The Importance of Clarity in Medication Instructions

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PROBLEM: We received a report at ISMP that a three-month-old infant had been discharged from a hospital after surgery for a ventricular septal defect. At discharge, the child's mother was handed a copy of instructions that called for the administration of 25 micrograms (25 mcg, or 0.5 ml) of digoxin (Lanoxin Pediatric Elixir®, GlaxoSmithKline) (50 mcg/ml) twice a day. Because the mother had difficulty reading the form, she rewrote the instructions. Unfortunately, she incorrectly transcribed the dose as 2.5 ml instead of 0.5 ml. Consequently, the child received 150 mcg (0.15 mg) of digoxin for each dose, or 300 mcg (0.3 mg) daily.

On the evening of the seventh day, the mother found the infant unconscious. She brought her to a hospital emergency room, where the infant suffered a cardiac arrest soon after admission. She was resuscitated, placed on life support, and started on Digoxin Immune Fab (Digibind®, GlaxoSmithKline) to lower her digoxin levels. Over the next several days, the digoxin level went from over 30 ng/ml on admission to an undetectable level at discharge. The child is now at home, doing well, and exhibiting normal neurological functioning.

SAFE PRACTICE RECOMMENDATION: In hospitals and clinics, we have observed that copies of patient instruction sheets are frequently photocopied repeatedly until the print is barely readable. Even when the print is clear, simply handing patients an instruction sheet or reciting the instructions out loud is not enough, especially when the drug is intended for an infant and when it has a narrow therapeutic margin.

A study at Case Western Reserve/Emory University[1] showed that nearly 50% of 1,000 emergency-room patients had problems understanding oral—not just written—communication. Further, patients whose level of knowledge was rated inadequate were about twice as likely to be hospitalized two or more times during the study period than those whose knowledge was rated marginal or better.

According to a report published by the American Medical Association Ad Hoc Committee on Health Literacy,[2] more than 40% of patients with chronic illnesses are functionally illiterate, and almost 25% of all adult Americans read at or below a fifth-grade level. Unfortunately, medical information leaflets typically are written at a 10th-grade reading level or above.

A limited vocabulary or difficulty following complex sentence structure can leave patients or caregivers unable to understand spoken instructions. Even minor misunderstandings about medication instructions or care plans can result in increased hospital admissions and deteriorating health. One possible reason for this lack of understanding might be that people who have difficulty reading or understanding health information are too embarrassed or ashamed to acknowledge their deficits. Instead, they refuse to ask questions and often pretend to understand instructions.

Here are some recommendations to help ensure that patients receive clear instructions:

- Always ask patients and caregivers to demonstrate their knowledge and comprehension by having them accurately repeat the instructions in their own words.
- For safety, have patients or caregivers demonstrate how they will measure the dose and administer the drug by using the actual product, the drug-delivery device, or a mock-up.
- Finally, give patients professionally printed or original handwritten instructions—not photocopies, carbon copies, or mimeographed copies—and never give patients *copies* of copies!

Computer-based instructions that are frequently updated and freshly printed offer the safest solution for providing useful and accurate information to patients.

REFERENCES

1. Baker DW, Parker RM, Williams MV, Clark WS. Health literacy and the risk of hospital admission. *J Gen Intern Med* 1998;12:791–798.
2. American Medical Association: Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs. Health Literacy: Report of the Council on Scientific Affairs. *JAMA* 1999;281:552–557.

ISMP, a nonprofit organization located in Huntingdon Valley, Pennsylvania, provides independent practitioner review of medication errors submitted to the national MER program, operated by the U.S. Pharmacopeial (USP) Convention, Inc., of Rockville, Maryland, in cooperation with ISMP. ISMP also reports on progress made in correcting medication errors and problems.

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