Visits
- Ride-alongs
- Orientations

18 counselors
177 hours onsite
50 departments
Counselor Network
Peer Training

- Periodic regional peer support
- Peer/Counselor
- Outreach and culture change
- Ongoing supervision & support
Resilience Trainings

- Relaxation paired with progressive exposure
- HRV
- Video scenarios
Primary Issues individual Counseling

- Mental Health: 35%
- Workplace Stress: 10%
- Substance Abuse: 15%
- Relationship: 10%
Stress before & after EAP
Impact of Problem on Work

Considerable

Moderate

Limited

IMPACT ON WORK BEFORE EAP  IMPACT ON WORK AFTER EAP
Behavioral Health Screening and Brief Treatment (BST)
Risk Factors

- Substance
- Anxiety
- Nutrition/Exercise
- PTSD
- Depression
- Family
Engagement
Duration

• Depends on issue
• Range 1-12 sessions
• Average:
  • 4 sessions
  • 40 minutes each
Percent Improvement After Counseling

- Depression: 49%
- Binge Drinking: 34%
- Anxiety/Stress: 19%
- Physical Exercise: 25%
- Performance: 39%
## Cost Implications

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Estimated Savings per Case</th>
<th>Investment</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Future Healthcare Costs</td>
<td>$1,492</td>
<td>$400</td>
<td>~ 4:1</td>
</tr>
<tr>
<td>Restored Lost Productive Time at Work Costs</td>
<td>$2,902</td>
<td>$400</td>
<td>~ 6:1</td>
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</table>
Repeated exposure to trauma dysregulates HPA

Can lead to PTSD

Build resilience & reduce stress to prevent PTSD
Keys to a successful program

Robust EAP/Counseling Program

Outreach
Individual Counseling
Critical Incident Debriefing
Peer Support training
Resilience Training
Behavioral Screening and Intervention
Contact

Steve Dickens
Director, Invest EAP Centers for Wellbeing

Phone: 802-863-7509
E-mail: steved@investeap.org

Link to resources: http://bit.ly/investeap_resilience