



# Emergency Medical Training Services

Emergency Medical Technician – Basic Program Outlines

Outline Topic: **SUBSTANCE OVERDOSE/ABUSE**

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NEVER BET THE FARM ON THE PUPILS WITH AN OVERDOSE!!!!!! Treatment is straight forward. Get out of situation.

Support ABC's and let them be high.

## DEFINITIONS

- Poison - any substance that produces harmful effects.
- Food poisoning - acute GI S/S within 48 hours of consumption of food.

## Poison Control Centers

- Over 70 centers in U.S.
- 90% of poisons occur in home, 53% involve children.
- Center has over 350,000 different substances in data base.
- EMS should follow medical director and/or poison control instructors per EMS protocol.

## Questions to ask of all poisonings

- What was taken?
- How was it taken?
- How much was taken?
- What is the weight of patient?

- What did they mix it with?

#### Ingestion Poisoning route

- 80% are children between 1 to 3 years of age.
- Corrosive substances like strong acids, alkalis produce immediate tissue damage.
- S/S include: burns to lips, tongue, throat. GI track irritability. Nausea and vomiting.
- Care: Activated Charcoal .5 to 1g per Kg or 25 to 50g.
- Do not give charcoal if poison is a liquid, corrosive, Tylenol, or is already absorbed or if nauseated prior to first dose.
- Might have to do a gastric lavage in the hospital. (pump the stomach)
- Note: Syrup of Ipecac was once the treatment of choice. If given should be administered within the first 20 minutes. 30mL in water.

#### Inhalation route

- Second fastest way to get substance into blood stream.
- S/S headache, coughing, burning throat, bad breathe.
- Get to fresh O2 and support ABC's.

#### Absorption route

- 75,000 cases a year are pesticides.
- S/S Skin irritated, burning skin, rash.
- Care: Flush skin and treat symptoms.
- See organophosphates below - must know.

#### Injected route

- Fastest way to get into blood stream is IV drug use.
- Injected could also mean bee stings, snakebites, etc...
- Treat ABC's and if good let patient sleep it off.

#### Sympathetic and Parasympathetic system at an EMT level - MUST UNDERSTAND - INSTRUCTOR KEEP IT SIMPLE.

- Sympathetic is "fight or flight." Parasympathetic is "feed or breed."
- When one is stimulated or blocked the other acts. Like a seesaw.
- Sympathetic is battle. Decrease in digestion and take blood from gut to muscles to fight. BP Up, respirations UP, Pulse Up, Sweaty skin. Beta 1 & 2 stuff.
- Parasympathetic is digest or breed. Take blood from muscles to GI to digest. Tired, sleepy, etc...
- THINK OF ALL THE STREET DRUGS HOW THEY AFFECT THIS SYSTEM. UPPER IS SYMPATHETIC - DOWNER IS PARASYMPATHETIC. THE S/S SHOULD MATCH.

#### Hydrocarbons

- "Huffing" or ingestion.
- Cleaning and polishing agents, gas, paints, thinners, etc...
- Most require little to no treatment of ABC's are Ok.

#### Methanol

- Known as wood alcohol.
- Once it is ingested into stomach goes to liver and produces formaldehyde in minutes.
- CNS problems, blindness, etc...

#### Mercury Poisoning

- Only metal that is liquid at room temperature.
- If swallowed gives off vapors (burps) and is inhaled. This is the most common entry route.
- Poisons the body fast. Burns, kills cells fast.

#### Food Poisoning – botulism

- Botulism - rare but life-threatening.
- Eating improperly canned foods.
- The bacteria resist boiling, salting and smoking. This allows the bacterium to thrive in improperly preserved or canned foods.

- S/S CNS affected, headache, double vision, respiratory paralysis, death.
- CARE: IV long term antibiotics.

#### Food Poisoning - others

- Not cleaning off pesticides before eating raw foods .
- Norwalk Virus found on shellfish.
- As a rule: spoiled or contaminated food symptoms start within 30 minutes, bacterial about 1 to 12 hours, and virus start 2 to 48 hours.
- Is a product of burning nylon and polyurethane (certain plastics). Carpet, couches, cherry seeds, apple seeds, apricot seeds.
- INHIBITS CELLULAR OXYGENATION. CANNOT MOVE OXYGEN ON CELLS. DEATH IS CERTAIN.
- Bitter almonds smell.

#### Carbon Monoxide

- Burning exhaust of a car for example
- Odorless.
- Carbon Monoxide bonds 200 times stronger to hemoglobin than O<sub>2</sub>.

- Need hypobaric chamber to release carbon monoxide.
- Think about this? "The most common way doctors kill themselves are carbon monoxide." Do it right because you cannot go back.
- S/S - headache, dizzy, decreased CNS, sleepy, death.
- Lips turn "cherry red." This is very, very, very, very late.

### Organophosphate Poisoning

- Most toxic chemical absorbed.
- Affects parasympathetic and over stimulates. "feed or breed"
- "SLUDGE" Salivation, Lacimation, Urination, Defecation, GI irritability, Emesis (or eyes small).
- Get from chemicals that are pesticides and fertilizers. This is why yard workers wear knee high boots.
- Give Atropine IV as treatment. Takes a lot. If parasympathetic slows thinking and we need to speed up a SLUDGE patient we need a blocker. Atropine blocks the parasympathetic so the sympathetic takes over and speed the body. (fight or flight).

### Opioid Overdose

- Heroin - 90% of opioid abuse in U.S. Pure heroin is a bitter-tasting white powder.
- Other Opioid: Morphine, methadone, Demoral, codeine, oxycodone.
- Can be injected "skin popping", IV "mainlining", nasally "snorted".

- All are CNS depressants. Can cause: Low BP, pinpoint pupils (except demoral), hypoxia, seizures, euphoria, "nodding."
- Care: Narcan to block the high.

#### Sedatives-Hypnotic Overdose

- Benzodiazepines, barbiturates. Commonly called "downers".
- Benzo drugs are given to control anxiety, stress, insomnia.
- Common benzo drug is valium.
- All are CNS depressants. cause drowsiness, wide gate (walk), hypoxia, low respiratory rate.
- Pupils may be constricted but often become fixed and dilated.

#### Stimulant Overdose - (class A)

- Cocaine, methamphetamine.
- Produce mood elevation, suppress appetite, prevent sleepiness.
- S/S: Major CNS stimulant, tachycardia, increased BP, dilated pupils, tremors.
- Sudden withdrawal is the "crash".
- Cocaine is the most commonly used illegal drug.
- Affects in minutes when snorting a "line" half life of 1 to 2 1/2 hours.
- "Speed-balling" refers to injecting cocaine and heroin.

- "Crack" cocaine more potent. It is mixed with an alkaline and ether substance. Results in crystals thus the term "rock or crack". Get the crack name when heated it cracks (pops).

#### Stimulant Overdose - (class B)

- Phencyclidine (PCP) Overdose.
- Stimulates sympathetic system. Upper.
- Used as a veterinary tranquilizer. Dissociative analgesic. Keeps the body stimulated but depressed the memory
- Very strong but out of mind.
- The last one I saw: A naked man running from police and it took six cops to hold him down and the cops still lost. They can snap at anytime.

#### Hallucinogen Overdose

- Lysergic Acid Diethylamide (LSD), mushrooms, marijuana.
- S/S minor visual, to respiratory depression and CNS depression.

#### Depressant Overdose - Alcohol

- Alcohol is a poison to the body. Even a beer kills brain cells.
- CNS Depressant Memory loss, depression, liver problems, metabolism problems.



- ETHANOL (ETOH) is the active ingredient in alcoholic beverages. Pure ETOH has no odor. Can someone smell drunk?
- Alcoholics have small brains and poor metabolism. Skinny, poor health, malnourished.
- Small brain leads to head injuries with falls.

Summary on street drugs: same S/S but categories are how they work.

- Parasympathetic stimulant - SLUDGE - things slow.
- Hallucinogens - LSD, PCP, mushrooms, marijuana, amphetamines
- Opioids - Heroin, morphine, codeine, demoral - pain killer drugs.
- Sympathetic stimulants - Cocaine, amphetamines, meth