

## RM 8–SU: Unintended Consequences: A Case Study of Elvis Presley\*

### Background Information

The official autopsy of Elvis Presley found eight different prescription drugs in his body with no trace of any illegal drugs such as heroin, cocaine, or hashish often found in overdose cases. Thomas Noguchi, a Los Angeles coroner, believes that Elvis's death was accidental – he simply did not realize the effect of drugs combined in the body.

According to Noguchi, Elvis died with the following drugs in his system:

- antihistamine (prescription)
- codeine (prescription for pain)
- Demerol (prescription narcotic used as a sedative)
- tranquilizers (prescription including Valium)
- a sedative-hypnotic prescription for insomnia

Not one prescription drug was at a toxic level. Medications found were within the therapeutic range and individually did not constitute an overdose.

Prescription drugs even at non-toxic levels can be fatal. Dr. Cyril Wecht, a respected pathologist, said Elvis “was a walking drugstore” and death was caused by “polypharmacy” – the combined reaction of several prescription drugs. The combination of prescription drugs depressed Elvis's central nervous system: the brain, followed by the heart, and finally the lungs (Noguchi).

The prescribing physician, George Nichopoulos, testified before the Tennessee Board of Examiners on charges of misconduct in his treatment of Elvis. He said Elvis gobbled drugs “from the time he woke up in the morning until the time he went to sleep at night” (Noguchi). He testified that Elvis was a psychological addict treated in hospitals in 1973 and 1974 for detoxification from Demerol (painkiller) and other drugs, and that Elvis travelled with three suitcases filled with drugs for himself and his entourage.

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### DEFINITIONS

#### **additive effect**

The sum or cumulative effects of two or more pharmaceutical substances mixed together.

#### **synergistic effect**

Any hyper-additive effect produced by a combination of two or more drugs, which may double or triple the effect of another.

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**Reference:** Noguchi, Thomas. *Coroner at Large*. New York, NY: Simon & Schuster, Inc., 1985.

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One week before a concert was scheduled, Nichopoulos prescribed a protocol program of strong doses of amphetamines, depressants, and painkillers (consisting of 680 pills, 20 cubic centimetres of liquid central nervous system depressants, stimulants, and painkillers). Placebos were often substituted for prescribed drugs; Elvis obtained the drugs from other sources. The jury found Nichopoulos innocent—as he could not control Elvis’s drug use.

The diagnosis: Elvis died of a heart attack caused by a combination of drugs causing a fatal irregular heartbeat.

### **Learning Activity**

The following problem-solving activity, based on the poly-drug use of Elvis Presley, illustrates the risks and consequences of drug use. Prior to the problem-solving, ask students to list some of the OTC drugs commonly found in homes. Have students determine the general drug classifications of these OTC medications. Inform them that responsible drug use occurs in a controlled manner in order to treat pain or other symptoms as prescribed, whereas drug abuse is the deliberate use of a chemical for other than the intended medical purposes. Students can also compile a list of five positive reasons and five negative reasons for taking prescription drugs.

This learning activity will take approximately one class period (45 minutes to 1 hour).

### **Purpose**

This learning activity is designed to determine the risks and consequences of drug combinations. Through problem-solving the case of Elvis Presley, students can develop inferential skills, make judgments, and draw logical conclusions regarding drug use and abuse.

### **Important Concepts**

1. Street drugs and prescription drugs are more potent and have more serious potential side effects than OTC drugs. Overuse of street/prescription drugs frequently creates new health problems as side effects.
2. The combined reaction to several drugs even at non-toxic levels can be fatal.

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### Method

Have students take turns reading to the class one paragraph from the following narrative.

Imagine that you have an overweight middle-aged male relative who takes the following prescription drugs:

- an antihistamine for allergies
- codeine and Dilaudid for pain
- Demerol as a sedative
- tranquilizers, including Valium
- a sedative-hypnotic for insomnia
- amphetamines for weight loss

Like so many people, he obsessively worries about his body. He started using amphetamines as appetite depressants to lose weight quickly for a role in a local play. By the time he made his first dramatic appearance, he was not only taking amphetamines, but was also wearing five-pound weights on his wrists and ankles during long, active rehearsals.

He currently suffers from insomnia due to problems at the office. His solution includes taking more sedatives, causing him to sleep longer, followed by amphetamines to stay on his feet and be alert at work. Consequently, his conversations with co-workers have become lengthy rambling monologues.

The amphetamines he takes each day also make him very talkative. His use of prescription drugs causes him to miss several days of work each month and seems to be radically affecting his job performance. A more serious problem recently showed itself in the results of a liver biopsy recommended by his doctor.

There was severe damage to the organ, and his liver was three times the normal size. In the past he was diagnosed with blood clots in his legs, hypoglycemia, an enlarged heart, and glaucoma. He was also susceptible to respiratory ailments and had a history of mild hypertension and some coronary artery disease. Over the years a wide variety of drugs had been prescribed for these disorders.

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Because of his interest in pharmacology he often carried around a manual, describing all prescription drugs, their chemical makeup, recommended dosage, and side effects. Sometimes he would share his prescription drugs with others if their problems matched his.

He regularly checked dosages and side effects while mixing drugs the way bartenders mix drinks or the way chefs prepare an exotic dish. But drugs are different from alcohol and foods. One drug affected perception and that, in turn, sometimes determined through confusion how much of a second drug was taken, and so on, while the side effects overlapped and contradicted each other.

The combination of drugs did things that the drugs individually did not do. It was almost as if the drugs were acting in conspiracy against the taker. Nonetheless, he regarded his many prescriptions as medicine.

He had real problems – pain, insomnia, a tendency to obesity – and he had real medicine to take care of those problems. He also knew that these drugs made him feel good in ways that were hard to explain.

Knowing about your relative’s chaotic drug use, you are not surprised to hear that he recently died of a heart attack. The medical examiner said his death was due to “cardiac arrhythmia, an erratic heartbeat and severe cardiovascular disease.” His report stated that “these two diseases may be responsible for cardiac arrhythmia, but the precise cause was not determined and may never be discovered.”

The coroner’s autopsy report also stated that there were several different prescription drugs in the body but not one prescription drug in the body was at a toxic level. Medications found were in the therapeutic range and individually did not constitute an overdose.

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Display a transparency of the Discussion Example (see following page). Divide the class into six groups. Ask each group to discuss and respond to one of the following questions:

1. What are the body's reactions to a combination of several prescription drugs taken simultaneously?
2. How can prescription drugs taken at non-toxic levels result in death?
3. In what ways could a combination of drugs have an adverse effect on the body?
4. What signs or symptoms would have indicated a problem drug use? Who should have helped the relative?
5. What drug-free alternatives could you have suggested to the relative to deal with the stated problems?
6. Would you ask the coroner to pursue the investigation into your relative's death for any reason(s)?

Inform the class that the problem-solving case study is based on the actual life of Elvis Presley, who died in 1977 at the age of 42. The reason given for his death was a cardiac arrhythmia suspected to be due to an interaction of an antihistamine, codeine, and Demerol (a painkiller), as well as Valium and several other tranquilizers. Prescription drug use sometimes results in fatal reactions.

Show a music video clip of one of Elvis's performances.

Explain that most OTC and prescribed drug treatments often mask symptoms or control health problems, or in some way alter the way organ systems work. Overuse of prescription drugs frequently creates new health problems as side effects. People need to understand that their headaches are not due to Aspirin deficiency. The lesson is that seemingly safe prescription drugs can be as fatal as illegal drugs if taken in combination. Persons taking more than one drug should monitor themselves carefully, in cooperation with a physician.

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### **Discussion Example**

A middle-aged relative takes the following prescription drugs:

- antihistamine (prescription)
- codeine (prescription for pain)
- Demerol (prescription narcotic used as sedative)
- tranquilizers (prescriptions including Valium)
- sedative-hypnotic (prescription for insomnia)

The coroner's autopsy report states that death was due to

- cardiac arrhythmia (irregular heartbeat)
- severe cardiovascular disease

The coroner's autopsy report also states:

- There were eight different prescription drugs in the body.
- Not one prescription drug was at a toxic level. Medications found were in the therapeutic range and individually did not constitute an overdose.
- There was no evidence that the drugs present in the body caused or made any significant contribution to the death.

### Discussion Questions

(Use information from previous sections to help answer the following questions.)

1. What are the body's reactions to a combination of several prescription drugs taken simultaneously?
2. How can prescription drugs taken at non-toxic levels result in death?
3. In what ways could the combining of drugs have an adverse effect on the body?
4. What signs or symptoms would have indicated a problem drug use? Who should have helped the relative?
5. What drug-free alternatives could you have suggested to the relative to deal with the stated problems?
6. Would you ask the coroner to pursue the investigation into your relative's death for any reason(s)?