Illusions and Medication Errors

Matthew Grissinger, RPh, FASCP

Problem: Various “tricks of the mind,” including cognitive and visual illusions, affect accurate performance. Illusions are generally defined as systematic distortions of or discrepancies between our perceptions and reality. Like a mirage in the desert, they lead us astray by creating incorrect assumptions about how to think, see, hear, or otherwise interpret events.

A physician’s typical prescribing pattern illustrates the problem of potential cognitive illusions. As we gain familiarity with these patterns, prescriptions are often predictable. For example, when the name of a physician who is well known to an organization appears on a prescription for a common anti-infective agent, an automatic mental process about what will be dispensed may be triggered. If the physician usually orders 250 mg of a medication, the pharmacist or nurse may expect that 250 mg would be required but may miss the time when 500 mg has actually been prescribed.

A misguided reliance upon our memory of a particular physician’s prescribing pattern contributes to this self-deception. Visual and auditory illusions, by contrast, arise from misperceptions by which we do not interpret or organize information properly. As a consequence, we might “see” or “hear” things that are not actually present.

For example, we might confuse some medications with each other because their names and packaging have look-alike or sound-alike qualities (e.g., Serzone® and Seroquel®, Lamisil® and Lamictal®, or Zyrtec® and Zyprexa®). In these cases, the names may become blended visually or acoustically, and one product may be mentally transformed into the other. Such illusions resist correction, and they persist throughout the medication-use process, resulting in errors.

Are some illusions more likely to occur than others?

An unpublished study by the late Anthony Grasha, PhD, a former professor of psychology at the University of Cincinnati, examined how 51 pharmacists were found to be vulnerable in six situations that normally created misperceptions. Outcomes showed that pharmacists tended to commit the following errors:

- misreading drug names or strengths on prescriptions and medication containers
- misjudging the spatial location of a product stored in a pharmacy
- mistaking the size of a medication container for a smaller look-alike counterpart

The pharmacists were more successful in calculating quantities and in copying prescription information.

Safe Practice Recommendation: These types of tricks of the mind do not affect everyone to the same degree (indeed, some people are able to resist their influence); however, interventions should be instituted for everyone in order to prevent harm to patients. Here are some suggestions:

1. Results of the Grasha study reinforce the need for bar-code technology and electronic transmission of prescriptions to counteract the misreading of drug names and strengths.
2. Nurses and pharmacists may still be susceptible to experiencing spatial illusions that prevent them from choosing the correct location when they select products from storage areas, but they can avert some errors by avoiding the practice of simply “reaching for and grabbing” a product when they are busy. At such times, it would be helpful for them to get into the habit of carefully checking that they have picked the correct product.
3. According to the study, container size might not be a reliable cue for differentiating two medications that otherwise look alike or have names that are similar. Thus, other cues may be needed to distinguish one product from another, including the container’s packaging, color, shape, and auxiliary labels.
4. Finally, a procedure of rotating the placement of fast-moving medications would also help staff employees break the habit of picking up products according to their usual position on the shelf.

The reports described in this column were received through the USP–ISMP Medication Errors Reporting Program (MERP). Errors, close calls, or hazardous conditions may be reported on the ISMP (www.ismp.org) or the USP (www.usp.org) Web site or communicated directly to ISMP by calling 1-800-FAIL SAFE or via e-mail at ismpinfo@ismp.org.