Abstract presented at the 1998 meeting of the American Association of Pharmaceutical Scientists, San Francisco, CA, November 17, 1998.

EFFECTS OF SIMILARITY ON PHARMACISTS' RECALL AND RECOGNITION OF DRUG NAMES

Bruce L. Lambert, S.-J. Lin, S. K. Gandhi, and K.-Y. Chang. Department of Pharmacy Administration, University of Illinois at Chicago, Chicago, IL 60612-7231.

Purpose. To assess the effect of similarity on frequency of errors in pharmacists' recall and recognition memory. Error rates were expected to increase as similarity increased. **Methods.** Using computerized measures, sets of names were generated at various levels of orthographic and phonological similarity. Names were matched for prescribing frequency across levels of similarity. Drug names and prescribing frequency data were taken from the 1992-1994 National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey. Thirty pharmacists participated in the study, 15 in the orthographic condition, 15 in the phonological condition. The recall and recognition tasks were essentially the same in the both conditions. For the recall task, each pharmacist was presented with 15 lists of three names on a computer monitor. The task was to recall the names immediately after they were presented. In the recognition task, each pharmacist was shown a list of 5 or 8 study words and then a list of 10 or 16 test words. The task was to recognize which test words were on the study list. Each pharmacist completed 8 trials of the study-test procedure. The dependent variable was percent errors in recall or recognition respectively. Data were analyzed by repeated measures ANOVA. **Results.** As orthographic similarity increased there was a significant decrease in recall errors, $F(2,14) = 17.15$, $P < .0001$, but a significant increase in recognition errors, $F(4,14) = 9.40$, $P < .0001$. There was an inverted U-shape relationship between phonological similarity and recall error rate, with errors in the mid-range being significantly more frequent than at the high and low extremes, $F(2,14) = 10.73$, $P < .0003$. In contrast, there was a significant linear increase in recognition errors as phonological similarity increased $F(3,14) = 6.91$, $P < .0007$. **Conclusions.** The risk of errors in recognition memory increases significantly as orthographic and phonological similarity increase. The effect of similarity on recall is inconsistent, sometimes increasing and sometimes decreasing the error rate. This effect requires further study. Both orthographic and phonological similarity can be measured objectively by computer. These measures should be used by interested parties to aid in the prevention of name confusion errors.

This work was supported by the Drug Information Association, the United States Pharmacopeia, the University of Illinois Campus Research Board, and the U. S. Food and Drug Administration.