Chapter 34 Toxicology & Substance Abuse

Epidemiology
- Over 4 million poisonings occur annually.
- ________% of ED visits and EMS responses involve toxic exposures.
- ________% of accidental poisonings occur in children under 6 years old.
- 80% of attempted suicides involve a ____________________________________ overdose.
- An estimated 20 million people are current users of illicit and synthetic or “_____________________________________” drugs

Poison Control Centers
Poison Control:
- National network of specially trained providers.
- Typically ______________________________________ or statewide.
- Accessed by telephone.

Contact Poison Control Early:
- Assist in determining potential ______________________________________
- Advise on prehospital treatment.
  - Poison Control ______________________________________ give orders for drugs
- Advise the receiving facility and Medical Control.

Routes of Toxic Exposure
- Ingestion: orally
  - Most common
- ______________________________________ : via respiratory system
- Surface Absorption: through the skin
- ______________________________________ : under skin, into muscle, into a blood vessel

Ingestion
Common agents:
- ______________________________________ products
- Petroleum-based agents
- Cleaning agents
- ______________________________________
- Drugs, plants, or foods
  Absorption occurs in the __________________________ and small intestine.

Ingestion
- Immediate effects of ingestion of ______________________________________ substances (acids or alkalis) can involve burns to the lips, tongue, throat, and esophagus
- ______________________________________ effects result from absorption of poisons through the GI tracts

Inhalation
Common agents:
- Toxic gases, vapors, fumes, ______________________________________
- Carbon monoxide, ______________________________________ , chlorine
- Tear gas, freon, nitrous oxide, methyl chloride
  Absorption occurs via the __________________________—alveolar
membrane in the lungs.

8. **Surface Absorption**
   Common agents:
   - Poison ivy, oak, or ________________________________
   - ______________________________________
   Absorption occurs through capillaries in the skin.

9. **Injection**
   Common agents:
   - Animal bites or ________________________________
   - Intentional injection of ________________________________ drugs
   Substance enters directly into the body through a
   ________________________________ in the skin.

10. **Standard Toxicologic Emergency Procedures**
   - Recognize a poisoning ________________________________
   - Assess the patient thoroughly to identify the toxin and measures required to control it.
   - Initiate standard treatment procedures.
     - Protect rescuer safety.
     - ________________________________ the patient from the toxic environment.
     - Support ABCs.
     - Decontaminate the patient.
     - Administer ________________________________ if one exists.

11. **General Assessment**
    **Scene Size-up:**
    - Be alert to the potential for ________________________________
    - Look for signs of hazardous-material involvement.
      - Enter a hazardous-materials scene only if properly trained and
        ________________________________ to do so.

    **Primary Assessment**
    - Airway and respiratory compromise are common in
      ________________________________ emergencies.
    - Manage life-threatening conditions.

12. **General Assessment**
    **History, Physical Exam, and Reassessment**
    - Identify the toxin and ________________________________ of exposure.
    - Contact Poison Control and Medical Control according to local policy.
    - Complete appropriate ________________________________ exams.
    - Monitor vital signs closely.

13. **General Treatment**
    - Initiate supportive treatment.
    - ________________________________
      - Reduce intake of the toxin.
        - Remove the individual from the toxic environment.
      - Reduce absorption of toxins in the body.
        - Use gastric ________________________________ and activated charcoal.
      - Enhance elimination of the toxin.
- Use cathartics. (______________________________________)
  - Increases gastric ______________________________________

14 General Treatment

- Useful only if the substance is ___________________________.
- Rarely 100% effective.
- Must be used in conjunction with other therapies to ensure effectiveness.

15 General Treatment

Suicidal Patients and Protective Custody:
- Involve law enforcement.
- Involve Medical Control.
- Know local procedures and laws.
  - Laws for protective ___________________________ vary widely.
- In Texas, a peace officer or magistrate can place a person in protective custody for up to ___________ hours
- Peace officer should ___________________________ accompany patient in the ambulance

16 Assessment of Ingested Toxins

History:
- ___________________________ was ingested?
- When was it ingested?
- How much was ingested?
- Did you drink any alcohol?
- Have you attempted to ___________________________ yourself?
- Have you been under psychiatric care? Why?
- What is your ___________________________?

17 Assessment of Ingested Toxins

Physical exam:
- Skin
- ___________________________
- Mouth
- Chest
- Circulation, EKG
- ___________________________
- Exposure to multiple toxins
  - Suicide attempt, ___________________________

18 Management of Ingested Toxins

- Contact Poison Control/Medical Control.
- Prevent ___________________________.
  - Consider intubation or RSI
- Administer fluids and drugs.
  - IV access
  - Use of ___________________________, naloxone, and thiamine
  - Decontamination
- Do ___________________________ induce vomiting.
Assessment of Inhaled Toxins

History and physical exam:
- Evaluate the ______________________________________.
- Central nervous system effects include dizziness, headache,
  ______________________________________, seizure, hallucinations, coma.
- Respiratory effects include cough, hoarseness, stridor, dyspnea, retractions, wheezing,
  chest pain or tightness, rales, ______________________________________.
- Cardiac effects include ______________________________________.

Management of Inhaled Toxins
- Ensure your personal safety.
  - Do not enter a hazardous scene unless properly trained and equipped to do so.
- Remove the patient from the ______________________________________.
  - Remove the patient's ______________________________________ clothing.
- Perform the initial assessment, history, and physical exam.
- Initiate ______________________________________ measures. (O2, Intubation)
- Contact Poison Control and Medical Control according to local protocol.

Assessment and Management of Surface-Absorbed Toxins
- Ensure your ______________________________________ safety.
  - Do not enter a hazardous scene unless properly trained and equipped to do so.
- Remove the patient from the environment.
  - Remove the patient's contaminated clothing.
  - ______________________________________ off dry chemicals
  - Wash skin with ______________________________________ amounts of water

Assessment and Management of Surface-Absorbed Toxins
- Perform the initial assessment, history, and physical exam.
- Initiate ______________________________________ measures.
- Contact Poison Control and Medical Control according to local protocol.

Specific Toxins
- A group of typical signs and symptoms consistently associated with exposure to a
  particular type of toxin
- Similar toxins typically have similar signs and symptoms.
- In some cases it may be ______________________________________ to identify a
  specific toxin but identification of a toxidrome may be achievable

Cyanide
- ______________________________________ -acting toxin
- Common in ______________________________________, silver polish, fruit pits,
  burning plastics
- Classified as a cellular ______________________________________
- Usually ingested, absorbed, or inhaled

Signs & Symptoms:
- Burning sensation in the mouth and throat
- Headache, confusion, and combativeness
- ______________________________________ and tachycardia
● Seizures and coma
● Pulmonary edema

25 Cyanide
Management
● Ensure rescuer safety.
● Initiate __________________________ care.
● Administer antidote:
  - Cyanide antidote kit containing amyl __________________________, sodium nitrite, and sodium thiosulfate

26 Carbon Monoxide
● Inhaled colorless, odorless gas that is a product of __________________________ combustion
  ● Chemical asphyxiant
    - Poorly ventilated heating systems
    - Confined spaces
  ● It has more than 200 times the affinity of oxygen to bind with the red blood cells

27 Carbon Monoxide
Signs & Symptoms:
● __________________________
● Nausea and vomiting
● Confusion or other altered mental status
● __________________________
● __________________________ in ears
● Bright cherry red skin
  - Very late sign

28 Carbon Monoxide
Management:
● Ensure rescuer safety.
● Remove the __________________________ from the contaminated area.
● Initiate supportive measures.
  - High-flow oxygen
● __________________________ therapy

29 Cardiac Medications
● Numerous types
● Commonly due to __________________________ errors
Signs & Symptoms:
● Nausea, vomiting, headache, dizziness, confusion
● Profound __________________________, cardiac dysrhythmias
● __________________________, pulmonary edema
Management:
● General toxicologic emergency procedures
● Antidotes?

30 Caustic Substances
● Typically occurs by ingestion or __________________________ absorption.
- Cause significant damage at sites of exposure.
- Are rapidly absorbed into the bloodstream.
- Slower onset of symptoms allows for longer contact and more extensive tissue damage.

Caustic Substances

Signs & Symptoms

- Facial
- Pain in the lips, tongue, throat, or gums
- Hoarseness, trouble swallowing, or shortness of breath
- Shock from bleeding, vomiting

Management:
- Perform standard toxicologic emergency procedures.
- Maintain an adequate airway.
- Avoid airways

Hydrofluoric Acid

- Used to clean and etch
- Highly toxic despite the appearance of only moderate on skin contact
- Penetrates deeply into tissues and disrupts cell function and can be destructive to

- Signs & Symptoms
  - Burning at site of contact
  - Confusion, muscle cramps

Hydrofluoric Acid

Management
- Scene safety
- Supportive measures
- Remove clothing
- Irrigate and the affected area.
- Transport immediately for definitive care.

Hydrocarbons

- Compounds of Carbon and Hydrogen
  - Kerosene, naphtha, mineral oil, chloroform, toluene, benzene
- Found in common household products like lighter fluid, paint, lubricants, solvents, and aerosol propellants
- May be ingested, inhaled, or absorbed.

Hydrocarbons

- Signs & Symptoms
  - due to local contact
  - Wheezing, dyspnea, hypoxia, pneumonitis
  - Headache, dizziness, slurred speech, ataxia, cardiac dysrhythmias
  - Foot and drop with numbness and
tingling

- Management
  - Standard toxicologic emergency procedures

### Tricylic Antidepressants

Antidepressants:
- Include amitriptyline, amoxapine, doxepin, nortriptyline, imipramine, clomipramine.
- TCAs have a __________________________ therapeutic index.
  - A small increase in dose can quickly lead to toxic effects

- Signs & Symptoms of Toxicity
  - Dry mouth, blurred vision, __________________________ retention, constipation

### Tricyclic Antidepressants

Signs & Symptoms of Severe Toxicity:
- Confusion, __________________________ , hyperthermia
- Respiratory depression, seizures
- Tachycardia, __________________________ , cardiac dysrhythmias

Management:
- Perform standard toxicologic emergency procedures.
- Monitor and treat cardiac __________________________ .
- Avoid use of flumazenil, which may precipitate __________________________.
- Consider administration of Sodium Bicarbonate

### MAO Inhibitors

- Monoamine oxidase inhibitors
- Infrequently prescribed __________________________ but used, on a limited basis to treat O/C disorders
  - High __________________________ with overdose because of drug’s action
  - Very narrow therapeutic __________________________ with many other drugs
  - Serious __________________________ interactions with foods containing __________________________ such as red wine and cheese

### MAO Inhibitors

Signs & Symptoms:
- Headache, agitation, restlessness, __________________________
- Nausea, severe hypertension, __________________________
- __________________________ and tachycardia
  - Progresses to __________________________ death.

Management:
- Standard toxicologic emergency procedures

### Newer Antidepressants

- Almost have completely replaced tricyclic antidepressants

Common Names:
- Trazodone (Desyrel)
- Bupropion __________________________
SSRIs (selective serotonin re-uptake inhibitors)

- Luvox, Zoloft, and Paxil

**Newer Antidepressants**

**Signs & Symptoms of OD:**
- Drowsiness, tremor, nausea, vomiting, tachycardia
- Serotonin
  - Triggered by increasing the dose or by adding selected drugs.
  - Marked by anxiety, confusion, insomnia, headache, coma, salivation, diarrhea, abdominal cramps, flushed skin, hyperthermia, rigidity, shivering, incoordination, and myoclonic jerks.

**OD is not as life threatening as with previous antidepressants unless other drugs or Codeine is taken**

**Management of OD:** Standard toxicologic emergency procedures

**Lithium**

- Prescribed to treat __________________________ disorder.
- Narrow therapeutic index
  - Thirst, dry mouth, tremors, muscle twitching, and increased
  - Confusion, stupor, seizures, coma, nausea, vomiting, diarrhea, bradycardia, and

**Treatment**
  - Standard toxicologic emergency procedures
  - Activated charcoal is not effective with lithium

**Salicylates**

- Common Overdose Drug
  - Includes __________________________, oil of wintergreen.
- Signs & Symptoms
  - Tachypnea, hyperthermia, confusion, lethargy, coma, cardiac failure, and dysrhythmias
  - Abdominal pain, vomiting, pulmonary edema,

**Treatment**
  - Standard toxicologic emergency procedures
  - Activated charcoal is __________________________.

**Acetaminophen**

Common OTC Antipyretic & Analgesic

**Signs & Symptoms of OD:**
- Stage 1 (1/2 hour to 24 hours)
  - Nausea, vomiting, weakness, __________________________
- Stage 2 (24-48 hours)
  - Abdominal pain, decreased urine, elevated __________________________ enzyme
- Stage 3 (72-96 hours)
- Liver function ________________________________
  - Stage 4 (4-14 days)
  - Gradual recovery or progressive liver ________________________________

46 Acetaminophen
Treatment:
- Standard toxicologic emergency procedures
- ________________________________ is available
  - N-acetylcysteine (NAC)

47 Benzodiazepines
- Sedatives:
  - Valium, Ativan, Versed
- Affects the ________________________________
- Common form of OD
- Most significant S/S is ________________________________ depression or arrest
- Reversed with ________________________________

48 Flumazenil
- AKA: Romazicon
- Benzodiazepine receptor ________________________________, antidote
- Reverses the effects of benzodiazepines
- Indications: Benzodiazepine overdose
- Contraindications: cyclic ________________________________ OD, status epilepticus

49 Flumazenil
- Adult Dosage: ____________ mg IV/IO over 15 seconds (SIVP)
  - May be repeated a total of 4 times (1mg total)
- Pedi (>1YOA) Dosage: 0.01mg/kg IV/IO over 15 seconds (SIVP)
  - May be repeated to a maximum of 0.05mg/kg
- Side Effects: ________________________________, dizziness, pain at injection site, headache, visual disturbances
- May produce ________________________________

50 Other Nonprescription Pain Medications
- Includes Nonsteroidal Anti-inflammatory Drugs
  - NSAIDs include ________________________________, ketorolac, naproxen sodium.
- Signs & Symptoms of OD
  - Headache, tinnitus, nausea, vomiting, ________________________________ pain, drowsiness
  - Dyspnea, wheezing, ________________________________ edema, swelling of extremities, rash, itching
- Treatment
  - Standard toxicologic emergency procedures

51 Theophylline
- ________________________________ Prescribed for Chronic Respiratory Problems
- Signs & Symptoms of OD
- Agitation, tremors, seizures, cardiac  
  manage:  
  - Cardiac dysrhythmias.

Metals: Iron
- Overdose of dietary supplement
- Signs & Symptoms
  -  (with hematemesis), diarrhea, abdominal pain, shock, liver failure, bowel scarring and obstruction, metabolic
  -  
  - Treatment
    - Standard toxicologic emergency procedures
    - Activated charcoal is not indicated.

Metals: Lead and Mercury
- Overdose often results from  
- Signs & Symptoms
  - Headache, irritability, confusion, coma,  
  - Disturbances, tremors, weakness, agitation, abdominal pain
- Treatment
  - Standard toxicologic emergency procedures
  - Activated charcoal is not indicated.

Contaminated Food
Bacteria, Viruses, and Toxic Chemicals
- Bacterial Toxins
  -  : poison secreted during growth of a bacterium
  -  : an exotoxin that produces GI symptoms
  - Incubation period is 4 hours to 8 days
  - Shigella, Salmonella, E. coli, Botulism

Contaminated Food
- Seafood poisonings
  - Shallow poison: contaminated clams, mussels, oysters, and scallops
  - Can lead to respiratory failure
  - Other types of seafood poisonings
- Signs & Symptoms of contaminated foods
  - Nausea, vomiting,  
  - Flushing and respiratory distress

Contaminated Food
- Treatment
  - Perform assessment.
Collect _______________________________ of the suspect food source.

- Maintain the airway and support breathing.
  - ______________________________________ and assist ventilations if indicated.
  - Administer high-flow oxygen.

- Establish IV access and monitor ECG.
- Consider medications.
  - Antihistamines, _______________________________

Poisonous Plants and Mushrooms

- Decorative Plants
  - Common source of accidental poisoning in ________________

- Toxic _______________________________
  - Amanita and Galerinal belong to the deadly cyclopeptide group
  - Mortality rate of _________% 

Poisonous Plants and Mushrooms

- Signs & Symptoms of poisoning
  - Excessive ______________________________, lacrimation, diaphoresis, abdominal ______________________________, nausea, vomiting, diarrhea, and altered mental status

- Treatment
  - Follow treatment guidelines for contaminated food.
  - Take sample of plant or mushroom if possible

Injected Toxins

General Principles of Management

- Protect rescuers.
- Remove the patient from ______________________________.
- Identify the ______________________________ that caused the injury.
- Perform an initial assessment and rapid physical exam.
- Prevent or delay ______________________________ of the poison.

Injected Toxins

General Principles of Management (Cont’d)

- Initiate ______________________________ measures as indicated.
- Watch for ______________________________ reactions.
- Transport the patient rapidly.
- Contact Poison Control and Medical Control.

Insect Bites and Stings

Signs & Symptoms

- Localized pain, redness, swelling, skin ______________________________.
  - ______________________________ reactions

- Observe for signs of an allergic reaction.
  - Localized pain, redness, swelling, skin wheal
  - Generalized ______________________________ of the skin or itching
  - Tachycardia, hypotension, bronchospasm, or laryngeal edema, facial edema, uvular swelling

Insect Bites and Stings
Treatment:
- Wash the area.
- Remove ______________________________________ , if present.
  - Use care not to disturb the venom sac.
- Apply ______________________________________ compresses to the injection site.
- Observe for and treat allergic reactions and/or anaphylaxis.

**Brown Recluse Spider Bites**
- Found primarily in the ______________________________________ and Midwest.
- Bites are normally ______________________________________

**Brown Recluse Spider Bites**
Signs & Symptoms
- Localized, white-ringed ______________________________________.
- Progresses to localized pain, redness, and swelling over next ____________ hours.
- Chills, fever, nausea, vomiting, and __________________________ pain may also develop.

**Brown Recluse Spider Bites**
Signs & Symptoms (cont’d)
- Tissue ______________________________________ develops over subsequent days and weeks.
- Treatment
  - Follow general treatment guidelines.
  - Provide ______________________________________ care.
  - Definitive treatment is surgical excision

**Brown Recluse Spider Bite: Initial Appearance (Day 1)**

**Brown Recluse Spider Bite: Day 3**

**Brown Recluse Spider Bite: Day 5**

**Brown Recluse Spider Bite: Day 6**

**Brown Recluse Spider Bite: Day 9**

**Brown Recluse Spider Bite: Day 10**

**Black Widow Spider Bites**
Signs & Symptoms
- ______________________________________ pain, redness, and swelling
- Progressive muscle ______________________________________ of all large muscle groups
- Nausea, vomiting, sweating, seizures, __________________________ , and altered level of consciousness

**Black Widow Spider Bites**
Treatment:
- Follow general treatment guidelines.
- Provide supportive care.
- Consider using muscle ______________________________________ to relieve severe muscle spasms.
  - ______________ __________ 2.5–10mg IV or 0.1–0.2 mg/kg of a 10%
calcium _______________________________ solution IV
• Antivenin available (_____________________________ Mactans) for sick and feeble

74 Scorpion Stings
• Only the bark scorpion has caused fatalities in US

Signs & Symptoms
• Localized burning and ______________________________ sensation
• Slurred speech, restlessness, muscle twitching, salivation, nausea, vomiting, and seizures

75 Scorpion Stings
Treatment:
• Follow general treatment guidelines.
• Apply ______________________________ band above sting site
• Avoid analgesics, which could increase toxicity

76 Snakebites
• Pit Viper Bites
  - Venom destroys ______________________________ and other tissue components.
• Coral Snake Bites
  - Venom is a ______________________________ that results in paralysis.

77 Management of Pit Viper Bites
• Primary goal is to ______________________________ absorption
• About 25% of bites are “____________________________”
• Amount of venom varies significantly
• Envenomation is “all or nothing”
• Time is required to produce additional venom
• Treatment is dependant on ______________________________

78 Degrees of Envenomation of Pit Viper Bites
• None: produces only ______________________________ s/s
• Minimal: Pain, swelling, no ______________________________ symptoms
• Moderate: progressive swelling with mild systemic symptoms
  - Nausea Vomiting
  - Unusual tastes
  - Mild hypotension
  - Mild tachycardia
  - ______________________________

79 Degrees of Envenomation of Pit Viper Bites
• Severe
  - ______________________________(spreading rapidly)
  - Severe pain
  - Systemic symptoms
    • AMS
    • Nausea/vomiting
    • Hypotension
    • Severe ______________________________
    • Severe respiratory distress
- _______________ oozes freely from wounds

**Treatment of Pit Viper Bites**
- Keep the patient _______________.
- Immobilize the injured limb and maintain it in a neutral position.
- Apply high-flow oxygen.
- Establish IV access; give pain meds
- Do not use a ____________________ kit
- Transport.
- DO NOT apply constricting bands, ____________________, cold packs, tourniquets, or electrical stimulation to the wound.
- __________________ is available

**Coral Snakes**
- Small snake with red, yellow, and black bands
- “Red on yellow will kill a fellow, red on black, venom will lack.”
- Injects venom with teeth, using a ____________________ motion that leaves puncture wounds

**Coral Snakes**
- Venom causes ____________________ of the respiratory and skeletal system.
- Can produce bizarre behavior.
- Paralysis of eye movement and ____________________
- ____________________ redness and swelling.

**Coral Snake Bites**
- Signs & Symptoms:
  - Localized numbness, weakness, drowsiness, ataxia, slurred speech, excessive salivation, paralysis of the ____________________ and larynx
  - Drooping of the eyelids, double vision, dilated pupils, abdominal pain, nausea, vomiting, loss of consciousness, ____________________, respiratory failure, hypotension

**Treatment of Coral Snake Bites**
- Treat similarly to a pit viper bite
  - ________________ elevation
  - No ____________________
  - No constricting bands
- Wash the wound with large amounts of ____________________ and maintain the immobilized extremity at the level of the heart.
- Treat S/S

**Marine Animal Injection**
- Jellyfish, corals, sea urchins, and ____________________
- All venoms of marine animals contain substances that produce pain out of ____________________ to the size of the injury
- Poisons are unstable and ____________________ sensitive
- Possibility of ____________________ infection due to viral and bacterial contamination

**Marine Animal Injection**
3 Signs & Symptoms
- Intense ______________________________________ pain and swelling
- Nausea and vomiting
- Dyspnea
- Tachycardia
- ______________________________________ or shock in severe cases

2 Treatment:
- Establish and maintain the airway.
- Apply a ______________________________________ band above the site.
- Apply heat or hot ______________________________________.
- Inactivate or remove any ______________________________________.

87 Substance Abuse and Overdose
Terms:
- Substance abuse: use of a pharmacological substance for purposes other than medically defined reasons
- ______________________________________: compulsive and overwhelming dependence on a drug
  - Physiological dependence
  - Psychological dependence
- ______________________________________: the need to progressively increase the dose of a drug to produce the desired effect
- ______________________________________: body’s response when deprived of substance

88 Narcotics/Opiates
- Derived from the ________________________________ plant
- Includes Morphine, Fentanyl, Demerol, Hydrocodone, Oxycotin, and Heroin
- ______________________________________ depression is of most concern
- Effects can be reversed with Narcan

89 Cocaine
- The most potent ________________________________ of natural origin
- Extracted from the leaves of the ________________________________ plant
- Also used as a topical ________________________________
- Has the highest use among adults age 26 and older

90 Cocaine
- “______________________” is the freebase form of cocaine
- Most often inhaled or ________________________________
- Common street names include: “Coke”, “Snow”, “Flake”, and “Blow”

91 Effects of Cocaine
- Increases alertness and ________________________________
- Constricted blood vessels
- Dilated pupils
- ______________________________________ and hypertension
- Hyperactivity, anxiety and paranoia
- ________________________________
- Long term use can cause erosion of nasal septum
Methamphetamines
- A derivative of amphetamine
- A powerful __________________________ that affects the CNS
- Can be smoked, ____________________________, ingested, or injected
- Many forms and colors

Methamphetamines
- Can be made easily with readily available ingredients with a base of __________________________
- __________________________ are easily obtainable on the internet
- __________________________ process can pose hazardous materials situations
- Street names include “Speed”, “Meth”, “Chalk”, “Ice”, “Crystal”, “Glass”, “Tina”

Effects of Methamphetamines
- Increased wakefulness (insomnia) and activity
- Decreased __________________________
- Increased respirations, pulse, and BP
- Irritability, aggression, paranoia
- Hyperthermia and seizures may result in death
- __________________________
- Chronic users may develop __________________________ behavior, hallucinations, rage, and violent behavior, and “meth mouth”

Other Dangers with Meth
- __________________________ drug labs can be found anywhere
- A popular ingredient is anhydrous ammonia which is an asphyxiant
- Many of the chemicals are __________________________, flammable, or otherwise hazardous
- Criminals with firearms
- __________________________ traps

Hallucinogens
- Psychoactive drugs that causes changes to __________________________, thought, emotion, and consciousness
- 3 categories: psychedelics, dissociatives, and deliriants
- Biggest danger is a “bad trip”
- “_________________________ the patient down”
- Use physical and/or chemical __________________________ as necessary
- Use Benzodiazepines if seizing

MDMA (Ecstasy)
- MDMA is predominantly a “_________________________ drug” and is commonly used at all-night dance parties known as “raves.”
- MDMA is moving to settings other than nightclubs, such as private homes, high schools, and college dorms.

MDMA (Ecstasy)
- A __________________________ similar to amphetamines and induces euphoria and intimacy
**Effects of MDMA**

- **Psychological Effects:**
  - Mood alteration, confusion, sleep, anxiety
  - Poor ___________________________, poor impulse control
  - Hallucinations, Paranoia, and Delusions
  - Tolerance

- **Physical Effects:**
  - MI, ___________________________, CVA
  - Seizures
  - Muscle tension
  - ___________________________ up to 109°

**Rohypnol**

- Often used as a date rape or ___________________________ drug
- Flunitrazepam
- A ___________________________ marketed in Mexico and South America
- Used for insomnia

**Rohypnol**

- 10 times more potent than ___________________________
- Full effects reached in 20 minutes
- Duration up to 8 to 12 hours
- Colorless, ___________________________ and odorless
- Can be dissolved in a drink without detection
- ___________________________ intensifies effects
- Can be ingested, injected, or snorted
- Street names include “Rophies”, “Roofies”, “Roach”, and “Rope”

**Effects of Rohypnol**

- CNS ___________________________
- Amnesia and confusion
- ___________________________ depression
- Muscle relaxation
- May be lethal when mixed with alcohol or other depressants
- ___________________________ and hypotension
- Has been known to induce aggression

**Ketamine**

- Ketalar
- Used as an ___________________________ and often misused as a date rape or predator drug
- Widely used in ___________________________ practice

**Ketamine**

- Used in human anesthesia
- Duration up to 24 hours
- ___________________________ effects last 45–90 minutes
- Liquid is colorless and odorless
- Also can be a powder, pill, or ___________________________
- Street names include “K”, “Special K”, “Vitamin K”, “Jet”, “Green”, “Kay”, “Mauve”, “Special
“LA”, “Super Acid”, “Bump”

**Effects of Ketamine**
- Delirium
- Amnesia
- Body Dissociation
- Respiratory 
- Arrhythmias
- Cardiac arrest
- Hypertension

**GHB**
- Gamma-Hydroxybutyrate
- Also used as a date rape or predator drug
- CNS 
- Was available 
- Duration of up to 3 hours
- Street names include “Georgia Home Boy”, “Grievous Bodily Harm”, “Liquid Ecstasy”, “Soap”, “Vita G”, “Easy Lay”

**Effects of GHB**
- Relaxation and tranquility
- Sensuality and a loss of inhibitions
- Hallucinations
- Bradycardia and hypotension

**Marijuana**
- Smoked by 20 million people daily in the US
- Produces euphoria, 
- Impairs short-term memory and ability to work
- Transport to hospital is rarely needed.
- Marijuana can be used as 
  - It can be covered with PCP, crack, or other drugs.

**Other Common Drugs of Abuse**
- Respiratory support is main concern
- Use 
- Be careful not to cause withdrawal
111 Synthetic Drugs
● Although many legitimate drugs are synthetic, or made in a lab, the context of synthetic drugs in this sense deals with the illicit use or “designer” drugs
● Most common types are ______________________________________ salts and synthetic marijuana
● Can be highly ______________________________________

112 Synthetic Drugs
● Many of these drugs are sold ____________________________ in the US
● There are many attempts to outlaw and regulate these drugs
● Legislation is extremely difficult to enforce due to ____________________________ and ingredients
  - Most are labeled “not for human consumption”
● Normally sold at ____________________________ and “head” shops

113 Synthetic Drugs
● One of the main problems with these drugs is the inconsistency of ingredients and the inconsistency of the ____________________________
● Perception by many is if it is legal, then it can’t be too dangerous
● Growing problem nationwide that has resulted in ____________________________ of deaths, injuries, and hospitalizations
● Effects of long term use are ____________________________

114 Bath Salts
● Have nothing to do with real bath salts
● Many contain Methylenedioxpyrovalerone (______________________________)
  - A ____________________________ drug with stimulant properties which acts as a norepinephrine-dopamine reuptake inhibitor

115 Bath Salts
● Common street names include “Ivory Wave”, “Purple Wave”, “Vanilla Sky”, and “Bliss”
● Sometimes packaged as “jewelry cleaner”, ____________________________, or “phone screen cleaner”
● Taken by ingestion, ____________________________, and snorting
● Common effects include agitation, hallucinations, seizures, paranoia, chest pain, ____________________________, hypertension, and suicidal thinking/behavior

116 Bath Salts
● ____________________________ thinking/behavior may last even after the stimulatory effects have worn off
  - Suicides and suicide attempts have been reported days after use
● Effects are ____________________________ even when taking the same brand and same dose

117 Synthetic Marijuana
● A psychoactive designer drug mostly derived from natural ____________________________ sprayed with synthetic chemicals; designed to mimic the effects of marijuana
● Marketed as “herbal ____________________________” or “herbal smoking blends”
**Synthetic Marijuana**
- ____________________________________________________ ingredients used to create effects
- ____________________________________________________ are often inaccurate

**Synthetic Marijuana**
- Effects are designed to be similar to ____________________________________________________ marijuana
- Effects may be ____________________________________________________
- Adverse effects include agitation, hallucinations, seizures, paranoia, chest pain, tachydysrhythmias, hypertension, and suicidal thinking/behavior

**Inhalants**
- Inhalants may be any of thousands of household items
- Has ____________________________________________________ effects
- Common products include aerosols, paint, glue, white out, gasoline, ether
- Terned “______________________________________ ” or “sniffing”

**Effects of Inhalants (1 of 2)**
- Effects range from mild drowsiness to ____________________________________________________
- ____________________________________________________ by person and substance inhaled
- May often cause seizures and dysrhythmias
- Common effects include aggression, “super human” strength, and paranoia
- ____________________________________________________ depression or arrest
- Cardiac dysrhythmias

**Effects of Inhalants (2 of 2)**
- Halogenated hydrocarbon (______________________________________ ) solvents can make the heart hypersensitive to the patient's own adrenaline. BE GENTLE
- Even the action of ____________________________________________________ may cause a fatal ventricular arrhythmia and cardiac arrest.
- Sudden ____________________________________________________ can result from a single session of inhalant use
- Chronic use can cause damage to the brain, liver, and kidneys

**Management of Drug Abuse (1 of 3)**
- Management of most drug overdoses and adverse reactions will be
  ____________________________________________________
- Narcan is ineffective except for ____________________________________________________
- Management will depend on the S/S
- Protecting the patient and crew from ____________________________________________________ is paramount
  - These people may be dangerous

**Management of Drug Abuse (2 of 3)**
- Maintain a ____________________________________________________ environment and talk patient down if anxious or hallucinating
- Oxygen and protect airway
- IV at appropriate rate
  - Avoid massive fluids if ____________________________________________________
• Monitor ECG and __________________________ lethal dysrhythmias
• Don’t allow the patient to walk or be physically active

125 **Management of Drug Abuse (3 of 3)**
• If inhalant use is suspected, be mindful of __________________________ cardiac arrest
  - Even the action of __________________________ can trigger a lethal ventricular dysrhythmia
• Identify the substance, dose, route, and time taken if possible
• If severe hyperthermic (105° or above), __________________________ the patient immediately

126 **Alcohol Abuse**
  **Physiologic Effects:**
  • CNS __________________________
  • Alcoholism
    • Susceptible to __________________________ or ethylene glycol ingestion
    • Peripheral vasodilation, __________________________

127 **General Alcoholic Profile**
• Drinks early in the day, alone, or __________________________
• Binges, blackouts, GI problems, “green tongue syndrome,” chronic flushing of face and palms.
• __________________________ burns, tremulousness, and odor of alcohol.

128 **Alcohol Abuse**
  **Consequences of Chronic Alcohol Ingestion:**
  • Poor __________________________
  • Alcohol hepatitis
  • Liver __________________________ , pancreatitis
  • Sensory loss in hands/feet
  • Loss of balance and coordination
  • Upper GI hemorrhage
  • __________________________
  • Falls (fractures and subdural hematoma)

129 **Alcohol Abuse**

130 **Alcohol Withdrawal Syndrome**
• Delirium Tremens (DTs)
• Signs & Symptoms
  - Coarse tremor of __________________________ , tongue, eyelids
  - Nausea, vomiting, general weakness, anxiety
  - Tachycardia, sweating, __________________________ , hallucinations, irritability or depressed mood, poor sleep
  - Increased sympathetic tone, __________________________ hypotension

131 **Treatment of Alcohol Abuse**
• Establish and maintain the airway.
• Determine if other __________________________ are involved.
• Establish IV access.
- Lactated Ringer’s or normal saline

- Consider medications.
  - 25g D5W if hypoglycemic
- 100mg ______________________________ IV or IM

- Transport, maintaining a sympathetic attitude, and reassure the patient.