Name _____ Date _____ Period _____

CHAPTER 10

Bad Reasoning Costs Taxpayers Billions!

DIRECTIONS: Read the excerpt from a *New York Times News Service* article headlined "Doubts raised about studies using animals" below. Then answer the question.

By JOEL BRINKLEY
New York Times News Service

...For much of the last two decades, [animal] studies have been the government's most important diagnostic tool for identifying health hazards and for setting priorities for federal regulation. [However,] much evidence has accumulated that chemicals frequently have wholly different effects in animals and on humans...

Dr. Kenneth Olden, director of the National Institute of Environmental Health Sciences, the branch of the National Institutes of Health that directs the animal studies, asks whether the nation is wasting tens of billions of dollars regulating the use of substances that might actually pose little risk.

The findings from about 45 animal studies over the last several decades, Olden said, have led federal and state governments to write thousands of regulations forcing government and industry to spend tens of billions of dollars a year regulating the use and disposal of several dozen chemicals, or finding alternatives for chemicals that have been restricted or banned...

The experts particularly questioned the practice of feeding rodents the "maximum tolerated dose" of the chemical being tested—the MTD, as it is called. With that technique, used in almost every animal study, scientists feed a test group of mice larger and larger quantities of a substance until they find the level that actually poisons the animals...

The reasoning is that high doses will more reliably produce tumors or other negative effects in statistically significant numbers of animals. Scientists might have to use thousands of animals to get a meaningful result at doses close to normal human exposure—85, mice for the saccharin study, Griesemer said.—Editor: This sentence does not make sense; please correct it.

So using the high-dose reactions, scientists devised scales that would help them speculate on how people might react to lower doses. But Olden's review committee said it did not believe this reasoning was valid.

The review committee wrote, "Approximately two-thirds of the carcinogens would not be positive, i.e., not considered as carcinogens, if the MTD was not used."

In other words, two-thirds of the substances that proved to be cancerous in the animal tests would present no cancer danger to humans at normal doses...

As illustration, Dr. Allen J. Wilcox, chief of the institute's epidemiology branch, cited a recent institute study showing that rodents consuming cola beverages "showed an association between the cola beverages and renal failure," or loss of kidney function.

"But the results are murky—not very definite at all," he went on. And so the institute is choosing not to draw conclusions until more research is done...

Even more worrisome, perhaps, is the opposite question: How many substances that caused no harm to rodents might be dangerous to humans? Once chance finding demonstrated this problem.

"Arsenic is not a carcinogen in animal studies," said Dr. Joseph F. Fraumeni, director of epidemiology and biostatistics at the National Cancer Institute. But several years ago, he recalled, a study of smelter workers exposed to high levels of arsenic in the air showed a high level of lung cancer.

From that, Olden's review committee concluded that the government should no longer rely only on animal studies. They should be simply one part of a program of research...

What errors in logic may scientist have made in equating animals to people?

_____

_____