



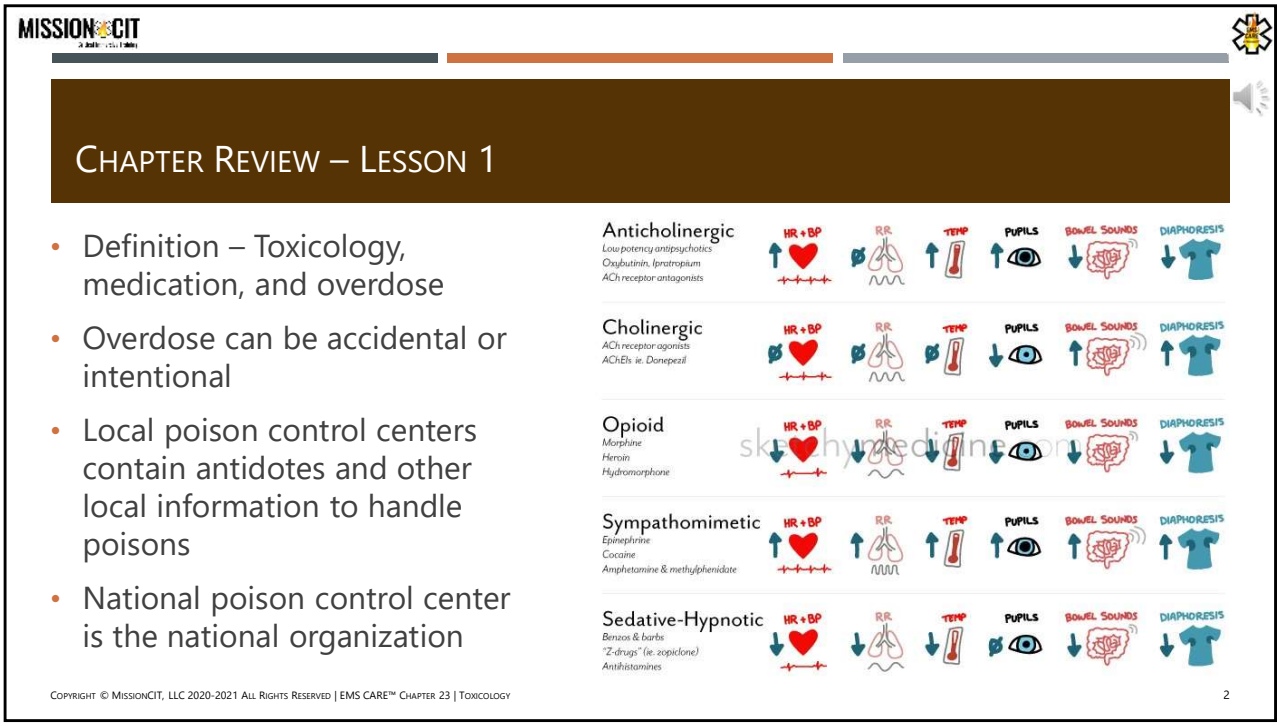
Chapter Review

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Welcome to the chapter review section where we quickly recap all that was covered in the six lessons of this topic.

Remember, after this review, there will be a 15 question Quiz. You need to score 75% or better to receive credit for this chapter.

Good studying.

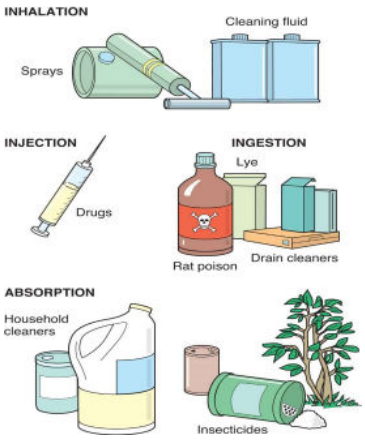


In the first lesson, we learned the important definitions. First off, we saw that toxicology is the study of the adverse effects of chemical, physical, or biological agents on living organisms and the ecosystem, including the prevention and amelioration of such adverse effects. In simpler terms, toxicology is the understanding of the agents that cause adverse effects and taking efforts to prevent or treat them.
Next, we saw the definition of poisoning which is a condition that occurs when a substance interferes with the normal activities of the body after it is

swallowed, ingested, injected, or absorbed.
Finally, we looked at overdose which is the more than normal recommended intake of a substance. This overdose can be both accidental and intentional.
Lastly, we touched on the National poison Control Center and the local poison centers that handle poisonings due to exposures to medications, illicit drugs, supplements, venomous plants and animals, environmental toxins, and industrial and household chemicals.

Chapter Review – Lesson 2

- Different routes of absorption - Injection, Ingestion, Absorption, and Inhalation
- Assess the patient and assist in administering activated charcoal
- Inhalation is the most common route
- Ingestion happens through animal bites or syringe
- Absorption happens through the skin
- Document everything, so appropriate care can be given



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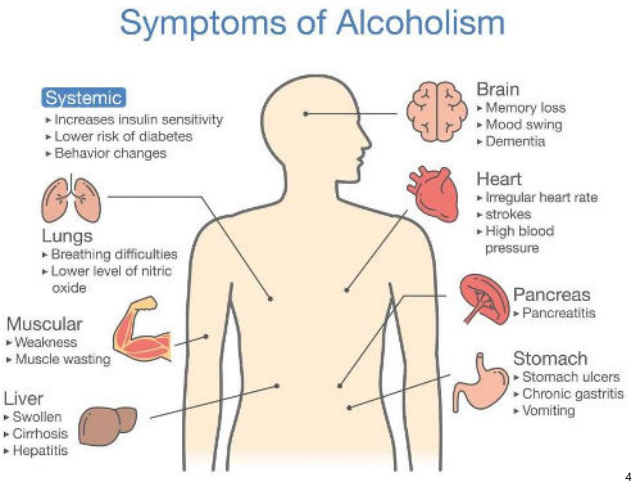
The second lesson was about the different routes of poison absorption, and we saw four routes, namely, injection, ingestion, absorption, and inhalation.
In ingestion, the poison enters the body through swallowing, and it can be both accidental or intentional. But regardless of the reason, the physiological effects and impact are the same.
The first step is to assess the patient followed by providing assistance in administering activated charcoal.
The second route, inhalation, is the most common route of poisoning. Vapors, mists, gases, and other

small particles enter the body through the respiratory system. The assessment begins with identifying obstructions, providing resuscitation if needed, and doing a decontamination. It can take up to 72 hours for the symptoms to show up.
The third route is injection, and this includes animal bites or the intentional ingestion through a syringe. If it is the latter, provide a supporting environment, besides decontamination and other treatments.
The last route is absorption where the poison enters the body through the skin. Decontamination may be required.
In general, document everything, and follow your local protocols closely. Size up the situation, and inform the law enforcement authorities if needed.

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CHAPTER REVIEW – LESSON 3

- Narcotics and opiates come from the cannabis plant.
- Narcotics is fully synthetic while opiate can be fully or partly natural
- Alcoholism is addiction to alcohol
- Cannabis, hallucinogens, sedatives, and stimulants are other drugs of abuse



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Drugs of abuse are those substances that can alter the thinking and judgment of a person, and can lead to many health risks such as addiction and infectious diseases.

Narcotics and opiates are drugs obtained from the cannabis plant and are known to give a feeling of euphoria to the patient. The difference between narcotics and opiates is that the latter is completely natural while the former can be synthetically produced.

The next substance we learned was alcohol. Though consuming it in small quantities is relatively

harmless, excess drinking is dangerous. Likewise, addiction to alcohol leads to a situation called alcoholism where a patient cannot live without alcohol.
Besides these two substances, there are a few others that can have a delirious impact on a patient. Some of those substances are cannabis, which is a drug from the cannabis plant, hallucinogens are substances that can alter a patient's awareness of the surroundings, stimulants that give high energy to the body and can be dangerous in large quantities, and sedatives that put a patient to sleep. The treatment for each of these substances vary greatly, but in most cases, they require mental counselling and therapy to overcome the addiction.

Chapter Review – Lesson 4

- Safety is the first priority
- Wear PPE and other protective clothing
- Understand the general symptoms
- Appropriate treatment is needed
- Document



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In the fourth lesson, we talked about poisonings and exposure. As a first step, you have to ensure your safety as well as that of your patients. So, wear protective clothing and be aware of the situation. Call the enforcement officials or additional help, if needed.

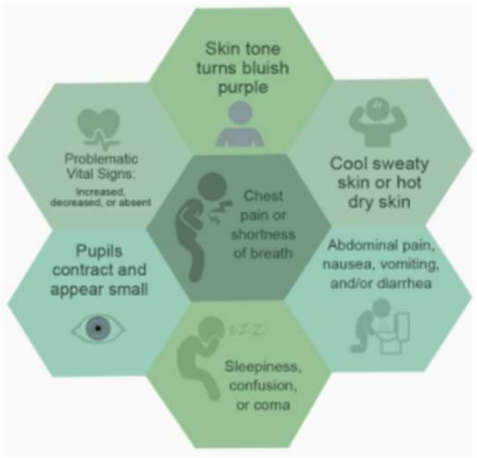
In general, a person experiences symptoms such as chest pain, dizziness, and breathing difficulties when exposed to poisonous gases like ammonia and chlorine. So, be aware of the substance that caused the discomfort, so appropriate treatment can be provided. Document everything, and provide oxygen

if it is required to stabilize the patient.

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CHAPTER REVIEW – LESSON 5

- Medication overdose can be accidental or intentional
- Provide mental support if required
- Look for common symptoms like altered mental status, sudden increase or decrease in vitals, vomiting, and nausea
- Treatment will depend on the medication



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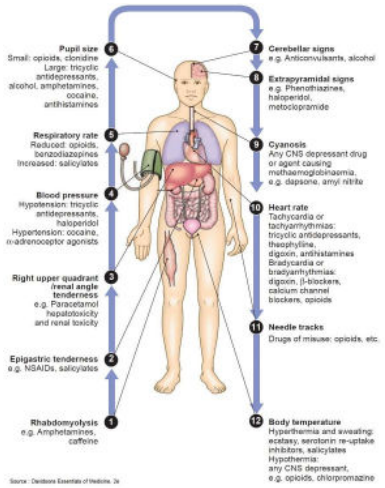
The next lesson was about medication overdose, where this additional intake of medicines can be accidental or intentional. Provide mental support if a patient had tried to commit suicide with medication overdose, and assist in administering activated charcoal to prevent the body from absorbing the poison.

While assessing, look for common symptoms like altered mental status, sudden increase or decrease in vital signs, shortness of breath, vomiting, nausea, and more. The treatment will depend on the medication that was consumed.

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CHAPTER REVIEW – LESSON 6

- Understand and follow the local procedures and protocols
- Decide if emergency transport is required
- Stabilize the patient
- Check for ABCs
- Provide oxygenation and ventilation
- Assist in administering activated charcoal



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The sixth lesson was about the different treatment procedures and the protocols you must follow.

As a standard precaution, wear PPE suits and other protective clothing. Once you have transported the patient, decontaminate the ambulance using the standard operating procedures described by your local government. Be ready to decide if the patient requires emergency transportation.

While transporting the patient, check for ABC, that stand for airway, breathing, and circulation. Check if the patient is getting enough oxygen, and provide

oxygenation or ventilation, as required.

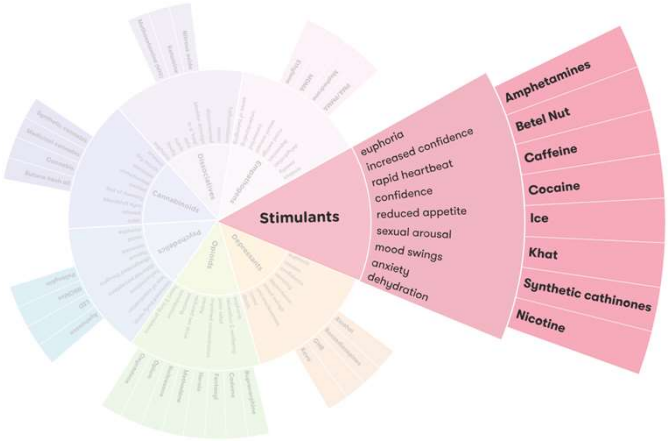
In the case of poisoning, assist in providing activated charcoal.

In general, be aware of the challenges that come with handling young children and seniors, as both of them may be a bit uncooperative due to their respective age and mental condition.

Finally, communicate with the patients and their family members to gather as much information as possible. Document everything you see or hear, as this can be vital for the doctor to decide the course of treatment.

Chapter Review – Lesson 7

- Synthetic stimulants are made in labs
- Comes in three forms – powder, crystal, and tablets
- Psychological and somatic effects
- Analyze for opioid overdose
- Be ready for aggressive behavior



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The seventh lesson was about synthetic stimulants where we talked about the different synthetic stimulants that were made in the laboratory to mimic marijuana and its different compounds. It comes in three forms, namely, powder, crystals, and tablets.

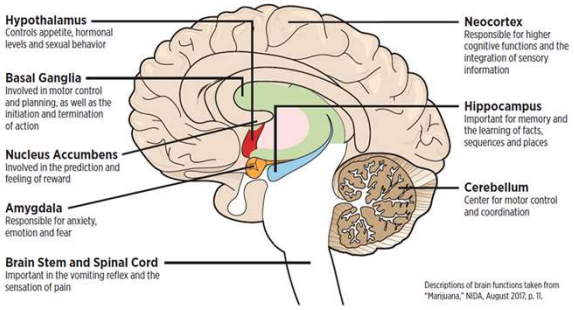
Regardless of which form a patient consumes these illegal drugs, it causes psychological and somatic effects. Some of the psychological effects are insomnia, irritability, depression, drowsiness, and suicidal thoughts, whereas somatic effects include rapid heartbeat, nosebleeds, nausea, and vomiting.

As an EMT, analyze the symptoms to check if it was due to opioid overdose. If so, check for the vital signs and stabilize the patient first. Decide if you must transport the patient. Also, be ready for aggressive behavior that the patient may exhibit, especially after the effect of the drug wears off.

Chapter Review – Lesson 8

- THC is a compound found in marijuana
- Psychoactive in nature
- Binds with brain's receptors to cause euphoria
- Stimulates the release of dopamine
- Hallucinations, delusions, increased appetite, anxiety, impaired balance, and reduced short-term memory are common symptoms

Areas of the Brain Affected by Marijuana



Descriptions of brain functions taken from "Marijuana," NIDA, August 2017, p. 11.

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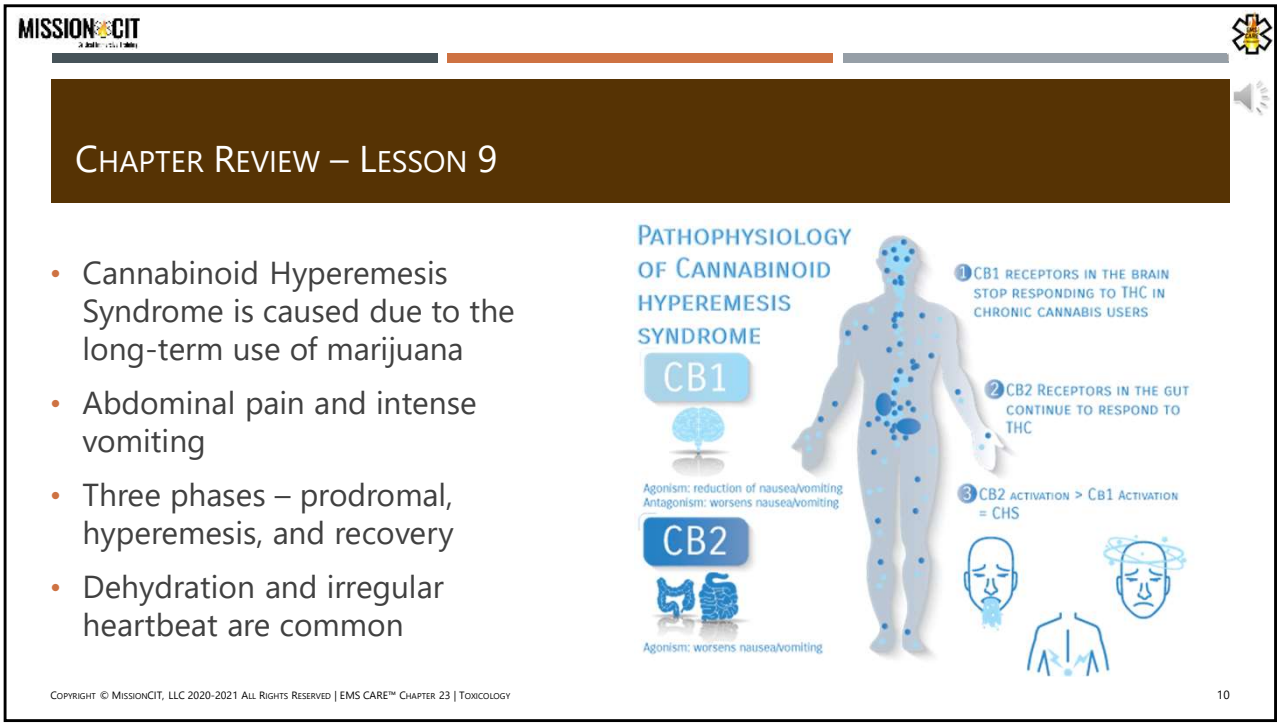
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In the next lesson, we talked about Tetrahydrocannabinol or THC in short. This is one of the components found in the cannabis plant and it gives people a high because of its psychoactive nature. In its natural form, it can be a green, brown, or gray mixture of dried grass, leaves, and flowers. It works by attaching itself in the receptors found in the brain, especially those associated with thinking and memory. Further, it stimulates the brain to release dopamine, a hormone that causes euphoria.

Since it impacts the hippocampus part of the brain,

hallucinations and delusions are common. Other symptoms include increased appetite, elation, anxiety, decreased attention, impaired balance and coordination, and reduced short-term memory.

As a part of the treatment, provide oxygenation and ventilation if needed. Arrange for emergency transport, and be prepared to call the law enforcement officials if the patient exhibits aggressive behavior.



The last lesson was about a condition called the Cannabinoid Hyperemesis Syndrome that occurs due to excessive use of marijuana over an extended period. What happens is that the THC binds not just with the brain's cells, but also with molecules present in the digestive system. Over time, the behavior of these molecules is altered, and this causes symptoms such as intense bouts of vomiting and abdominal pain.

This condition is characterized into three phases. The first phase is called the prodromal phase, where early morning nausea and abdominal pain are common. The

second phase is the hyperemesis phase that is characterized by intense bouts of vomiting, severe abdominal pain, and more. This is when a patient usually calls for help. The third phase is recovery, where the patient stops the use of marijuana, and the body comes back to its normal working and metabolism.

Many times, the patients are severely dehydrated because of the vomiting bouts. So, check if you can provide IV fluids. Check for heartrate and provide oxygenation if needed.

With this, we come to the end of the chapter review. Good luck for the quiz.