

CEN Review Course Agenda

Day 1						
<i>Format: Description Presentation Treatment</i>						
Unit #	Topic	Item #	Duration	Start time	End time	speaker
1	Neuro	3	120	800	1000	Dr. Kelly Urban UAMS
	Break		10	1000	1010	
4	Cardiovascular	1	90	1010	1140	Lynnette Flynn - AHH
	Lunch			1140	1215	
3	Ocular	6B	45	1215	1300	Dr. David Warner - UAMS
2	Maxillofacial	6A	45	1300	1415	Lynnette Flynn - AHH
	Break		15	1415	1430	
10	Orthopedic	6C	60	1430	1530	Traci Motes APRN
6	Gastrointestinal	4A	60	1530	1630	Lynnette Flynn - AHH
Q&A						
Day 2						
						August 9th Wed
5	Respiratory	2	120	800	1000	Dr. Kelly Urban - UAMS
	Break		15	1000	1015	
8	Gynecology	4C	60	1015	1115	Dr. Kelly Urban UAMS
	Lunch		45	1115	1200	
9	Obstetrical	9	60	1200	1300	Dr. Kelly Urban UAMS
	Break		15	1300	1315	
11	Wound	6D	75	1315	1445	Dr. Kelly Urban UAMS
	Break		15	1445	1500	
7	Genitourinary	4B	60	1500	1600	Lynnette Flynn
Q&A						
			10	1600	1630	
Day 3						
						August 10th Thurs
12	Psych/Social	5A	60	800	900	Lynnette Flynn
	Break					
13	Medical Emergencies	5B	120	910	1110	Patti Esmail - SVI
	Lunch		35	1110	1145	
14	Environmental	7A	60	1145	1245	Jeremy Stogner - UAMS
15	Toxicological	7B	60	1245	1345	Jeremy Stogner - UAMS
	Break			1345	1400	
16	Communicable Diseases	7C	45	1400	1445	Jeremy Stogner - UAMS
	Break					
17	Professional issues	8	75	1500	1615	Dr. Kelly Urban UAMS
Q&A						
			15	1615	1630	



Mental Health Emergencies

CEN Review

1



Behavioral Content

1. Abuse and neglect
2. Aggressive/violent behavior
3. Anxiety/panic
4. Bipolar disorder
5. Depression
6. Homicidal ideation
7. Psychosis
8. Situational crisis (e.g., job loss, relationship issues, unexpected death)
9. Suicidal ideation



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Mental Health Triage

- > Goal is to determine the severity of the problem while protecting the patient, staff and others.
- > May exhibit intense personal distress
 - Suicidal ideation
 - Self-neglect
- > Other mental emergencies
 - Acute anxiety/panic attacks
 - Severe depression
 - Substance abuse
- > Use the mental Health Triage Scale to categorize

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Tcode	Category	Description	Presentation
1	Emergent	Actively suicidal or homicidal Severe behavioral disturbance	Violent Posses a weapon Self-injurious behavior Verbally aggressive Grave disability Requires restraint Drug or alcohol abuse with psych sx.
2	Urgent	Possible danger to self or others Moderate behavioral disturbance	Agitated Confusion Withdrawn Suicidal ideation without a plan Hallucinations Delusions Severe depression or anxiety
3	Semi-urgent	Moderate distress	No agitation or restlessness Cooperative Gives a coherent history Suicidal ideation but accompanied by friend or family Irritable without aggression
4	Non-urgent	No acute distress	Cooperative Communicative Compliant Known patient with chronic symptoms
5	Non-urgent	No distress	Medication request or refill

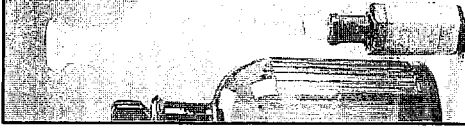
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General Approach

- > Attempt to establish therapeutic rapport
- > Be honest and genuine
- > Expect safe behavior and state this clearly
- > Use direct eye contact (*consider culture*)
- > Listen attentively but redirect as needed
- > Speak clearly without jargon
- > Encourage participation in decision making
- > Anticipate emotional component, validate feelings
- > Do not be afraid to admit ignorance
- > Include family and others if possible

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Mental Health Emergencies

Anxiety disorders

- Panic disorder
- Generalized anxiety
- Obsessive-compulsive
- Posttraumatic stress
- Phobias

Depressive disorders

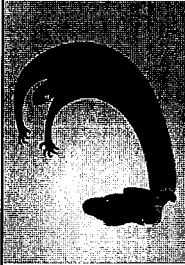
- Major depressive
- Acute grief

Disorders with psychosis

- Acute psychosis
- Schizophrenia
- Paranoia
- Bipolar

Suicide

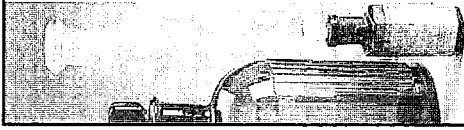
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Anxiety

- > Anxiety is a diffuse, unfocused response that alerts to impending threat.
- > Fear is object focused
- > Frequently co-occurs with depressive disorders or substance abuse
- > Attack begins without warning with intense fear, palpitations, chest pain, SOB and dizziness and often have sense of impending doom, fear of losing control
- > Typically peaks in 10 min or less and dissipates within 30 min
- > Does not lose contact with reality but insight and judgment are impaired.

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Panic Attack

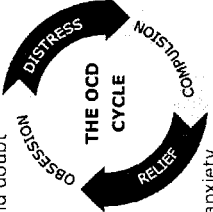
> Treatment

- Promote a safe and supported environment
- > Provide general emotional support
- > Ruling out physiologic causes
- > Resolving concerns about safety
- > Direct toward reality
- > Consider anti-anxiety meds
- > Emphasize importance of mental health treatment on a non-emergent basis

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Obsessive-Compulsive disorder

- > Symptoms begin in childhood or adolescence 30% of the time
- > Obsessions
 - Recurrent thoughts, images and impulses that invade the mind causing intolerable anxiety. Preoccupations make no sense and may be repulsive
- > Compulsions are devised to relieve the anxiety and doubt generated by an obsession
 - Handwashing, Showering or house cleaning
 - Excessive ordering and arranging
 - Checking and rechecking, Counting, touching
 - Excessive slowness in activities i.e. toothbrushing
 - Constant searching for reassurance the threat is gone
- > Not delusional and not hallucinating, they just cannot control compulsive response to anxiety



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PTSD

- > Develops after exposure to a terrifying event or ordeal where physical harm occurred or was threatened
- > Patients experience emotional, physical, behavioral and psychological impairment
- > Symptoms include reexperiencing, avoidance and hyperarousal

Interventions

- > Remain calm and relaxed
- > Ass risk for suicide and violence
- > Allow verbalization of feelings/concerns
- > ID traumatic event
- > Administer antidepressants and anxiolytics as indicated



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Depressive Disorders

Major depressive disorder is when symptoms are present during all or most of the day, every day, for at least 2 weeks.

Symptoms	Interventions
> Feeling worthless, lonely, helpless > Guilt > Physical fatigue or agitation > Sleep disturbances > Weight change of 5% in 1 mo. > Suicidal ideation	• Provide safety and security • Assess risk for suicide • Do NOT isolate the patient • Decrease excessive stimuli • Avoid forced decision making • Encourage expression of feelings • Involve family • Be genuine and empathetic • Make referrals

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Acute Grief



Symptoms

- > Shock, disbelief, denial
- > Anger, sadness, guilt
- > Helplessness
- > Sleep disturbances

Intervention

- > Give supportive dialogue
- > Encourage expression
- > Provide privacy in a room with normal lighting but decreased stimuli
- > Stress proper nutrition/fluid intake
- > Connect to support groups, family and Make referrals

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Suicidal Behavior

- > 2nd leading cause of death ages 10-34
- > 4th ages 35-44
- > Firearms > 50%

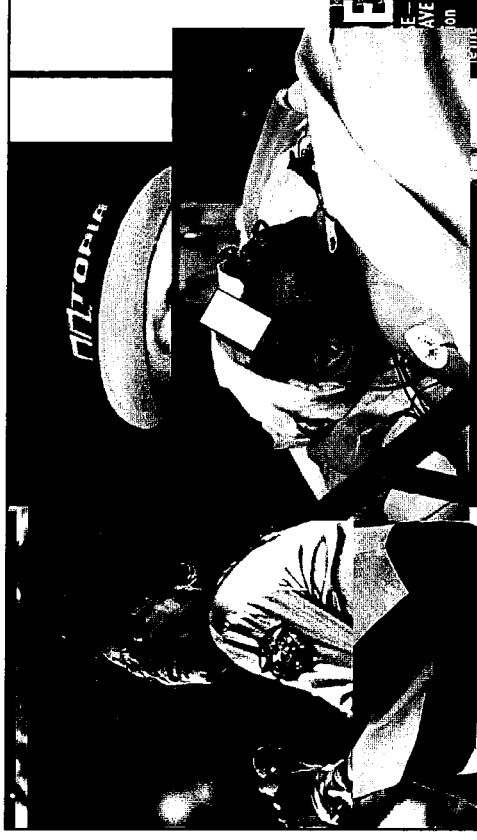
Potential

- > Males 4x > females, 70% are white men
- > Risk is highest in the spring
- > Most have a mental illness
- > Depression, bipolar, schizophrenia and substance abuse

Signs of increased risk

- > Indifference, fatigue, restlessness, agitation
- > Withdrawal, decreased activity

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Suicidal Patient Approach

Goal – all considered emergent and need a safe exam room immediately

- > One on one observations and document
- > Medically stabilize if attempt has occurred
- > Then focus on mental health and safety

Interventions

- > Undress and remove all dangerous items
- > Encourage talk about the problem that led to attempt
- > Assist in looking for alternative solutions
- > Help manage chronic illness if present
- > Administer meds if appropriate
- > Involve family and friends with permission
- > Prepare for admission
- > Obtain consults

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Emergencies with Psychoses

Symptoms

- Delusions
- Hallucinations
- Disorganized speech
- Grossly disordered behavior

Interventions

- Decrease stimuli
- Attempt to build an alliance
- Undress and remove dangers
- Give antipsychotics meds
- Apply restraints only as last resort to protect the patient and others

- Dementia
- Delirium
- Brain tumor
- Substance use
- Schizophrenia



Schizophrenia

- > Means 'to split the mind'
- > Onset young adult
- > Has 5 subtypes
 - Paranoid
 - Disorganized
 - Catatonic
 - Undifferentiated
 - Residual
- > Symptoms + or -

+ symptom	- symptom
Hallucinations	Apathy feeling indifferent
Delusions fixed false beliefs	Alogia speaking little with minimal content
Thought disorganization changes topics, irrelevant responses	Flat affect no facial expressions
Bizarre dress or behavior Disheveled or idiosyncratic dress, regressive or agitated behavior	Anhedonia feeling no joy or pleasure
Perseveration persistent adherence to single topic	Avolition lack of will, ambition or drive
Ideas of reference False belief external events have special meaning	
Ambivalence Contradictory beliefs about the same person or thing	

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Schizophrenia

Interventions

- Monitor for threats to self or others
- Undress and remove dangers
- Establish a therapeutic alliance
- Use simple concrete expressions and brief sentences
- Avoid figures of speech (misinterpretations)
- Project a confident non-threatening manner
- Listen to gain clues regarding thought distortions
- If paranoid, avoid closed or blocked doorways
- Admin meds as indicated
- Reduce stimuli
- Explain all actions

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Paranoia

A symptom of several psychiatric conditions demonstrating a loss of reality through a delusional thought system.

Generally persecutory or grandiose and with a coherent theme

Persecutory delusions may create feelings of suspicion, fear, anxiety, anger, hostility or violence

Grandiose delusions may lead the patient to engage in high-risk behaviors.

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Paranoia

Symptoms

- > Pervasive mistrust
- > Guarded, hypervigilant
- > Blames others
- > Illogical thought processes
- > Obsessive thinking
- > Restless, agitated
- > Combative or assaultive

Interventions

- > Promote safety
- > Avoid psychological challenges and threats
- > Use simple concrete expressions
- > Set limits on behavior
- > Explain actions in advance
- > Remain calm and authoritative
- > Sit or stand at same level
- > Minimize stimuli
- > Encourage verbalization
- > To not validate false beliefs but don't try to convince patient his delusions are erroneous

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Bipolar Disorder Mania

Manifested by episodes of depression and mania or hypomania
½ will have some functional disability, 50% will attempt suicide, 20% will succeed.

Meds:

- > Lithium
- > Depakote
- > Lamictal
- > Tegretol

When on meds, assess therapeutic levels

> Symptoms

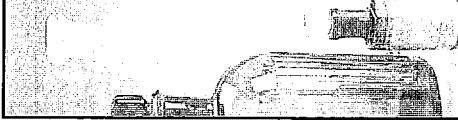
- Elation, irritability
- Pressured speech
- Racing thoughts, flight of ideas
- Increased activity, Grandiosity
- Disinhibition, Impulsivity, Impaired judgment
- High-risk behavior, Sexual acting out
- Preoccupation with ideas

> Intervention

- Safety, decrease stimuli
- Use authoritative, nonthreatening manner
- Allow pacing
- Do NOT encourage talk, ask succinct questions
- Medicate as indicated
- Use mechanical restraints as a last resort.



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The Violent Patient

- > Use empathetic yet firm verbal means to establish a collaborative relationship with the patient.
- > Appear unthreatened, in control
- > Care for your personal safety
- > May result from:
 - Mania
 - PTSD
 - Anxiety and panic
 - Dementia
 - Delirium
 - Psychosis
 - Personality disorders
 - Substance intoxication
 - Withdrawal



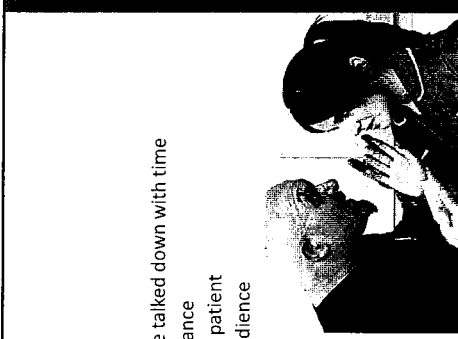
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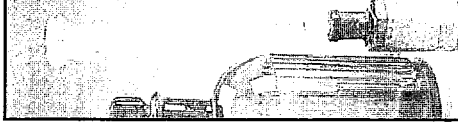
The Violent Patient

Interventions

- Always take threats seriously
- Do not rush the patient, most can be talked down with time
- Engage in conversation, establish alliance
- Maintain unobstructed access to the patient
- Remove harmful objects, Remove audience
- Speak in simple, direct sentences
- Allow verbalization of complaints
- Be clear, nonthreatening and honest
- Stand sideways
- Keep hands visible
- Always position near the door
- Do NOT interact with them alone

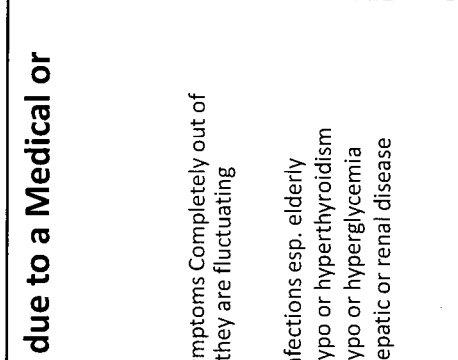


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Mental Emergencies due to a Medical or Neurologic Disorder

- > ID medical issues
- > MSexam is indicated
- > Key assessment: behavioral symptoms Completely out of character for the individual or they are fluctuating
- > **Causative Conditions:**
 - Cerebral tumors
 - Head injuries
 - Epilepsy
 - Migraine headache
 - AIDS
 - Infections esp. elderly
 - Hypo or hyperthyroidism
 - Hypo or hyperglycemia
 - Hepatic or renal disease



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Delirium

- > “Characterized by rapid onset and fluctuating course, the symptoms of delirium include disturbances in consciousness and attention and changes in cognition, such as memory deficits or perceptual disturbances”
- > Hallucinations, illusions, and delusions are not required
- > Not psychosis
- > Old names?
- > Potentially avoidable
- > Must be assessed on a regular basis

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Dementia

- > *Gradual* onset of memory impairment and cognitive disturbances
- > *Slow, steady* decline in cognitive function
- > Can be organic or metabolic in etiology, but typically **not reversible** and often not treatable



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Delirium: Etiologies and Risk Factors

> **All things in acute care**

> History of ...

> Medical history of ...

- CHF
- HIV
- Renal and or liver failure
- Endocrine disorders
- **CoVID-19**

Anticholinergic agents

Systemic insult

- Infection
- Trauma
- Hypoxia
- Hypotension

BBB injury

Neuroinflammation

- Microglial activation
- Astrocytosis
- Cytokine release

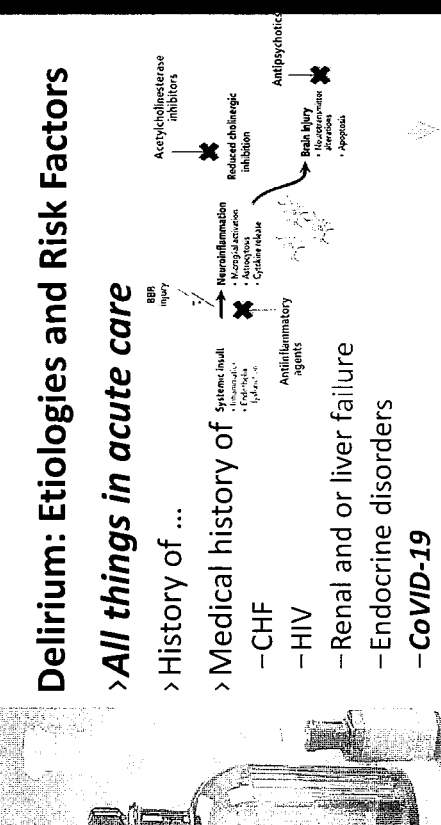
Reduced cholinergic inhibition

Acetylcholinesterase inhibitors

Brain injury

- Hypoxia
- Trauma
- Anesthesia
- Agitation

Antipsychotics



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Delirium: Clinical Presentation

- > Disorientation/confusion
- > Decreased attention span and ability to focus
- > **Hyperactive type**
 - Restless and agitated
 - Does not follow commands
 - Wide mood swings
 - Attempts to get out of bed
- > **Hypoactive type**
 - More common, worse outcome
 - Lethargy
 - Withdrawal
 - Decreased responsiveness





Delirium

- > Prevention!
- > Early ID of risk factors
- > **THINK**
 - **T**oxic Situations (CHF, meds, organ failure)
 - **H**ypoxemia
 - **I**nfection/Immobilization
 - **N**onpharmacological interventions
 - **K**⁺ or Electrolyte problems
- > **Accurate Assessment**
 - Delirium Rating Scale
 - Confusion Assessment Method – ICU
 - Richmond Agitation and Sedation Scale

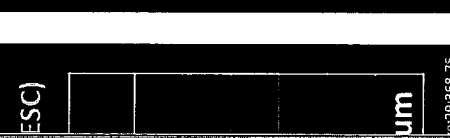


Assess Sedation First!



Delirium and Dementia Screening Measures

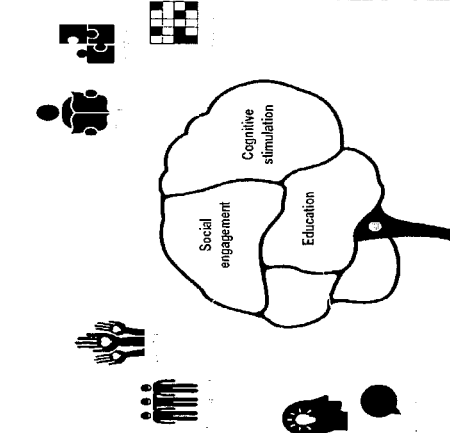
Measure	Purpose
Delirium	
Confusional Assessment Method ^{1*}	Quickly identify delirium in clinical and research settings
Confusional Assessment Method in the ICU ^{1*}	Monitor delirium in ICU settings
Richmond Agitation and Sedation Scale ^{2*}	Measure agitation or sedation level
Nursing Delirium Screening Scale ^{3*}	Measure continuous delirium in hospital settings
Dementia	
Montreal Cognitive Assessment ^{1*}	Assess orientation, attention, memory, language, visual construction
MoCA-Bind ^{2*}	Assess orientation, attention, memory, and language in examinees who are blind
Dementia Rating Scale-2 ^{3*}	Measure cognitive functioning in examinees with known or suspected dementia
Repeatable Battery for the Assessment of Neuropsychological Status ^{4*}	Measure cognitive functioning in adults with neurological disturbance
Mini-Mental State Examination ^{5*}	Screen for mental impairment





Delirium

- > Treatment – Modification of risks
- > Review all medications
- > Treat electrolyte and metabolic derangement
- > Nonpharmacological
- > Pharmacological



Assess Sedation First!



Question 3

A patient with a documented history of schizophrenia is admitted with diabetic ketoacidosis. A priority of the admission nurse would be to do all of the following, **except**:

- Review all preadmission medications
- Contact the patient's counselor with the patient's permission
- Hold all psychiatric medications pending regulation of the blood glucose level
- Ask the patient if he knows why he was admitted

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Question 3—Rationale

A patient with a documented history of schizophrenia is admitted with diabetic ketoacidosis. A priority of the admission nurse would be to do all of the following, **except**:

- Hold all psychiatric medications pending regulation of the blood glucose level—Medications should only be held if there is a clear benefit to doing so. Many of the psychiatric medications have a potential for and heighten their own effects if the blood glucose is altered.
- Review all preadmission medications—Should be done with all patients
- Contact the patient's counselor with the patient's permission—Continuity of care is important with every admission, and always important with behavioral health issues
- Ask the patient if he knows why he was admitted—Should be done with all admissions

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Question 4

Three days after undergoing elective hip replacement, a patient has HR 125, RR 36, BP 164/84; is diaphoretic; and has dilated pupils. He is anxious, denies pain, and appears to be having auditory hallucinations. Despite frequent reorientation from the nurse, the patient continues to try to climb out of bed. Which of the following orders might be appropriate?

- Lorazepam (Ativan)
- Soft wrist restraints
- Methadone
- Leaving the TV or radio on in the room for background noise

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Question 4—Rationale

Three days after undergoing elective hip replacement, a patient has HR 125, RR 36, BP 164/84; is diaphoretic; and has dilated pupils. He is anxious, denies pain, and appears to be having auditory hallucinations. Despite frequent reorientation from the nurse, the patient continues to try to climb out of bed. Which of the following orders might be appropriate?

- Lorazepam (Ativan)—To calm the patient's anxiety, but does not address the underlying cause of the behavior, providing a temporary decrease in the patient's anxiety.
- Soft wrist restraints—Restraining this patient would be unsafe, and might even escalate the hallucinations
- Methadone—No indication for this medication at this point
- Leaving the TV or radio on in the room for background noise—Decreasing the stimulation would be preferred

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Substance Abuse: Nursing Concerns

- > Physical / mental dependence
- > Withdrawal symptoms
- > Assessment of cause
- > Current health
- > Nutritional state
- > Tolerance/cross tolerance
- > Mental health issues
- > Self-care post discharge
- > Patient education and adherence
- > Additional referrals
- > Community and social support

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Question 5

A nurse walks into the family waiting room and discovers a physical altercation between two visitors has just begun. The nurse should:

- Get between the two individuals and tell them their behavior is inappropriate
- Ask the largest man in the waiting room to break it up
- Pull the fire alarm by the door
- Call security

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Question 5—Rationale

A nurse walks into the family waiting room and discovers a physical altercation between two visitors has just begun. The nurse should:

Call security. Think safety first, but yourself and everyone else. Our security colleagues are trained to handle these situations.

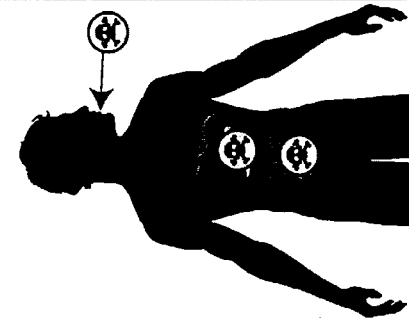
- Get between the two individuals and tell them their behavior is inappropriate—This would be unsafe
- Ask the largest man in the waiting room to break it up—This would be unsafe
- Pull the fire alarm by the door—Although this would bring many people to the location, it is not as appropriate as calling security

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Toxic Ingestion/Inhalations/Drug Exposure

- > Absorption
- > Distribution
- > Metabolism
- > Elimination
- > Primary survey
 - ABCs
 - DE and poison control
- > Secondary survey
 - Level of consciousness (LOC)
 - Heart rate, resp rate, blood pressure
 - Temperature
 - > Elev with salicylates and cocaine
 - > Low with barbs and opiates



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Assessment (cont)

- > Full system assessment
- > History
- > Environment/bystanders
- > **AMPLE**
 - **A**llergies
 - **M**edications
 - **P**ast Illnesses
 - **L**ast meal
 - **E**vents

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Assessment (cont)

> Diagnostic tests

- **Toxicology screens:** blood, urine, gastric aspirate
- CBC, chemistry, liver function tests, coagulation profile, arterial blood gases
- Chest x-ray, ECG
- Abdominal x-ray
- Pregnancy test

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Rapid response

- Unknown substance, unconscious victim
 - > **Dextrose 50% IV**
 - Hypoglycemia
 - > **Thiamine 100 mg IV**
 - Wernicke-Korsakoff syndrome
 - > **Naloxone 2 mg IV, IM or ET**
 - Narcotic antagonist

4 Universal Antidotes

“TONG”

- ☐ **T**hiamine
- ☐ **O**xygen
- ☐ **N**aloxone
- ☐ **G**lucose

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Treatment Options (cont)

- > Antidote
- > Prevent absorption
- > Enhance elimination
- > Orogastric lavage
- > Emetics (not recommended)
- > Activated charcoal
- > Diuresis
- > Whole bowel irrigation
- > Hemodialysis



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Charcoal

- > Charcoal stops toxins from being absorbed in the stomach by binding to them. The body is unable to absorb charcoal, and so the toxins that bind to the charcoal leave the body in the feces.
 - calcium channel blockers
 - carbamazepine (Tegretol)
 - NSAIDs and other OTC anti-inflammatories
 - sedatives
 - dapsone
 - malaria medications
 - methylxanthines (mild stimulants) B2 agonists examples: aminophylline
- > Ones that activated charcoal cannot help clear:
 - alcohols
 - lye
 - iron
 - lithium
 - petroleum products
 - > *any type of corrosive

CEN Review Course

Medical Emergencies

1

Allergic Reactions// Anaphylaxis

True incidence is not known
Frequency of anaphylaxis is increasing
Increased number of potential allergens and exposure
Fatalities from anaphylaxis
Estimated as many as 500 - 1000 cases in the United States each year

2

Allergic Reactions// Anaphylaxis

Minor Allergic Reactions
Skin manifestations - Urticaria and Pruritus
Offending allergen often not identified
Cutaneous reactions are self-limiting

3

Allergic Reactions// Anaphylaxis

Anaphylaxis
Life-threatening condition with dermal and systemic signs and symptoms
Full-blown syndrome
Urticaria and/or angioedema
Hypertension
Bronchospasm
Anaphylaxis is a true medical emergency and must be rapidly assessed and treated!

4

Allergic Reactions// Anaphylaxis

Anaphylaxis
Classic form

Immediate mediator release mediated by IgE

Anaphylactoid form

Direct release of mediators not mediated by IgE

5

Allergic Reactions// Anaphylaxis

After exposure there is a rapid onset of:

- ↑ mucus membrane secretions
- ↑ bronchial smooth muscle tone
- ↓ vascular smooth muscle tone
- ↑ capillary permeability

6

Allergic Reactions// Anaphylaxis

Common inciting agents:

- Antibiotics
- PCN
- ASA /NSAIDS
- IV contrast
- Hymenoptera
- Wasps, Hornets, Yellowjackets, Fire Ants
- Certain foods

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Allergic Reactions// Anaphylaxis

Interventions

- Anaphylaxis - Airway, Breathing, Circulation
- RSI in airway compromised
- Pharmacological therapy
- Mild cutaneous -
- Pharmacological therapy
- Treat site of contact

8

Blood Dyscrasias - Hemophilia

Hemophilia

- Hemophilia A - variant form of Factor VIII
- Hemophilia B - absence or deficiency of Factor IX
- Hemophilia C - deficiency of Factor XI
- Von Willebrand Disease - defective platelet adherence and Factor VIII

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Blood Dyscrasias - Coagulopathies

Anticoagulant Medications

- Warfarin - Vitamin K
- Heparin and LMW heparin - Protamine

Thrombocytopenia

Most common form is idiopathic thrombocytopenic purpura (ITP)

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Blood Dyscrasias - Sickle Cell Crisis

Primarily African-American population - Hgb S

Precipitating factors for Crisis

- Severe hypoxia, stress, exposure to cold temp, dehydration

Crisis occurs from

- Microcirculation obstruction, drop in hemoglobin levels, presence of an infection

Pain is the primary presenting symptom

Prevention - Patient Education

11

Disseminated Intravascular Coagulation

DIC - Death Is Coming

Consumptive Coagulopathy

Never a primary diagnosis

Microvascular clotting and concurrent bleeding

Early recognition is critical to survival

12

Disseminated Intravascular Coagulation

Maintain cellular perfusion
Control bleeding
Mortality increases with each system that fails

13

Disseminated Intravascular Coagulation

Early detection
Treat the underlying cause
Maintain organ perfusion

14

Electrolyte/Fluid Imbalance

Fluid Emergencies - Dehydration

Isotonic dehydration - a.k.a. isotonic fluid volume depletion is a balanced loss of both sodium and water with extracellular fluid loss

Hypotonic dehydration - a.k.a. Extracellular fluid volume depletion is where both sodium and water are lost, but the loss of sodium is greater than the loss of water

Hypertonic dehydration - a.k.a. Intracellular or Hypernatremic dehydration is a depletion of TBW content R/T pathological fluid loss, decreased water intake or a combination of both.

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Electrolyte/Fluid Imbalance

Fluid Emergencies - Dehydration

Restore TBW distribution in the appropriate fluid space locations

Fluid resuscitation

Oral or IV sodium replacement

Antiemetics and/or antidiarrheals

Evaluation of interventions and ongoing monitoring of patient status

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Electrolyte/Fluid Imbalance

Electrolytes play a critical role in normal cellular metabolism

Five primary

Sodium
Potassium
Calcium
Magnesium
Phosphorus

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Electrolyte/Fluid Imbalance - Calcium

Essential for:

Proper functional muscle contraction
Nerve conduction
Hormone release
Blood coagulation

19

Tonicity	Effect	Consequences
Isotonic fluid	Increases extracellular volume	Circulatory overload can result from isotonic fluid administration
Hypotonic fluid	Lowers the osmotic pressure of plasma	Water intoxication results when hypotonic fluid is infused beyond the patient's tolerance Causes fluid to enter the cell
Hypertonic fluid	Increases osmotic pressure of plasma	Cellular dehydration may result from excessive infusions of hypertonic fluids Pulls fluids from the cells

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Electrolyte/Fluid Imbalance - Magnesium

Required for carbohydrate and protein metabolism
Metabolism of cellular protein
Neuromuscular excitability

20

Electrolyte/Fluid Imbalance - Phosphorus

Buffers urine
Required to form high-energy phosphate bonds in ATP
Parathyroid Hormone increases renal phosphate secretion

21

Electrolyte/Fluid Imbalance - Potassium

Most important manifestations of potassium imbalances are cardiac dysrhythmias
Inability of the action potential
Leading to cellular inability to repolarize
Ventricular asystole is the terminal event

22

Electrolyte/Fluid Imbalance - Sodium

Responsible for normal water balance and impulse conduction
Active transport by ATP to keep sodium in the cell
Regulated by
RAAS
SNS
SNF

23

Endocrine Conditions - Adrenal Crisis

Adrenal cortex ceases to produce glucocorticoid hormones
mineralocorticoid hormones
Caused by an acute stressor
Primary causes
Secondary causes

24

Endocrine Conditions - DKA

Onset 24 hours to 2 weeks
Preceding infection or significant stress
Dehydration
Hyperglycemia
Electrolyte imbalance
Acidosis & Ketosis

25

Endocrine Conditions - HHS

Insidious onset from days to weeks
Recent illness or infection
Glucose >600 mg/dL
High mortality

26

Endocrine Conditions - Hypoglycemia

Most common glycemic emergency
Serum glucose <70 mg/dL in adults and <40 mg/dL in infants and children
Very young and elderly most susceptible
Altered LOC - suspect hypoglycemia

27

Endocrine Conditions - Myxedema Crisis

Most severe manifestation of hypothyroidism
Insidious onset and rare
More women than men
Increased incidence during winter
Elevated TSH
Decreased T4

28

Endocrine Conditions - Myxedema Crisis

Hypothermia
 Bradycardia
 Prolonged QT interval
 Pale edematous face with periorbital edema

29

Endocrine Conditions - Myxedema Crisis

Treatment
 Support Airway, Breathing and Circulation
 Thyroid supplementation
 Glucocorticoid supplementation
 Pressor support if needed

30

Endocrine Conditions - Thyroid Storm

Extreme and rare form of hyperthyroidism
 Very high mortality rate
 Triad of Thyroid Storm
 High fever
 CNS dysfunction or cerebral encephalopathy
 Tachycardia out of proportion to fever

31

Endocrine Conditions - Thyroid Storm

Precipitating event
 Infection
 Trauma
 Stress
 Radioactive iodine
 DKA
 Most common underlying cause is Grave disease

32

Endocrine Conditions - Thyroid Storm

Assess thyroid function

Elevated T4

Decreased TSH

Hyperglycemia

ECG: Atrial Fibrillation

33

Endocrine Conditions - Thyroid Storm

Treatment

Symptom control

Tylenol only for fever

PTU or MMI

Beta blockade

Glycemic control

34

Endocrine Conditions - DI

Diabetes Insipidus

Neurogenic

Nephrogenic

35

Endocrine Conditions - DI

Diabetes Insipidus

Increased thirst

Increased frequency of urination

Dehydration and loss of electrolytes

Changes in mental status

Lethargy

36

Endocrine Conditions - DI

Treatment

- Neurogenic
 - Vasopressin
 - DDAVP
- Nephrogenic
 - Low-salt, low-protein diet
 - NSAIDS
 - Thiazide diuretics

37

Endocrine Conditions - SIADH

Syndrome of Inappropriate Antidiuretic Hormone

- Serious endocrine emergency
- Volume retention
- Hyponatremia

38

Endocrine Conditions - SIADH

Locate source of excessive ADH expression

- Remove the source
- Restore sodium balance
- Correct water imbalance

39

Fever

Determine source

Consider

- Infectious causes
- Noninfectious causes

40

Fever

Infectious causes

Abrupt onset of respiratory, GI or GU symptoms

Malaise and pain

Enlarged lymph nodes

Leukocyte count >12,000 or <5,000

Rash or cellulitis

41

Fever

Noninfectious causes

High external temperatures

Overbundling of children

Malignant diseases

Rheumatoid diseases

Recent immunizations

42

Fever

Treatment

Treat fever >101 F

Antibiotics if needed

Glucose to treat hypoglycemia

Anticonvulsants to treat epilepticus

43

Immunocompromise

Cancer treatment

AIDS

Immunosuppressive therapy

Neutropenic

Leukopenic

Increased risk for infection

44

Renal Failure

Now known as Acute Kidney Injury

- Prerenal
- Intrarenal
- Postrenal

45

Shock - Cardiogenic

- Ventricular ischemia
- Structural Variations
- Myocardial Infarction
- Cardiac Contusion
- Dysrhythmias

46

Shock - Cardiogenic

Cardiogenic Shock

- Preload
- Contractility
- Afterload

47

Shock - Distributive

- Maldistribution of volume
- Loss of autonomic sympathetic functions
- Sepsis

48

Sepsis and Septic Shock

Systemic Inflammatory Response Syndrome plus Endotoxins in blood

15X's greater if patient has a malignancy

Recognition

screening

Treatment

Fluid resuscitation

Cultures and Antibiotics

Preserve organ perfusion

49

Shock - Hypovolemia

Hypovolemia

Significant fluid loss

Blood

Plasma

Body fluids

50

Shock - Hypovolemia

Address the loss of volume

Prevent further loss

Initiate fluid resuscitation

51

Shock - Obstructive

Obstructive

Inadequate circulation of blood

Obstruction of a vessel

Compression of a vessel

52

Shock - Obstructive

Inadequate circulation of blood

Obstruction of a vessel

Compression of a vessel

16 QUESTIONS

Environmental

Toxicological

Communicable Diseases

Certified Emergency Nurse Review

1

Thermal Burns

INITIAL APPROACH

- Safety/body substance isolation
- Nurse must be prepared for altered tissue perfusion, swelling of the airway and profound hypovolemia that can lead to decreased cardiac output, hypovolemic shock, and cellular death
- Remember that burn patients are trauma patients first

Indications for early intubations

- Agitation
- Decreased level of consciousness
- Hoarseness, stridor
- Significant vocal changes
- Progressive edema
- Oral, nasal erythema
- Inability to handle secretions
- NOT singed nasal hairs alone
- Carbonaceous sputum

2

THERMAL BURNS

INITIAL APPROACH

- Stop the burning process
- Keep patient warm
- Cover with clean, dry sheet
 - TBSA <10% cool moist dressings
- Circumferential burns



<https://burnmanagement.com/trauma-in-burns-005/>

3

An adult patient presents to the ED with a thermal burn to the right forearm. The burn is very painful and sensitive to air. The patient's forearm area is red, involving the first few layers of the dermis, with a large fluid-filled blister. The nurse would appropriately classify the burn as a:

A. Superficial partial – thickness burn.

B. Fourth – degree burn.

C. Deep partial – thickness burn.

D. Full thickness burn.

4

An adult patient presents to the ED with a thermal burn to the right forearm. The burn is very painful and sensitive to air. The patient's forearm area is red, involving the first few layers of the dermis, with a large fluid-filled blister. The nurse would appropriately classify the burn as a:

- A. Superficial partial – thickness burn.
- B. Fourth – degree burn.
- C. **Deep partial – thickness burn.**
- D. Full thickness burn.

5

Depth of burn

Tissue Affected

- Epidermis (superficial)

Manifestations

- Redness
- Hypersensitivity
- Pain
- Blanches with pressure

Notes

- Heals on own in days without scarring

SUPERFICIAL PARTIAL THICKNESS



6

Depth of burn

Tissue Affected

- Epidermis
- Partial dermis

Manifestations

- Redness
- Blistered
- Wet weepy
- Whiter
- Edematous
- Does not blanch

Notes

- May heal spontaneously in 2 – 3 weeks
- Minimal scarring

DEEP PARTIAL THICKNESS



Depth of burn

Tissue Affected

- Entire epidermis
- Dermis destroyed

Manifestations

- Whitish or charred appearance
- Coagulated vessels may be visible

Notes

- Scar formation
- Skin grafting

FULL THICKNESS



8

Depth of burn

Tissue Affected

- Underlying fat, fascia, muscle and/or bone affected

Manifestations

- Often unable to distinguish from third degree burns

Notes

- Scar contracture formation
- Skin grafting
- Surgical intervention

FULL THICKNESS



9

Tar / Asphalt Burns

Interventions

- Stop the burning process
- Apply fat emollient
- Antibiotic ointments
- Citrus – based products
- When cool, peel off tar/asphalt
- Treat underlying burns as thermal burn



10

Estimating Burn Size

Rule of Nines

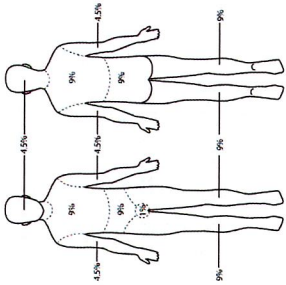
- Based on the principle that the surface area of each section of the body is a multiple of 9

Exceptions:

- Perineum – 1% TBSA on adults and children
- Note that the head accounts for 18% in children instead of the 9% in the adult

Palm Method

- Ideal for scattered burns



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Burn Treatment

FLUID RESUSCITATION

ABLS Guidelines

- Adults**
 - 2 ml X kg X % TBSA burned
- Pediatrics**
 - 3 ml X kg X % TBSA burned

Fluid of choice is Ringer's Lactate

- Half of volume in first 8 hours
- Half of volume in next 16 hours

- Use only deep partial thickness and full thickness burns in calculations

12

Burn Treatment

- No TBSA to calculate
- Low Voltage
 - Fatal dysrhythmias
- High Voltage
 - Tissue necrosis
- 1 – 2 L/Hr IVF
- Goal for urine output
 - Adult: 75 – 100 mL/hr
 - Pediatric: 1 mL/kg/hr

HIGH VOLTAGE ELECTRICAL BURNS



- 12 – Lead ECG and cardiac monitoring for 24 hours
- After urine output is established, osmotic diuretic may be given
- Fluid of choice is Ringer's Lactate
- Significant acidosis can occur

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BURN TREATMENT

Carbon Monoxide poisoning

- Colorless, odorless gas produced by combustion
- SpO2 unreliable
- Mild exposures should receive no less than 4 hours on a tight – fitting NRB mask with high – flow O2.
- Severe exposures will need transfer to hyperbaric oxygen facility

10–20%	20–40%	40–60%	Over 60%
• Headache • Nausea • Vomiting • Loss of coordination • Flushed skin • Dyspnea	• Confusion • Lethargy • Visual changes • Angina	• Arrhythmias • Seizures • Coma	• Cherry-red skin • Death • Cheyne-Stokes respirations

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Burn Treatment

- Smaller airway = less edema needed for obstruction
- Lower to ground = increased risk for inhalation injuries
- Scald burns most common in children under 3 years



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PEDIATRIC CONSIDERATIONS

- Relatively greater body surface area/kg
- Impaired thermoregulation
- Limited glycogen stores
- Thinner skin = deeper burns
- Consider neglect, abuse

Chemical Burns



- Prior to intervening, use appropriate PPE and isolate patient as needed
- Remove clothing and brush off dry powders with a brush or gloved hand
- Irrigate with copious amounts of water for at least 15 minutes or until patient reports burning has stopped

- Lithium
- Sodium
- Potassium
- Magnesium

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Chemical Burns

Clinical manifestations

- Oral burns
 - Red, white, or yellow
 - May bleed
- Drooling
- Vomiting
- Stridor, hoarse voice
- SQ emphysema
- Abdominal pain/distension



Interventions

- Strict NPO status
- Do NOT induce vomiting
- Consult poison control center

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Chemical Burns

ACID BURNS

Common sources

- Battery acid
- Vinegar
- Sulfuric acid

Tissue Damage

- Coagulation-type damage

GI Damage

- Greater damage to the stomach



Figure 2. Area of full thickness burn enlarged

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Acid Burns

HYDROFLUORIC ACID

- Clear, colorless, corrosive, liquid
- Used during oil refinements and as a precursor to other chemicals
- Fluoride ion seeks out calcium leading to systemic hypocalcemia



Assessment

- Pain intensifies as penetrates deeper
- Tetany
- Chvostek sign
- Prolonged QT and ST segment

Interventions

- Analgesics
- 2.5% calcium gluconate gel

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Chemical Burns

ALKALI BURNS

Common sources

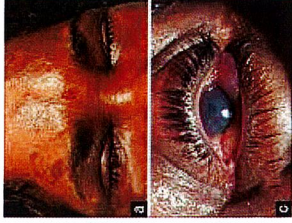
- Lye/Drain cleaners
- Alkaline batteries
- Ammonia
- Baking soda

Tissue Damage

- Liquefaction of tissue

GI Damage

- Greater damage to the esophagus



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Spider Bites

Clinical Manifestations

- Pain at the time of the bite
- Halo ring around bite
- Large muscle cramps / spasms
- Nausea / Vomiting
- Paresthesia / Weakness

Interventions

- Ice
- Elevate
- Tetanus
- Muscle relaxants
- Antihistamines
- Antivenin cautiously

Black Widow Spider



- Red hourglass on abdomen
- Dark secluded damp places
- Almost always bites once

Spider Bites

Clinical Manifestations

- Painless at the time of the bite
- Bluish ring, irregular borders
- Pruritis, blisters, redness
- Edema
- Fevers, Chills, N/V, Malaise, Myalgia
- Necrotic ulcerating wound

Interventions

- Ice
- Elevate
- Tetanus
- Wound care

Brown Recluse Spider



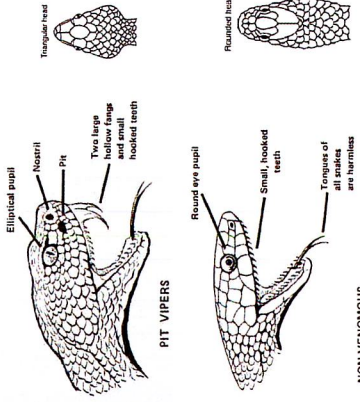
- Dark, violin-like spot
- Dark, undisturbed places
- Nocturnal
- Southern US

Snake Bites

	Venomous	Nonvenomous
Pupils	Elliptical	Round
Bite	Fangs x 2 *Unless one broken* Produce punctures	Rows of teeth Produce scratches



Red on Yellow, kill a fellow;
Yellow on Black, venom lack

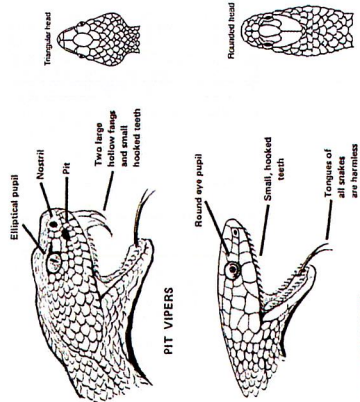


PIT VIPERS

NON-VENOMOUS SNAKES

Snake Bites

	Venomous	Nonvenomous
Head Shape	Triangular venom glands	Rounded
Presence of pit between eye and nostril	Yes, in pit vipers	No



PIT VIPERS

NON-VENOMOUS SNAKES

Snake Bites

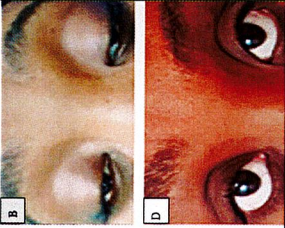
Pit Vipers – Hemotoxic	
Local Reaction	Systemic Reaction
Rapid Pain	Tachycardia
Redness and Swelling	Tachypnea
Petechiae	Dyspnea
Echymosis	Constricted pupils
Loss of limb function	Ptosis, Diplopia
	Muscle twitching
	Paresthesia
	Difficulty speaking
	Confusion
	Bleeding disorders



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Snake Bites

Coral Snakes – Neurotoxic	
Bite is less red and swollen	
Effects may be delayed up to 12 hours	
General Effects	Respiratory Effects
Local paresthesia	Respiratory distress
Diplopia	Pharyngeal spasm
Ptosis	Hypersalivation
Difficulty swallowing	Cyanosis
	Trismus



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Snake Bites

Interventions	Antivenin
• IV access prior to removal of tourniquet	• Ideally within 4 hours
• Immobilize limb	• May be effective up to 24 hours
• Monitor for compartment syndrome	• Availability?
• Consider antivenin	• Monitor for anaphylaxis

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tick Bites

Removal

- Forceps as close to skin and mouth of tick as possible
- Remove, pulling straight back counter to direction entered
- Remove like splinter if parts remain
- Do not squeeze or crush
- Save tick for species identification



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tick Bites

Lyme Disease

- Bacterial infection caused *Borrelia burgdorferi*
- Transmitted to humans through the bite of infected blacklegged ticks



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Lyme Disease

Clinical Manifestations	
Early	Late
Erythema migrans rash	Monarticular arthritis
Circular rash with flu-like symptoms	Multiple skin lesions
	Bells palsy
	Memory loss
	Meningitis
	Myocarditis
	Painful arthritis

Erythema Migrans Rash



- Interventions
- Antibiotics
 - Salicylates for pain control
 - Pacemaker for heart block

tick Bites

Rocky Mountain Spotted Fever

- Bacterial infection caused bacterium *rickettsia rickettsii*
- Transmitted to humans through the bite of infected ticks



Rocky Mountain spotted fever



Interventions

Doxycycline
saves lives!

How is it that suspected rickettsial infections in patients of all ages have improved from the previous 10 years?

Clinical Manifestations

Fever, Chills

Headache

Rash:

- Maculopapular, nonpruritic spots on soles, palms, wrists, forearms
- Becomes nonblanching and petechial
- Spreads in centripetal fashion

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Rabies

Viral disease transmitted through the bite of a rabid animal via saliva

- Bats, Raccoons, Skunks, Foxes




Symptoms

- Initially paresthesia, pain, and itching at site of bite
- Progressing to flu-like symptoms
- Eventually cerebral dysfunction develops
 - Delirium
 - Hallucinations
 - Hydrophobia
 - Insomnia

Interventions

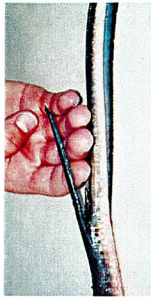
- Early aggressive wound management with soap and water
- Human rabies immune globulin to be given and rabies vaccine given on day of exposure
 - Repeat dose of vaccine again on days 3, 7, and 14

33

Stingrays

Most stingrays have one or more venom-coated barbed stingers on the tail

Used exclusively in self-defense




Symptoms

- Severe pain, swelling and bleeding at site
- Possible systemic effects may be life-threatening

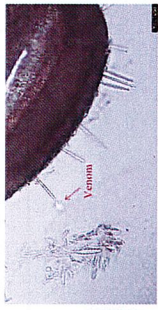
Interventions

- Hot water (113°F) immersion up to 2 hours
 - Inactivates venom
- Pain management
- Tetanus
- Removal of barb
- Irrigation of the wound
- Consider wound cultures, prophylactic antibiotics

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Jellyfish

Nematocysts are stinging darts that fire when the tentacles make contact





Symptoms

- Severe pain and reddened welts

Interventions

- Irrigation with seawater or vinegar (unless Portuguese man-of-war stings)
- Remove tentacles with gloved hand or forceps
- Pain management

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Lice

Feed from the host often 5 times a day

Allergic reaction develops from the bite

- Carriers can easily become desensitized




Symptoms

- Itching
 - May take weeks to develop
- Pruritic rash
 - Seen at the back of the neck

Interventions

- Over the counter insecticides
- Ivermectin
- Wet combing
 - Wash clothes, linens, combs in hot water
- Vacuum floor, furniture

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Scabies

Itch mite that buries in upper layer of skin
Spread by direct, prolonged skin-to-skin
contact

Symptoms

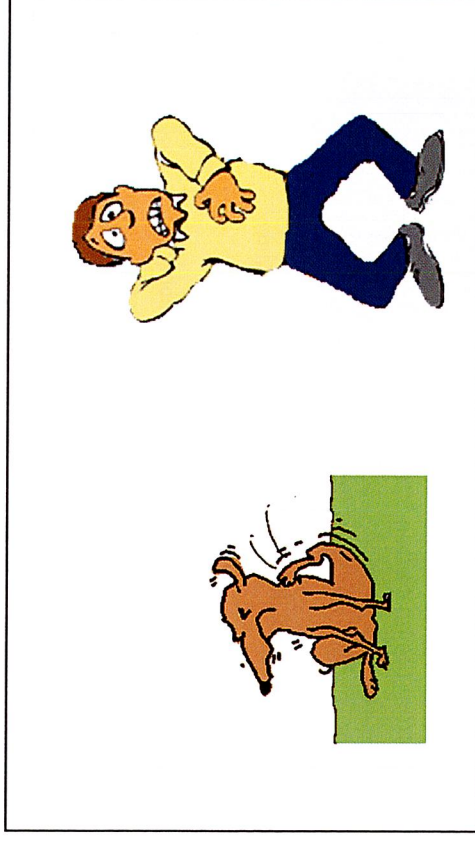
- Intense pruritus
 - Especially at night
- Pimple-like itchy rash
 - Hands
 - Elbows
 - Back
- Vesicles, scales
 - Knees



Interventions

- Permethrin cream
 - 2 applications
 - 1 week apart
- Crothamiton lotion
 - Not approved for kids
- Wash clothes, linens, combs
in hot water
- Vacuum floor, furniture

37



38

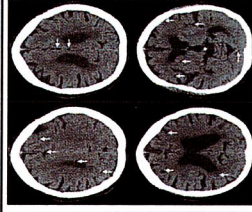
Arterial gas embolism

High-pressure air
forced into arterial
circulation caused by:

- Trapped air in lung
expands, leading to
rupture of lung
tissue, releasing gas
bubbles into
circulation
- Divers may ascend
too quickly, panicked
ascend, or hold their
breath during ascent
- Can occur with
normal ascents in the
presence of a lung
disease such as COPD
- Medical procedures

Symptoms

- Chest tightness
- Dyspnea
- Pink, frothy sputum
- Pneumothorax symptoms
- Limb paresthesia
- Vertigo
- Altered level of consciousness
- Visual disturbances
- Seizures
- Sensory loss



Interventions

- Oxygen
- Needle decompression
- Hyperbaric therapy
- Avoid Trendelenburg

Decompression sickness

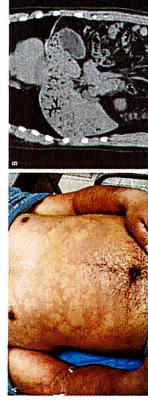
Symptoms

- Dyspnea, cough
- Crepitus
- Paresthesia, paralysis
- Petechial rash, itching
- Headache
- Vision loss, diplopia
- Fatigue, dizziness to unconsciousness
- Seizures
- Joint discomfort
- Pain progresses

Interventions

- Oxygen
- Fluid resuscitation
- Analgesia
- Urgent hyperbaric therapy

During diving, nitrogen is absorbed by
body tissues but during ascent if pressure
is reduced too quickly, the nitrogen forms
bubbles and enters bloodstream



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At risk

- Medication
 - Thyroid
 - Haldol
 - Propanolol
- Anticholinergics

Interventions

- Cool rapidly
- Room temp IV fluids
- Monitor electrolytes, clotting factors, UOP
- Control shivering

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Frostbite

Results from formation of ice crystals in tissue

Leads to:

- Cellular damage
- Vasospasms
- Arterial Thrombosis

Damage to cells is irreversible

Takes time to determine extent of underlying damage

Interventions

- Analgesia
- Immersion in circulating 104 F water for 15 – 30 mins
- Debride only non-hemorrhagic blisters
- Gently handle tissue
- Wrap in loose, bulky dressing
- Update tetanus

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Hypothermia		
Severity	Core Temperature	Clinical Manifestations
Mild	90 – 95 F	Vasoconstriction Shivering Cold sensation Coagulopathy
Moderate	82.4 – 90 F	Bradycardia Confusion or agitation Metabolic acidosis Cold – induced diuresis
Severe	68 – 82.3 F	Coma Respiratory depression Profound hypovolemia
Profound	Under 68 F	Apnea Asystolic arrest

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Hypothermia

Passive rewarming

- Remove wet clothing and dry skin
- Warm environment

Active external rewarming

- Forced-air warming system
- Warm water immersion

Active internal rewarming

- Warm IV solutions
- Heated, humidified oxygen
- Peritoneal lavage with heated dialysate
- Rapid fluid infuser
- Cardiac bypass, hemodialysis

Considerations

- V-fib refractory until rewarmed
- Osborn or J waves may occur

- Rewarm body core before periphery to prevent rewarming shock
- Caution with IV medication administration

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Toxidromes

Toxin	Heart Rate	Pupil Size	Blood Pressure	Body Temp	Bowel Sounds	Respirations	Diaphoresis
Anticholinergic	↑	↑	↑	↑	↓	NC	↓
Cholinergic	↑	↓	↑	↑	↑	↑	↑
Sedatives	↓	↓	↓	↓	↓	↓	NC
Opioid	↓	↓	↓	↓	↓	↓	↓
Sympathomimetic	↑	↑	↑	↑	↓	↑	↑

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Sympathomimetic Toxidrome

Toxin	Heart Rate	Pupil Size	Blood Pressure	Body Temp	Bowel Sounds	Respirations	Diaphoresis
Sympathomimetic	↑	↑	↑	↑	NC	↑	↑

Sympathomimetics mimic the neurotransmitters of the sympathetic nervous system

- Cocaine
- Amphetamines
- Methamphetamine
- Ephedra
- Alkaloids
- MDMA
- Albuterol
- Dopamine
- Tricyclic antidepressants
- MAOIs antidepressants

Other Symptoms

- CNS excitation
- Tremors
- Seizures
- Hyperreflexia

Interventions

- Sedation
- Non-pharmacological cooling
- Control of BP and pulse
- Benzodiazepines
- Nitroprusside
- Haloperidol
- Neuromuscular blocking agents

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Sympathomimetic Toxidrome

Sympathomimetic Syndrome
MATHS

- M**ydriasis
- A**gitation
- T**achycardia
- H**ypertension - **H**yperthermia
- S**eizures - **S**weating

Interventions

- Decontamination
- Sedation
- Non-pharmacological cooling
- Control of BP and pulse
- Benzodiazepines
- Nitroprusside
- Haloperidol
- Neuromuscular blocking agents



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Sympathomimetic Toxidrome

Cocaine Overdose

Complications

- Ventricular arrhythmias
- Myocardial infarction
- Aortic dissection
- Rhabdomyolysis
- Lactic acidosis
- Hyperglycemia
- Seizures
- Stroke
- Placental abruption
- Premature delivery
- Nasal septum perforation

Condition Specific Interventions

- AMI
- Stroke
- Aortic dissection
- Rhabdomyolysis

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Cholinergic Toxidrome

Toxin	Heart Rate	Pupil Size	Blood Pressure	Body Temp	Bowel Sounds	Respirations	Diaphoresis
Cholinergic	↑	↓	↑	NC	↑	↑	↑

Cholinergic drugs mimic or enhance the action of acetylcholine of the parasympathetic nervous system and have muscarinic and nicotinic effects on the body

- Pesticides/Insecticides
- Organophosphorus warfare agents
- Pilocarpine
- Bethanechol
- Choline
- Certain mushrooms

Other Symptoms

- Salivation
- Lacrimation
- Urination
- Defecation
- Gastrointestinal distress
- Emesis

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Cholinergic Toxidrome

Interventions

- Decontamination
- Control hypoxemia secondary to respiratory secretions
- Atropine
- Pralidoxime (2-PAM)
 - Restores action of acetylcholinesterase
- Administer in conjunction with atropine to dry secretions
- Benzodiazepines to control seizures

Cholinergic toxidrome

Symptoms {SLUDGE}

- Salivation Miosis.
- Lacrimation
- Urination
- Diaphoresis Bradycardia
- GE gastro-intestinal emptying (Vomiting -Diarrhea)
- Bronchorhea-bronchospasm-bradycardia

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Sedative – Hypnotic Toxidrome

Toxin	Heart Rate	Pupil Size	Blood Pressure	Body Temp	Bowel Sounds	Respirations	Diaphoresis
Sedatives	↓	NC	↓	↓	↓	↓	NC

Barbiturates depress the central nervous system and are classified as sedatives, while nonbarbiturates are considered hypnotics

- Barbiturates
 - Phenobarbital
 - Thiopental
- Nonbarbiturates
 - Benzodiazepines
 - Antihistamines

Interventions

- Left side-lying position
- Early intubation
- Beta-adrenergic agonists
- Flumazenil
- Antiarrhythmics

Other Symptoms

- Arrhythmias

51

Anticholinergic Toxidrome

Toxin	Heart Rate	Pupil Size	Blood Pressure	Body Temp	Bowel Sounds	Respirations	Diaphoresis
Anticholinergic	↑	↑	↑	↑	↓	NC	↓

Anticholinergic agents block acetylcholine and inhibits the parasympathetic nervous system

- Medications
 - Mydriatics
 - TCAs
 - Cyclobenzaprine
 - Atropine
 - Antiparkinsonian
 - Ipratropium bromide
- Plants
 - Nightshade
 - Jimson weed

Other Symptoms

- Dry mucus membranes
- Flushing
- Urinary retention
- Agitation
- Delirium
- Hallucinations

Blind as a bat

Mad as a hatter

Red as a beet

Hot as Hades

Dry as a bone

The bowel and the bladder lose their tone

The heart runs alone

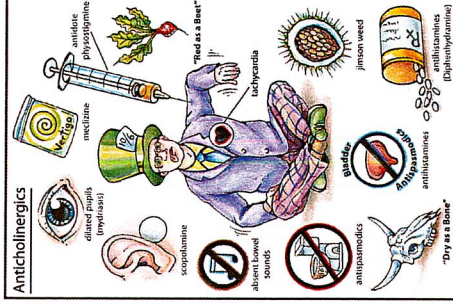
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13

Anticholinergic Toxidrome

Interventions

- Sedate with benzodiazepines
- Initiate cooling
- Haloperidol
- Pyostigmine administration
 - Parasympathomimetic alkaloid that inhibits cholinesterase
- Rapid administration can cause respiratory failure and paralysis of the heart
- Slow IV push!!!
- Continuous ECG and SaO2 monitoring



53

Opioid Toxidrome

Toxin	Heart Rate	Pupil Size	Blood Pressure	Body Temp	Bowel Sounds	Respirations	Diaphoresis
Sedatives	↓	NC	↓	↓	↓	↓	NC

Opiates and narcotics depress the central nervous system

Other Symptoms

- CNS depression

Interventions

- Left side-lying position
- Early intubation
- Naloxone
 - Duration of action is 30 – 60 minutes
 - Repeated dose may be necessary



54

Opioid Toxidrome

Sudden cessation of opiates after developing physical dependence

Opiate Withdraw

Symptoms

- Rhinorrhea
- Sneezing
- Yawning
- Lacrimation
- Abdominal and leg cramps
- Nausea and vomiting
- Diarrhea

Interventions

- Assessment of last dose and normal route of use
- Supportive care
- Benzodiazepines for cramps, anxiety, and insomnia
- Clonidine for lacrimation, diarrhea, and tachycardia
- Substitute opioid, such as methadone

55

Lysergic Acid Diethylamide (LSD) Toxidrome

Hallucinogenic drug made from lysergic acid, a fungus that grows on grains like rye

Symptoms

- Sympathomimetic effects
- Euphoria
- Fear
- Anxiety
- Panic
- Hallucinations
- Paranoia

Interventions

- Reduce sensory stimulation
- Restraints as needed for safety
- Benzodiazepines for agitation
- Haloperidol for psychosis

56

Phencyclidine (PCP) Toxidrome

Dissociative anesthetic used recreationally for its significant mind-altering effects

Symptoms	Interventions
• Violent combative behavior • Increased strength • Lack of pain sensation • Nystagmus • Miosis	• Reduce sensory stimulation • Restraints as needed for safety • Benzodiazepines for agitation • Haloperidol for psychosis • Antihypertensives for hypertension

57

Gamma – hydroxybutyrate (GHB) Toxidrome

Odorless, colorless drug that is a CNS depressant

Symptoms	Interventions
• Decreased LOC to coma • Significant respiratory depression • Hypertension • Bradycardia • Seizure	• Intubation and ventilatory support • Benzodiazepines for agitation • Sexual assault kit

58

Inhalants Toxidrome

Toxic ingestion via the lungs

- Sniffing – inhaling directly from the container
- Huffing – soaking cloth in solvent, holding over face and inhaling
- Bagging – breathing fumes from a bag



59

Inhalants Toxidrome

Symptoms • Sudden sniffing death • CNS stimulation or depression • Eyes, respiratory, GI irritation • Wheezing • Ataxia with wide-based gait • Epistaxis • Burns • Long-term use organ damage	Interventions • Well – ventilated environment • Decontaminate as needed • Supportive therapy • Benzodiazepines for agitation • Intubation • Mechanical ventilation
---	--



60

Alcohol ingestion Toxidrome

Isopropanol (Isopropyl alcohol) Overdose

- Rubbing alcohol
- Less toxic than methanol, ethylene glycol
- Metabolite is acetone

Symptoms

- Fruity odor to breath
- Hyperglycemia
- Ketones in urine
- Profound CNS depression

61

62

Alcohol ingestion Toxidrome

Ethylene Glycol Ingestion

- Antifreeze, deicing agents
- Treated with ethanol or fomepizole
 - Blocks metabolism of ethylene glycol and methanol
 - Fomepizole preferred
 - Ethanol requires monitoring for hypoglycemia
- Hemodialysis
 - Fomepizole given during
 - Sodium bicarbonate for acidosis

Symptoms

- Intoxication
- Tachycardia
- Hypertension
- Hyperventilation
- Metabolic acidosis
- Renal failure
- Nystagmus
- Ataxia
- Seizures
- Coma

Alcohol ingestion Toxidrome

Methanol Ingestion

- Windshield wiper fluid, paint removers
- Treated with ethanol or fomepizole
 - Blocks metabolism of ethylene glycol and methanol
 - Fomepizole preferred
 - Ethanol requires monitoring for hypoglycemia
- Hemodialysis
 - Fomepizole given during
 - Sodium bicarbonate for acidosis

Symptoms

- Intoxication like ethanol but 10 – 30 hours later metabolites cause:
 - Profound metabolic acidosis
 - Destroys optic nerve
 - Nausea / Vomiting
 - Abdominal pain

Alcohol ingestion Toxidrome

Ethanol specific

- IV hydration
- Monitor blood glucose
- Nutritional support
 - Vitamin B1
 - Thiamine



Wernicke – Korsakoff syndrome

- Neurological disorder caused by the lack of thiamine (vitamin B1).
- B1 deficiency causes damage to thalamus and hypothalamus
 - Confusion
 - Ataxia
 - Ophthalmoplegia
 - Hypotension
 - Hypothermia

63

64

Alcohol ingestion Toxidrome

Alcohol Withdraw / Delirium Tremens

- 2 – 5 days after last drink

Symptoms

- Altered mental status
- Hallucinations
- Agitation / Anxiety
- Tachycardia
- Tachypnea
- Hypertension
- Hyperthermia
- Tremors

Interventions

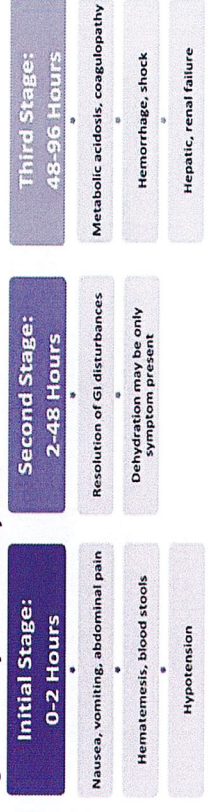
- IV hydration
- Monitor blood glucose
- Benzodiazepines
- Antipsychotics
 - Thioridazine
 - haloperidol
- Nutritional support

65

Iron Ingestion toxidrome

- Iron poisoning commonly caused by ingestion of nutritional supplements.
- Patients who have ingested 40 – 60 mg/kg of elemental iron

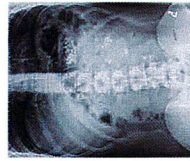
Figure 3: Heavy Metal Toxicity: Iron



66

Iron Ingestion toxidrome

- Gastric lavage
- Avoid activated charcoal
 - Does not bind to iron
- Abdominal X-rays



Interventions

- Whole bowel irrigation
- Serum iron level
- Treat hypovolemic shock
- Chelation with deferoxamine
 - Turns urine a pink color
 - Continue infusion until urine color normalizes



67

Cyanide Poisoning toxidrome

Cellular asphyxiant found in:

- Industrial processes
 - Insecticides
 - Fumigants
 - Metal plating
 - Burning of plastics
- Terrorism attacks
- Foods
 - Almonds
 - Apricot pits
 - Orange seeds
 - Cassava
- Byproduct of long-term nitroprusside use
- Byproduct of fires



Symptoms

- Hypoxia, respiratory arrest
- Headache, dizziness, seizures
- Metabolic acidosis
- Arrhythmias
- Hypotension
- Burning sensation in mouth
- Smell of bitter almonds on breath

68

Cyanide Poisoning toxidrome

Interventions

- Decontamination
- 15L NRB
- Intubation, ventilatory support
- Commercial antidote kit
 - Amyl nitrite capsules
 - Sodium nitrite
 - Sodium thiosulfate
- Poison control
- Vasopressors
- Benzodiazepines

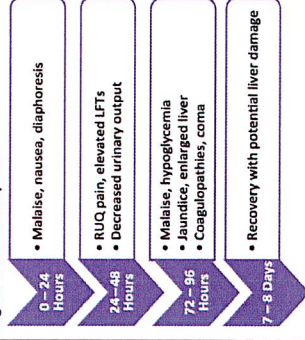


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70

Acetaminophen Overdose Toxidrome

Figure 4: Acetaminophen



- Metabolites of acetaminophen destroy liver cells which leads to necrosis and damage
- Toxicity occurs at levels greater than 140 mg/kg
- Those with alcohol abuse or liver disease are at increased risk of developing toxicity

Acetaminophen Overdose Toxidrome

Interventions

- Consider gastric lavage:
 - If recent ingestion
 - Dose above 7.5 grams
- Activated charcoal
- Contact poison control
- Quantitative level 4h from time of ingestion (acute)
- Administer N-acetylcysteine if toxic level
 - Initiate within 8 hours of ingestion for best results
 - May be started up to 24 hours after poisoning

71

Salicylates Overdose Toxidrome

Interferes with central nervous system, hematologic, cardiovascular, and gastrointestinal systems

- Affects acids – base and electrolyte status

Symptoms

- Tachypnea, tachycardia
- N/V, abdominal pain
- Diaphoresis, fever, dehydration
- Tinnitus
- Hypoglycemia
- Electrolyte imbalances
- Altered mental status
- Seizures
- Hemorrhagic gastritis
- Coagulation abnormalities

72

Salicylates Overdose Toxidrome

- IV fluids
- Monitor urinary output, electrolytes
- Hemodialysis indications
 - Serum levels greater than 75 mg/dL
 - Decreased renal function
 - Significant acidosis or severe fluid/electrolyte disturbances
- Activated charcoal administration
- Sodium bicarbonate administration
- Dextrose for hypoglycemia
- Repeat serum salicylate levels every 6 – 12 hours

Interventions

73

Nonsteroidal Anti-inflammatory Overdose Toxidrome

Safer than acetaminophen and less likely to result in toxicity

- Acute ingestion of under 100 mg/kg are nontoxic
- Ingestions of over 300 mg/kg are severe

Symptoms

- Drowsiness, lethargy
- Seizures
- GI irritation
- Renal failure
- Hepatotoxicity
- Apnea
- Metabolic acidosis

Interventions

- Continuous cardiac, respiratory monitoring
- Serum levels are not clinically useful
- Consider gastric lavage
- Activated charcoal administration
- Consider cathartic agents
- Seizure precautions, treat with benzodiazepines

74

Tricyclic antidepressant Overdose Toxidrome

Symptoms

- Have peripheral anticholinergic and central nervous system effects
- Tachycardia
 - Drowsiness
- Falsely low serum levels due to being highly protein-bound and lipid-soluble
- Dry mouth
- N/V
- Causes sodium channel blockade
- Urinary retention
- Inability to remove through dialysis
- Confusion, agitation
- Long elimination half-life
- Headache
- Hypotension
- Cardiac rhythm disturbances
- Hallucinations
- Seizures

75

Tricyclic antidepressant Overdose Toxidrome

Interventions

- Continuous cardiac monitoring
- Endotracheal intubation
- Institute gastric lavage
- Consider multiple doses of activated charcoal
- Consider cathartic agents
- Administer sodium bicarbonate
- Isotonic IV fluids
- Vasopressors, benzodiazepines as needed

76

Beta Blocker / Calcium Channel Blocker Overdose Toxidrome

Symptoms

- Have negative chronotropic, dromotropic, and inotropic effects
- Symptoms may have rapid onset and be resistant to conventional therapies
 - Severe toxicity can occur with only one tablet in children
- Bradycardia
- Hypotension
- Confusion
- Syncope
- Seizures
- Coma
- N/V
- Cardiac conduction abnormalities
- Hyperglycemia
- CCB
- Hypoglycemia
- BB

77

Beta Blocker / Calcium Channel Blocker Overdose Toxidrome

Interventions

- IV fluids
- Continuous cardiac monitoring, 12-lead ECG
- Consider gastric lavage
- Cardiac pacing or transcutaneous pacing for refractory bradycardia, AV blocks
- Glucagon administration
 - Positive inotropic and chronotropic effects
- Antidote for medications that reduce intracellular calcium
- Calcium chloride administration
 - Calcium gluconate is contraindicated due to decreased bioavailability of calcium
- Atropine administration
- Vasopressors
- Correct glucose abnormalities

78

Digoxin Overdose

Cardiac glycoside used to manage heart failure and certain arrhythmias

- Negative chronotropic action and positive inotropic effect
- Found in foxglove
- Concurrent use of other cardiac medications or diuretics, or in the presence of hypokalemia, can increase toxicity of digoxin



Clinical Manifestations	
Acute	Chronic
Symptoms peak 30 min to 12 hr. after acute ingestion	Visualization of yellow/green halos
Arrhythmias	Nausea
Hypotension	Vomiting
Hyperkalemia	Anorexia
Lethargy	
Coma	

79

Digoxin Overdose

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Hyperkalemia	Anorexia
Lethargy	
Coma	

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Professional Issues

CEN Review - Questions with Rationales

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1

An essential requirement that needs to be proved in a medical negligence case is the presence of

- incorrect action.
- failure to act.
- intent to damage.
- damages.

RATIONALE

Four elements of negligence that must be proven include duty, breach of duty, proximate cause, and damages. Incorrect actions or failure to act alone are not essential elements of negligence. Every negligence case must prove damages.

2

Along with identifying the best available research and their clinical expertise, nurses incorporate which other component to make evidence-based practice decisions in the clinical area?

- Education level of nursing staff
- Administrative support
- Traditional practices
- Promoting better patient outcomes

Rationale: Evidence-based practice incorporates the best available research with knowledge gained through clinical experience and promoting better patient outcomes

3

A pediatric traumatic cardiopulmonary arrest is in progress when the charge nurse comes to assist the primary nurse with the resuscitation. The patient looks similar to the son of the charge nurse recently lost because of a terminal illness. The charge nurse is unable to stay focused on the necessary resuscitation tasks for this patient. Upon debriefing, the code team discusses the charge nurses challenges. The best response to encourage resiliency is which of the following?

- "This experience should help you get you back to the bedside. You are a 'super nurse'. You can take care of anyone who rolls through those doors."
- "This is a tough place to work. Management didn't give you enough time off to grieve, staff members don't take initiative to help, and you are tired and overworked. Have you considered looking to work somewhere else that will support you in a better way?"
- "Don't forget, we are a team, and you are part of our team. We can help you find resources to work through this."
- "We need more situation awareness from this team. If one of us is not able to step up, we need to speak up and get someone else in who can do the job. We cannot risk patient safety."

Rationale: Secondary traumatic stress, burnout, and compassion satisfaction have a high correlation with such coping strategies as coworker support, a sense of personal accomplishment in one's work, meditation and exercise, and decreasing hours of exposure to traumatic events. These strategies lead to the development of compassion satisfaction and resiliency.

4

The nurse is preparing to discharge a female geriatric patient who presented for severe "heartburn". Medication reconciliation reveals that the patient is on alendronate (Fosamax). What information should the nurse provide to the patient with the discharge instructions?

- A. Always take alendronate with food
- B. Sit or stand upright for 30 minutes after taking alendronate
- C. Have calcium blood levels monitored monthly
- D. Take alendronate at bedtime

Rationale: A side effect of alendronate is esophageal irritation, so the patient must remain upright for 30 minutes after taking the medication. In severe cases, esophageal irritation can result in esophageal erosion. The patient should be instructed to take the medication on an empty stomach with full glass of water. Avoid eating or drinking for 30 minutes after taking the medicine.

5

While awaiting the determination of brain death for a patient who has sustained multiple traumatic injuries and is a potential organ donor, the nurse should anticipate which of the following interventions to maintain organ perfusion?

- A. Administer vasoactive agents
- B. Administer norepinephrine to avoid hypotension
- C. Administer atropine to treat bradycardias
- D. Administer intravenous fluids

Rationale: Hypotension will occur in most donors secondary to relative hypovolemia exacerbated by reduced systemic vascular resistance. Crystalloid or colloid infusions should be titrated to achieve euvolemia. For refractory hypotension, vasopressin is the drug of choice to maintain adequate pressure and organ perfusion.

6

A terminally ill patient is admitted to the emergency department. The patient informs the nurse that they have a living will (advance directive) with a Do Not Resuscitate order. The emergency nurse would:

- A. Make the patient a full code because nothing will likely happen while in the ED
- B. Document in the chart that the patient is a DNR and ask the patient for a copy of their living will and DNR to place in their medical record
- C. Ask the patient's family members what lifesaving interventions they would like performed in the event of a cardiopulmonary arrest
- D. Take no action because the advance directive and the DNR only apply once the patient is admitted to the hospital

Rationale: A living will is an advance care document that states a person's wishes regarding medical care should they become terminally ill and incompetent or unable to communicate. Because of the Patient Self-Determination Act, all patients must be asked during the admission phase whether they have an advance directive (living will) in place. If so, copies must be placed in the medical record. Interactions about advance directives must be documented in the medical record.

7

A victim with multiple gunshot wounds arrives. The nurse is aware that a key principle of preserving clothing evidence of the victim of a violent crime is to perform which of the following actions?

- A. Place each piece of clothing in an individual paper bag; label each bag with patient identification
- B. Place the clothing directly into plastic bags because of saturation of blood on the clothing
- C. Cut the clothing off immediately to expose the patient regardless of bullet holes, tears, rips, or holes
- D. Place all the clothing in a large paper bag; label the bag, seal with tape, and include appropriate patient identification

Rationale: using separate paper bags for each piece of clothing is the best way to preserve evidence and prevent cross-contamination that might occur if clothing is placed together in the same bag.

8

The emergency nurse is caring for a patient who received procedural sedation. Which of the following would delay discharge for this patient?

- A. The patient has mild pain
- B. The patient needs help getting dressed
- C. The patient lives alone
- D. The patient ambulates with assistance

Rationale: Patients who received procedural sedation need a responsible person to provide supervision at home for several hours. If there is no one available, they should be kept in the ED or admitted.

9

Which of the following is used in emergency departments to increase patient safety during nurses' change-of-shift report?

- A. Computerized report
- B. Bedside report
- C. Designated timed report
- D. Taped report

Rationale: Having nurses conduct the change-of-shift report directly at the patient's bedside has been proven to enhance patient safety and satisfaction. Computerized reports and taped reports do not allow for direct interaction between the nursing staff.

10

Studies have shown that patients report increased satisfaction with the care they received during their emergency department visit when they are provided with which of the following:

- A. The ability to fill the prescription provided at discharge at in the hospital pharmacy
- B. Distraction devices such as televisions or laptop computers
- C. Frequent interactions and timely updates with the registered nurse
- D. Additional blankets and pillows

Rationale: Hourly interactions with and timely updates from the ED registered nurse lead to increased patient satisfaction and increased patient safety. Patients appreciate distractions, but timely access to care and information has been shown to increase patient satisfaction.

11

Which of the following actions would work best to propose a solution to the problem of emergency department overcrowding?

- A. Petition the nursing administration to hire additional transporters to assist with patient flow
- B. Serve on a hospital-wide committee to discuss patient flow
- C. Participate in a strategic planning session to expand the number of telemetry beds
- D. Contribute to the development of ED protocols to divert overflow patients to neighboring hospitals

Rationale: ED crowding is recognized as a product of ineffective patient flow that results in increased costs and compromised care. There is agreement that it is a hospital-wide and community problem, not an isolated ED issue.

12

When using a certified interpreter to communicate with a non-English-speaking patient, the nurse should direct questions to which participant in the conversation?

- A. Patient
- B. Certified Interpreter
- C. Oldest male family member
- D. Designated family spokesperson

Rationale: When using a certified interpreter, the nurse should speak directly to the patient, phrasing questions in the first and second person ("I" and "you" questions) and avoiding the use of the third person ("tell her" or "ask him").

13

Upon initial assessment of a male patient involved in a motor vehicle crash, the nurse observes bruises in various stages of healing to his torso. He denies any medical history. When asked about the bruising, the patient avoids eye contact, states that he fell yesterday, and asks if his male partner has arrived to the ED. The nurse suspects:

- A. the bruising was sustained during the motor vehicle crash.
- B. the bruising is a result of the stated fall.
- C. the patient may have undiagnosed coagulopathy.
- D. the patient may be a victim of domestic violence.

RATIONALE
Interpersonal violence is leading cause of injury for gay men. The coloration of the bruises does not correlate with the time of the MVC or stated falls.

14

The nurse is assessing a patient who presents with multiple injuries from a fall, including bruises in various stages of healing that are not consistent with the history provided. The family member accompanying the patient insists on answering for the patient even though the patient is awake, alert and able to answer questions on their own. The nurse should be MOST concerned about

- A. dementia
- B. depression
- C. neglect
- D. abuse

RATIONALE
Red flags for abuse include an inconsistent history of injury with injuries that are not logically caused by the stated history and an overbearing individual who speaks for the patient. Neglect is a failure of the caregiver to provide the necessities of life. There is no indication of depression and dementia as the patient is awake and alert and able to answer questions.

15

The Five Rights of Delegation are right task, right circumstances, right person, right direction and communication, and which of the following?

- A. Right equipment and supplies
- B. Right documentation
- C. Right supervision and evaluation
- D. Right assessment and reassessment

Rationale: Right supervision and evaluation is the 5th right of delegation.

16

The National Incident Management System requires that hospitals have plans and procedures in place to be prepared for emergency management situations, such as mass casualty incidents and disasters. Which system helps hospitals create a command structure to be better prepared for these incidents?

- A. Federal Emergency Management Agency (FEMA)
- B. National Response Framework
- C. Hospital Incident Command System (HICS)
- D. Disaster Medical Assistance Team (DMAT)

Rationale: HICS is a National Incident Management System approved for hospitals to use in their response to mass casualty incidents and disaster management. HICS provides a command structure for hospitals with specific job functions under each command level to assist a hospital in managing emergency response situations.

17

A child is transported to the emergency department following a mass casualty incident. The child is unable to ambulate, has spontaneous respirations of 32 breaths/minute, has a palpable pulse, and is alert. Which Jump-START triage category should be assigned to this child?

- A. Yellow (delayed)
- B. Red (immediate)
- C. Black (expectant)
- D. Green (minor)

Rationale: A child who is not able to ambulate but has spontaneous respirations at a greater rate than 15 and less than 45 breaths per minute with a palpable pulse and who is alert or responsive to verbal stimuli falls in the yellow (delayed) JumpSTART triage category.

18

A nurse leaves a patient's chart open on a portable workstation. A patient's family member is observed looking at the open chart at the workstation. This action by the nurse is considered a violation of the:

- A. Patient's bill of rights
- B. Emergency Medical Treatment and Active Labor Act
- C. Health Insurance Portability and Accountability Act
- D. Patient Self-Determination Act

Rationale: Leaving health information unprotected is considered a violation of HIPAA. HIPAA states that a patient's protected health information cannot be used or shared without the consent of the patient, unless it is for treatment, payment, and other healthcare operation activities.

19

A patient presents to the emergency department with chest pain, but the hospital does not accept their medical insurance plan. To be compliant with the Emergency Medical Treatment and Active Labor Act (EMTALA), what must be a component of the medical screening exam for a patient complaining of chest pain?

- A. Electrocardiogram (ECG)
- B. Chemistry panel
- C. Comprehensive triage
- D. Assessment by a physician

Rationale: To establish a life-threatening condition such as an ST-elevation myocardial infarction or fatal dysrhythmia is present, an ECG should be a part of the medical screening exam of a patient complaining of chest pain.

20

A patient arrives by ambulance after demonstrating delusions, hallucinations, and suicidal ideation. The patient refuses all medical treatment. The nurse is aware that the healthcare team can legally treat the patient based on which type of consent?

- A. Express consent
- B. Involuntary consent
- C. Implied consent
- D. Informed consent

Rationale: When an individual refuses to consent to needed medical treatment and is deemed gravely disabled or a danger to self or others, then a physician, peace officer, or licensed mental health professional can complete a certificate and petition for involuntary treatment of the patient. Documentation must include a psychiatric evaluation.

21

During quality review, the Quality Improvement Committee identifies a variance from the standard of nursing care of two patients with chest pain. Which of the following is the MOST appropriate recommendation by the Committee?

- A. Design a new flow sheet for cardiac documentation.
- B. Request the nurse manager to discipline the nurses involved.
- C. Conduct a random audit and determine the frequency of the problem.
- D. Schedule a nursing inservice on the standard of care for chest pain.

RATIONALE
Conducting a random audit is most appropriate in this scenario. The Quality Improvement Committee needs to determine whether these two cases are isolated incidents or if there is an ongoing deficiency in the standard of care delivered. Discipline, inservices, or new flow sheets are not considered until the scope of the problem is defined.

22

According to The Joint Commission, the overwhelming majority of serious medical errors that occur during patient handoff can be attributed to which type of mechanism?

- A. Equipment failure
- B. Inappropriate staffing mix at the receiving facility
- C. Communication breakdown
- D. Use of unapproved abbreviations

Rationale: The Joint Commission requires accredited organizations to use a standardized approach to handoff communications, citing research suggesting that ~ 80% of serious medical errors occur because of miscommunication during patient handoffs/transfers.

23

Characteristics of an effective quality improvement program include:

- A. Using clinical indicators reflecting high-risk care activities
- B. Setting thresholds of 75% compliance on monitored items
- C. Changing clinical indicators on a monthly basis
- D. Separating medical and nursing issues

24

An infant dies suddenly in the emergency department. Which of the following BEST assists the family members in the grieving process?

- A. Give them a copy of the medical record.
- B. Provide assurance that things will be all right.
- C. Obtain prescriptions for sedatives.
- D. Offer to provide a lock of the infant's hair.

RATIONALE

In unexpected infant death, there is no warning or way to prepare. By providing a lock of hair or other mementos, the nurse will give the parents something by which to remember the child as they go through the grieving process.

25

The nurse notices that a co-worker has been chronically tardy, fatigued, apathetic, and increasingly distracted at work. The nurse suspects:

- A. drug diversion.
- B. compassion fatigue.
- C. a hangover.
- D. paranoia.

RATIONALE

Chronic tardiness, fatigue, apathy, and the inability to focus at work are some of the symptoms associated with compassion fatigue and should be recognized as such and the affected nurse be given the appropriate support and resources needed. A hangover, drug diversion, and paranoia do not chronically exhibit these symptoms specifically in the setting of the workplace.

26

A patient presents to the emergency department after engaging in an altercation involving a gun. After lifesaving interventions have been performed the nurse should:

- A. Place clothes in a plastic bag.
- B. Label wounds as entrance or exit wounds.
- C. Give family religious belongings that the patient was wearing.
- D. Place paper bags on the patient's hands.

RATIONALE

Hands should be wrapped in paper bags to preserve possible gun residue. Clothing should be placed in paper bags, not plastic, to prevent the growth of mold. Wounds should not be labeled as entrance or exit wounds by staff. All items with the patient at the time they presented to the ER should be properly given to the police and not the family as it is considered evidence.

27

In which of the following cases has the nurse breached patient confidentiality?

- A. notifying the health department about measles
- B. reporting sudden unexpected deaths to the coroner
- C. reporting HIV status to the patient's employer
- D. notifying the police about a possible homicide

RATIONALE

HIV status of a patient is confidential patient information and may not be provided to the patient's employer. The other three options are mandated reportable occurrences the emergency department nurse may encounter.

28

Two children die in the emergency department within one hour. The next day, the staff members who cared for these children report difficulty sleeping and concentrating. The nurse manager should

- A. mandate time off for all staff involved.
- B. schedule a critical incident stress debriefing
- C. suggest that they consider temporary transfer to another unit.
- D. explain to them that these situations are part of the job.

RATIONALE
Death of children in the emergency care environment can be a stressor to staff. The staff in this scenario are exhibiting signs of stress which can be exhibited through physical, cognitive, emotional and behavioral factors. The consequences of untreated stress may lead to more serious problems for the staff. Critical incident stress debriefing is the recommended practice to assist emergency staff in dealing effectively with stressors.

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An older adult with dementia is brought to the emergency department by family members who state, "We just can't handle him at home anymore." The patient frequently attempts to get out of bed. Which intervention is most appropriate to prevent falls in this patient?

- A. Place the patient in a vest restraint
- B. Provide the patient with the call light
- C. Have family remain with the patient
- D. Place the patient in a geriatric chair near the nurse's station

Rationale: Family are known faces to this patient. They can remain at bedside and remind the patient to ask for assistance to get out of bed or notify staff if he has any needs.

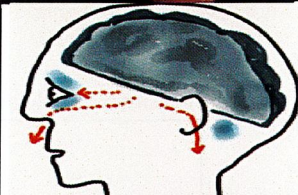
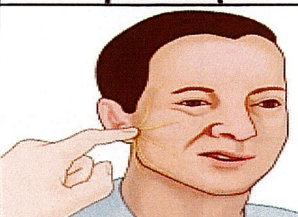
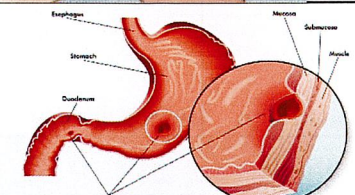
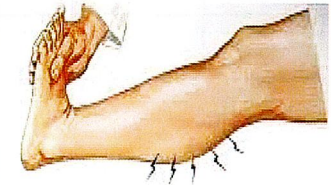
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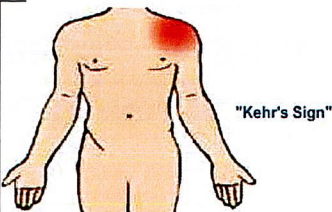
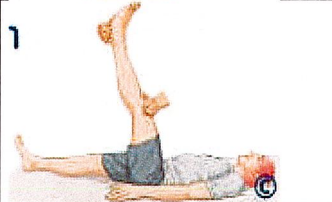
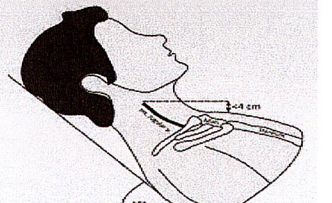
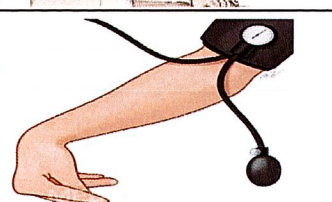
thank you

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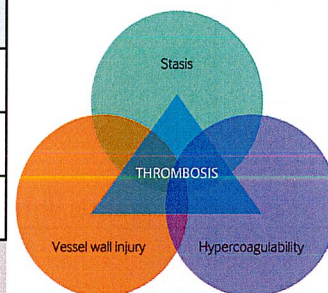
Eponymous Medical Assessment "Signs"

	Indicates	Sign	
Allen's test	Perfusion to hand prior to A line insertion	Occlude radial and ulnar arteries, release Ulnar to see it will perfuse the whole hand in the event of occlusion of the radial artery	
Babinski sign	pyramidal tract dysfunction (neuro)	dorsiflexion of the great toe with or without fanning of the other toes and withdrawal of the leg	
Battle's sign	Basal Skull fracture	Mastoid echimosi	
Chvostek sign	Hypocalcemia	tap on cheek, facial spasm <i>seen with trousseau's sign</i>	
Curling's Ulcer	Curling's ulcer is a stress ulcer that occurs in the stomach or duodenum caused by a reduction in plasma volume after severe burns.	Curling's ulcers can occur in patients with burns involving more than 30 percent of their total body surface area.	
Cullen's	Pancreatitis, Intraperitoneal bleed	periumbilical echimosi	
Grey-Turner's	Pancreatitis, retroperitoneal bleed	echimosi of the flanks	
Halstead's sign	Pancreatitis, retroperitoneal bleed	marbling of the abdomen	
Homans sign	DVT	Dorsiflexing foot with straight leg causes calf pain	

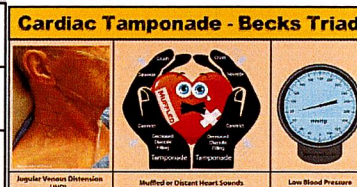
Kehr's	Diaphragm irritation due to bleeding from splenic rupture	left shoulder pain on abdominal palpation	
Kernig sign	meningeal irritation	pain with passive extension of knees past 135 degrees	
Kussmal's sign	Volume overload	neckvein bulging on deep inspiration	
Levine sign	Cardiac ischemia	clutching chest bent over quiet and still	
Trousseau sign	Hypocalcemia	inflate BP cuff, wrist spasms seen with Chvostek's sign	

Triads

Virchow's Triad	DVT development risk	Endothelial damage
		Hypercoagulability
		Venous stasis



Beck's triad	Cardiac tamponade	Low BP
		Distended neck veins
		muffled heart sounds



Cushing's triad	Increased intracranial pressure	Bradycardia
		Respiratory pattern
		Hypertension

