

A Dash Of This And A Pinch Of That

(NAPSA)—We have all experienced it. You are at your favorite restaurant anticipating a great meal, but when you take your first taste, you realize something isn't right. The chef was in a hurry and left out one of the key seasonings—salt. You reach for the saltshaker and sprinkle on some to adjust the taste to your liking. Or maybe you've had the opposite experience. Your meal arrives and it is way too salty so you send it back.

Whether you knew it or not, the simple act of adjusting the seasoning is similar to what toxicologists routinely do—determining the right amount of an ingredient or chemical to use and predicting the effects of chemicals based on how much is used. Too little and it doesn't do what it is intended to do. Too much and it is unpleasant or potentially harmful.

This simple experiment also dictates the way we use chemicals in every aspect of our life, from the vitamins and drugs we take to maintain or improve our health, to the use of preservatives to prevent spoilage in food we eat or products we use.

Understanding how the chemical is used is important but understanding the response is crucial. The question we need to ask about how much salt is too much is related to health effects, so measuring changes in blood pressure with increasing amounts of salt used may be the more critical thing to test. In each case, we are looking to relate the amount we used with the effects we experience in an attempt to find the right balance.

The use of dose-response can also be used to predict effects on the environment. The amount of exhaust from the car you drive makes a difference in the concentration in the air in the commu-



Just as a little salt can make a big difference in your food, the amount is important in many aspects of science, especially to a toxicologist.

nity. In an urban setting, the number of cars is much greater and the concentration of automobile exhaust in the air would be expected to increase. If levels of exhaust in the air get too high, it becomes unpleasant and possibly unhealthy. The amount released and the effect on air quality is predicted based on the number of cars in an area (dose) and the health effects observed (response) and is used by government agencies such as the EPA to set community air quality standards.

Both the dose and response are critical for this concept to be useful. Knowing how much we used without knowing the effect does us no good and knowing effects without knowing the amount that caused the effect is likewise not useful. However, together, these two elements provide us all with a powerful tool for making decisions that impact our health and environment.