



# Care of Complicated Burn and Trauma Patient

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# Disclosures

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No relevant disclosures to report

Off-label uses of medications will be discussed in this talk

# Introduction

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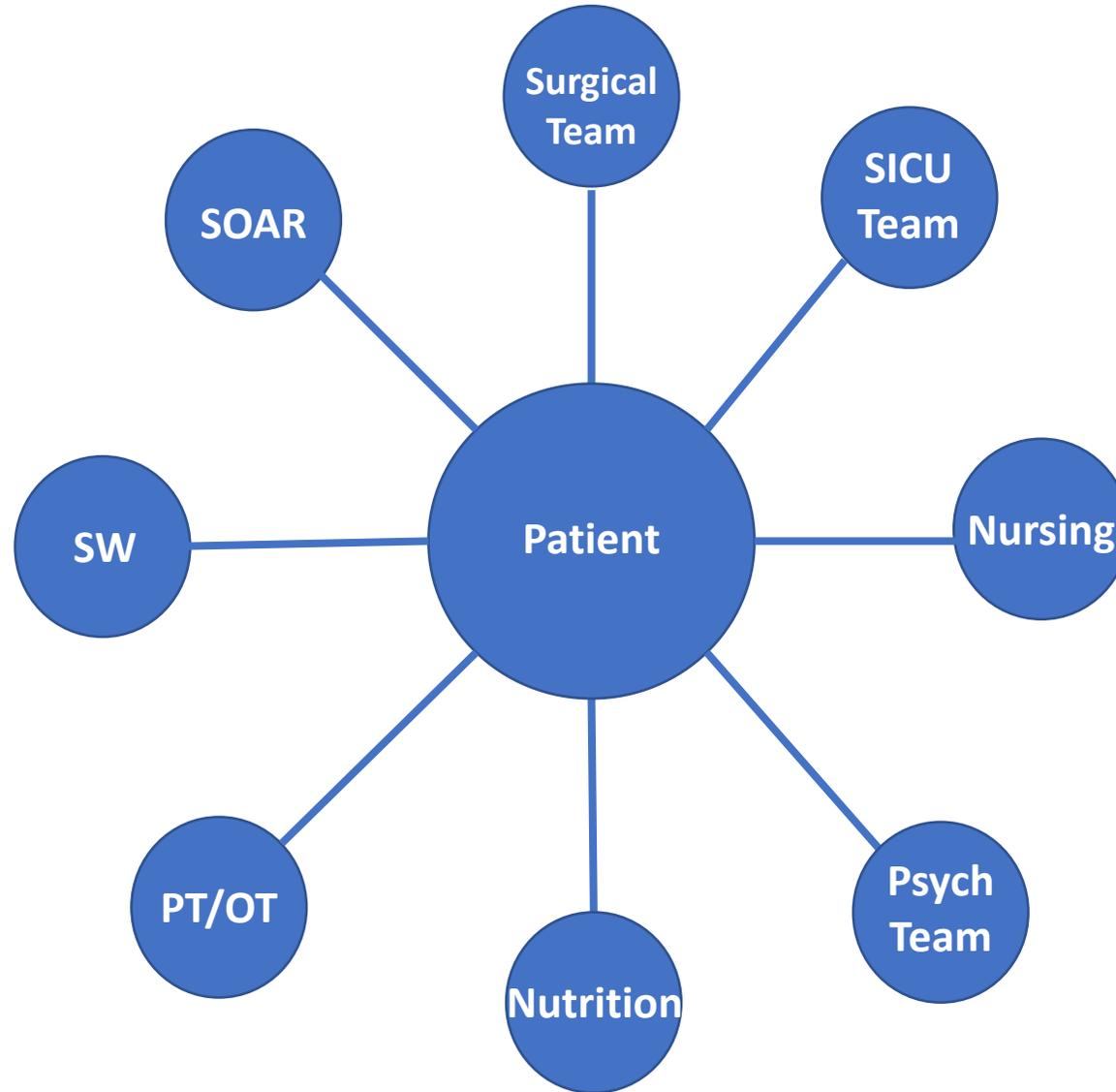
- Psychiatric care for burn and trauma patients may be as challenging as their surgical care.
- Depending on their experience, physicians, nurses and trainees new to a surgical units can find working with this population a stressful experience
- Education regarding psychiatric illness, psychosocial risk factors and treatment is important for staff on burn and trauma units in order to enhance resilience and increase preparedness.

# Objectives

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- Recognize demographic factors of burn and trauma victims
- Describe the prevalence and risk factors of traumatic injuries
- Discuss the effect of premorbid psychiatric illness
- Understanding recovery after injury and the role of the CL psychiatrist
- Identify psychiatric co-morbidities in surgical trauma patients and suggested treatments

# Network of Care for the Trauma Patient



# Incidence of Injury



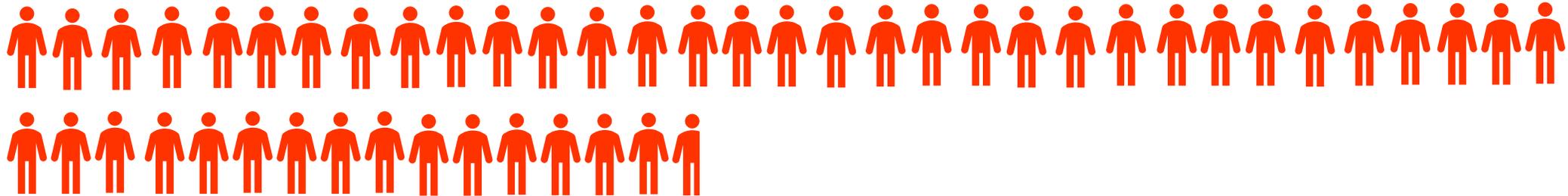
- 39% of premature deaths are caused by unintentional and preventable injuries
- Injury and violence are the leading causes of death among young people between 1 and 44 years
- More than 25 million people in the US are treated for an injury in the ED each year
- 3 million patients are hospitalized due to their injuries

\* Roughly 200 admissions annual per burn center

# Incidence of Burn Injury

 = 10,000 patients

No. of patients are treated annually for burn-related injuries in the US



No. of patients admitted for treatment of burn-related injuries



No. of patients treated in at one of the 128 designated burn centers



\* Roughly 200 admissions annual per burn center

# Characteristics of Burn Patients and Injury

98.6% overall survival rate for burn injuries

Mortality Risk Factors: Advancing age and Inhalation injury

## Patient

Two-thirds are male  
Avg age = 32 years

19% < 5 years old  
13% > 60 years old

## Location

73% at home  
8% at work  
5% in street or highway  
5% during recreational activity  
9% Other

## Type of Injury

34% Scald  
9% Due to Contact  
4% Electrical  
3% Chemical  
3% Fire/Flame

## Complications

Pneumonia  
Respiratory failure  
Cellulitis  
Septicemia  
Wound infection

# Risk Factors Leading to Burn and Trauma Injury

## Children

Increased exploration in young children  
Access to scalding or flammable liquids or flames  
Lack of safety belt or helmet use  
Childhood depression  
Learning disability  
Behavioral disturbances  
Parental psychopathology  
Poverty

## Adults

Drug and alcohol intoxication and dependence  
Major mental illness  
Suicide attempts  
Antisocial personality disorder  
Chronic medical illness  
Dementia  
Exposure to occupational hazards  
Homeless  
Abuse/Homicide  
Lack of safety belt or helmet use

# Pre-Injury Psychopathology

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- Psychiatric illness is over-represented in individuals with burn and trauma injuries
- 2/3 of patients had at least one life-time psychiatric diagnosis
  - Self-inflicted burns often have a high prevalence of serious mental illness
- Observed to require **longer hospitalizations**, more frequently experience **complications during treatment** and **problems with rehabilitation and postburn adjustments** and are at **high risk for developing other psychiatric disorders**

# Phases of Care and Role of CL Psychiatrist



## Emergent Phase

**72h post injury**

**Focus on management  
of pain and delirium**



## Acute Phase

**Acute until Discharge**

**Focus on sleep, acute  
stress or mood disorders**



## Long-term Recovery

**Post Discharge**

**Target Psychosocial  
Adjustment**

# Phases of Care- Case Example

A 19-year-old male has been transferred to your hospital's surgical intensive care unit from a community hospital for management of several injuries after being involved in a motor vehicle accident. Per EMS, the patient was the driver of the vehicle, and the passenger was dead on arrival to the scene. He was intubated at the scene and taken to a local hospital, where a massive transfusion protocol was initiated. His labs were significant for elevated alcohol blood level as well as urine toxicology positive for THC, cocaine and fentanyl. His injury burden was significant for bilateral open femur fractures and RLE popliteal thrombus, bilateral unstable pelvic fractures, small retroperitoneal hematoma, R radial and ulnar fractures, and several fractures in his right hand. Upon arrival to your facility, his right foot was found to be mottled and cool with no DP pulse and 1+ palpable PT pulses. He was taken to the OR emergently for external fixation of open fractures with orthopedics and embolectomy of RLE with vascular surgery.

Upon arrival to the surgical ICU, he was intubated and sedated. During an attempt to wean the sedation, patient appears confused and uncomfortable, restless and agitated with increased heart rate. He is also found attempting to get out of bed and pulling at his lines. The ICU team has reached out to the psychiatry consult service to assist with the patient's agitation.

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## Emergent Phase

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## **Survival Fear and Search for Meaning**

The patient is often hypervigilant, tremulous and focused on physical recovery

May benefit from frequent re-orientation and repetition of basic information

# Phases of Care and Role of CL Psychiatrist



## Emergent Phase

**72h post injury**

**Focus on management  
of pain and delirium**

## **Delirium**

Occurs in 10-30% of all patients and 80% of patients requiring ICU admission

Cause increased risk in death

Risk factors: TBI, advanced age, pre-morbid dementia, and substance use

Use of benzodiazepines in the acute period cause higher risk of developing delirium when compared to high doses of opioids

Treatment: Frequent re-orientation and medications to manage agitation and hallucinations if needed

# Phases of Care and Role of CL Psychiatrist



## Emergent Phase

**72h post injury**

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## **Pain Management**

High dose IV opioids are needed to provide relief from pain for those with severe injuries

Use of facial expression, body language and autonomic signs are helpful when the patient is unable to communicate

Pain during hospitalization is associated with worse adjustment and reduced physical functioning up to 2 years after discharge

Can consider psychological techniques to manage pain including education, hypnosis, relaxation, patient participation in dressing changes and biofeedback

Treatment: Can consider use of low-dose antipsychotics, benzodiazepines or beta blockers to treat anticipatory anxiety around dressing changes

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# Phases of Care- Case Example

Patient has now had several trips to the OR for surgical repair and is s/p a right below the knee amputation and pelvic fixation. His delirium has improved, and he has been extubated. He has stepped down from the ICU and currently on the Vascular Surgery service with Plastics and Orthopedic surgery also following. He continues to require intermittent visits to the OR for debridement and lower extremity washout.

Per surgical team and nursing, patient has significant anxiety, difficulty sleeping due to nightmares and ongoing issues with pain control. There is concern that he has been seeking pain medications and the team feels that he should be on lower doses of pain medications in this current stage of recovery. When working with nursing, he will often refuse turns or wound dressing. He has also not been willing to work with PT and OT. The primary team requests assistance with anxiety and questions whether there is a somatic component to his pain.

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# Phases of Care and Role of CL Psychiatrist

## Standardized Psychological Assessment Tools

### Post-Traumatic Stress Symptoms

- PTSD Checklist for DSM-5 (PCL-5) → brief 20 item questionnaire that aligns with current diagnostic criteria and has strong psychometric properties
- Impact of Event Scale-Revised (IES-R) → valuable for tracking symptom changes over time and available in multiple languages

### Depressive Symptoms

- Patient Health Questionnaire-9 (PHQ-9) → brief 9 item questionnaire that is readily available with established cutoff scores



### Acute Phase

**Acute until Discharge**

**Focus on sleep, acute stress or mood disorders**

## Standardized Psychological Assessment Tools

Burn Specific Health Scale-Brief (BSHS-B) → comprehensive and burn-specific quality of life measure with 9 domains relevant to burn recovery

Satisfaction with Appearance Scale (SWAP) → brief 14 item questionnaire developed for burn survivors

### Pediatric Populations

Infant's Dermatology Quality of Life Index (IDQOL)

Children's Dermatology Life Quality Index (CDLQI)

# Phases of Care and Role of CL Psychiatrist

## Depression

Most common psychiatric symptom after an injury

Occurs in ~4% of patients at discharge → 10-23% at 1 year after injury → 42% at 2 years

Risk Factors: pre-morbid mood disorders, poor coping skills, female gender and facial burns

Treatment: SSRI, SNRI, Stimulant (apathy or abulia)



## Acute Phase

### Acute until Discharge

**Focus on sleep, acute stress or mood disorders**

## Providing Psychological Support

Educating the patient about the expected course of recovery specific to the type of injury sustained

Orienting to expected symptoms that occur often in this phase of recovery

Creating a program for self-care and activities with realistic goals based on the degree of physical impairment with gradual progression

Focusing on returning abilities versus remaining disabilities by verbal acknowledgement and praise of any improvements

# Phases of Care and Role of CL Psychiatrist

## Acute Stress Disorder

Occurs in 11-32% of all patients

Risk factors: Scope of injury, poor pre-morbid mental health, tendency to blame others for the injury

Increases the risk of developing PTSD

Treatment: Mixed data on SSRIs and beta blockers, stress dose steroids, multi-session CBT

Contraindications: psychological debriefing and benzodiazepines



## Acute Phase

**Acute until Discharge**

**Focus on sleep, acute stress or mood disorders**

## Post Traumatic Stress Disorder

Occurs in 25-45% of all patients

Risk factors: previous history of psychiatric illness, acute pain symptoms, female gender and personality characteristics (externalization, poor coping style and neuroticism)

Treatment: quetiapine (hyperarousal and sleep maintenance), prazosin (nightmares), sertraline, perioperative ketamine, CBT

# Phases of Care and Role of CL Psychiatrist

## Generalized Anxiety Disorder

Occurs in 20% in adults during the year after injury

Related to avoidant coping style

Treatment: SSRI, SNRI, benzodiazepines, CBT



## Acute Phase

**Acute until Discharge**

**Focus on sleep, acute stress or mood disorders**

## Substance-related and Addictive Disorders

26% had alcohol abuse or dependence and 6.5% had drug abuse or dependence during a 6-month follow-up after trauma

Risk Factors: Prior abuse, avoidant coping pattern

Treatment: Engagement in substance use treatment, motivational interviewing

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## Long-term Recovery

**Post Discharge**

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# Phases of Care- Case Example

The patient was diagnosed with PTSD and the psychiatrist recommended an increase in his duloxetine as well as adding prazosin for nightmares. He was also started on propranolol as needed for hyperarousal and anxiety. An Inpatient Psychology referral was placed to assist with coping with recent injuries as well as pain. The Psychologist has been meeting with the patient weekly for brief psychotherapy using CBT techniques. The patient was able to wean to a PO pain regimen and more consistently work with PT/OT.

Given significant improvements, the surgical team has cleared him for rehab placement.

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# Phases of Care and Role of CL Psychiatrist

## **Resilience and Post-traumatic Growth**

Resilience = trait that exists before exposure to trauma or adverse event

*Focus on individual, relationships and social network*

Posttraumatic Growth = development of new behaviors and attitudes that were not present before the event

*Focus on new possibilities, relating to others, personal growth, spiritual change, and appreciation of life*



**Long-term Recovery**

**Post Discharge**

**Target Psychosocial  
Adjustment**

# Phases of Care and Role of CL Psychiatrist

## **Re-integration and Coping with Residual Physical Symptoms**

Quality of life is associated with pre-injury educational level, post injury stress disorder and likelihood of returning to work

Survivors of severe injury found that 1 year after injury, body image satisfaction and distress was the most significant predictor of overall psychosocial function

Chronic pain and itching with deep thermal burns with hypertrophic scars

Focus on active and flexible coping, social support, enhanced self-image and successful search for meaning



**Long-term Recovery**

**Post Discharge**

**Target Psychosocial  
Adjustment**

# Phases of Care and Role of CL Psychiatrist

## Support for Parents and Caregivers

Caregivers of burn survivors experience a significant psychological burden that can persist long after the initial injury leading to decreased quality of life.

Risk Factors for Caregivers of Children → increased burn surface area, longer hospital stays, female sex, younger age, travel time for care and caregiver burden

Risk factors for Caregivers of Adults → increased burn surface area and caregiver PTSD

Important to consider interventions specifically target to caregiver well-being



Long-term Recovery

**Post Discharge**

**Target Psychosocial  
Adjustment**

# Conclusions

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- Psychiatric care for this population can be challenging and requires multidisciplinary approach to treat all facets of patient's care
- 2/3 of patients had at least one life-time psychiatric diagnosis
- The emergence of neuropsychiatric symptoms correlates with the phase of care and allows framework for psychiatric assessment
- Depression is the most common psychiatric symptom after an injury.
- It is important to promote resiliency and post traumatic growth for the long-term recovery of the patient.

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