MODULE 10:
ENVIRONMENTAL HEALTH
CASE STUDY #1

Idling Danger

OVERVIEW:
Lorenzo leaves a party and drives home drunk. By some miracle, he makes it home without hurting himself or others, but when he pulls into his garage and closes his door, he leans back and falls asleep at the wheel, before turning off the car. His roommate finds him several hours later and brings him to the ER.

GOAL:
Determine whether or not Lorenzo has carbon monoxide poisoning. If he does, determine the severity and prescribe treatment and patient education.

ROLE:
You are a team of Emergency Room physicians, physician's assistants, nurses, and social workers.

OBJECTIVE:
Obj. 10.9a: Complete a SOAP note for a patient with thoroughness and accuracy.
Obj. 10.9b: Demonstrate compassion, empathy, urgency, and clarity while educating a patient on illness prevention concepts.

DELIVERABLES:
1) SOAP Note
2) Patient Education Conversation Skit

ASSESSMENT:
The SOAP Note and Skit will be evaluated on a rubric

Case Introduction:

Lorenzo is a college student studying architecture. He lives with one roommate in a two-bedroom single-family home near campus with an attached garage. Lorenzo is earning good grades and has a very active social life. However, he is known by friends to drink heavily at parties and often displays reckless behavior when intoxicated.

Lorenzo snuck out of a party because he was feeling tired and drove home despite being intoxicated. He made it home safely without hurting himself or others (against all odds), but after he pulled into the garage, he closed the door using the automatic button inside the car, and leaned his head back for a few seconds to "rest." Unfortunately, in his intoxicated state, a quick rest turned into a deep sleep and he never turned off the car. With nearly a full tank of gas, the car was left running inside the small, cramped garage for several hours.

If it weren't for the fact that his roommate, Chris, came to the kitchen for a glass of water in the early hours of the morning, who knows what would have happened. But what did happen is this: Chris heard the car running and went out to investigate. He found Lorenzo slumped over the steering wheel. He opened the garage door and woke Lorenzo up. He was quite difficult to wake and had to be shaken violently. Immediately Lorenzo bent over and threw up. He seemed disoriented and appeared to still be somewhat intoxicated. He held his head and moaned in pain. Chris acted quickly by driving him straight to the ER, which was only 5 minutes away.

Subjective & Objective:

Record the information from Lorenzo's story in the appropriate sections of the SOAP note. *Note: There will be some row left blank due to lack of information.*

Gathering Additional Subjective & Objective:

Prepare to interview Lorenzo using the SAMPLE and OPQRST systems for Subjective information gathering. Then determine what Objective information you need to gather it and request it from the Lab Technician (your instructor).

NOTES & QUESTIONS:

Subjective
Objective

SOAP Note	
Subjective:	
Signs & **S**ymptoms	
Allergies	
Medications	
Past medical history	
Last oral intake	
Events leading to injury or illness	
Frequency	
Associated Symptoms	
Radiation	
Character	
Onset	
Location	
Duration	
Exacerbating Factors	
Relieving Factors	

Objective:	
Measurements	
Vital Signs	
Exam Results	
Lab Results	

Assessment:

Write a short summary of the patient's situation, then complete a differential diagnosis including at least three possible diagnoses. Before you make your final diagnosis and support it with evidence and reasoning, move on to the next page and determine whether you need any additional information. Then come back to the assessment box on this page and write your final diagnosis.

Assessment:	
Summary	
Differential Diagnoses	**1.** **2.** **3.**
Final Diagnosis	*Claim:* *Evidence:* *Reasoning:*

Clinical Guidance for CO Poisoning:

Read the handout "Clinical Guidance for CO Poisoning and take notes on any relevant information to Lorenzo's case.

Evaluation:
Confirmation of Diagnosis:
Treatment:
Other Considerations:

Plan:

Create a plan for Lorenzo, using information from your research.

Plan:	
Steps of Plan *(Consider mental, social and physical health; short- and long-term needs, and follow-up care required)*	

Additional Notes for Treatment & Action Plan:

Patient Education Skit:

Prepare a 2-4 minute skit depicting an interaction between a health professional (you decide the role!) and Lorenzo on the day after his hospitalization. Assume he is feeling better and is a few hours away from being released. Be sure to include the following in the skit:

- Brief summary of subjective and objective information to remind patient why he was brought in
- Overview of assessment and basic background about what happened to his body
- Explanation of treatment plan & summary of action plan for prevention in the future

SKIT PLANNING		
Team Member	**Role in Skit**	**Notes**

Rubric:

You will be graded on the stated objective (PH1.9: Recognize, gather, and organize subjective data in a simple patient case scenario) using the rubric below:

Obj. 10.9a: Complete a SOAP note for a patient with thoroughness and accuracy.
Obj. 10.9b: Demonstrate compassion, empathy, urgency, and clarity while educating a patient on illness prevention concepts.

Needs Improvement	Emerging Mastery	Partial Mastery	Mastery
Missing or incomplete	**Assessment:** Incorrect diagnosis is made; at least one piece of supporting evidence included **Treatment Plan:** -Treatment plan is inappropriate and lacks thoroughness; identified and clearly explained in skit **Communication:** 1) Not clear OR accurate information; 2) Lacks urgency, compassion &/or empathy	**Assessment:** Correct or incorrect diagnosis is made; but some supporting evidence included **Treatment Plan:** -Treatment plan is mostly appropriate and comprehensive; identified and clearly explained in skit **Communication:** 1) Clear OR accurate information; 2) Presented in a mostly urgent, yet compassionate and empathetic manner	**Assessment:** Correct diagnosis is made and plenty proper supporting evidence included **Treatment Plan:** -Treatment plan appropriately and comprehensively identified and clearly explained in skit **Communication:** Clear and accurate information is presented in an urgent, yet compassionate and empathetic manner

Post-Case Wrap-up Questions:

Module 10 Learning Objectives:
Obj 10.1: Identify various non-infectious environmental factors that may be a danger to our health.
Obj 10.2: Create an educational intervention to help reduce the risk of chemical hazard exposure
Obj 10.3: Explain how air quality impacts health
Obj 10.4: Identify various sources of radiation exposure
Obj 10.5: Influence others to make positive choices with respect to climate and health.
Obj 10.6: Explain common sources and prevention methods for childhood lead poisoning.
Obj 10.7: Discuss environmental justice and the impact of environmental health disparities.
Obj 10.8: Identify environmental triggers for asthma in the home.

ANSWER THE FOLLOWING QUESTIONS ON A SEPARATE SHEET OF PAPER.

Obj. 10.1: In addition to carbon monoxide, name at least one other gaseous pollutant or toxic chemical that might be a danger to human health.

Obj. 10.2: Suppose you are tasked with designing a campaign to educate college students about the dangers of carbon monoxide. What information would be most essential to communicate and how might you try to get the message to this target population?

Obj. 10.3: Do you think carbon monoxide is considered a part of air quality health measures and efforts for air quality improvement? Why or why not?

Obj. 10.4: What are the similarities and differences between the health effects caused by radiation and those caused by carbon monoxide?

Obj. 10.5: How is the issue of carbon monoxide related to that of global climate change?

Obj. 10.6: Children are especially vulnerable to things like lead poisoning and carbon monoxide. Why are children at greater danger than other populations, like adults?

Obj. 10.7: Do you think there is a disproportionate burden of effects of carbon monoxide? In other words, do you think it's likely there is a health disparity here? If so, what factors might be contributing to it?

Obj. 10.8: Do you think slightly elevated carbon monoxide levels could be an asthma trigger? Why or why not?