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## Cognition Research Aims to Reduce Medical Errors

*Special issue spotlights psychology's vital links to health care outcomes*

WASHINGTON—How doctors, nurses and other health care professionals can be better prepared to reduce medical mistakes and improve patient care is the focus of several studies published in a special issue of the American Psychological Association's *Journal of Experimental Psychology: Applied* ([/pubs/journals/xap/index.aspx](#))<sup>®</sup>.

"These studies examine the cognitive issues related to a wide range of important safety problems in various health care scenarios, from hospital operating rooms to young adult education programs about sexually transmitted disease," said Daniel G. Morrow, PhD, of the University of Illinois at Urbana-Champaign. Morrow and Francis T. Durso, PhD, of the Georgia Institute of Technology, introduced and edited the articles.

The issue presents seven peer-reviewed papers that focus on health care impacts affected by cognition, which encompasses mental processes and functions such as comprehension, decision-making, planning and learning. The number of deaths from preventable medical errors is "equivalent to a 727 (jet) or two crashing every day of the year," Morrow and Durso said, citing a landmark 1999 Institute of Medicine study. While there have been advances in performance research related to health care, recent studies show medical errors remain a significant challenge to the health care system, they said.

Collectively, the studies address threats to patient safety due to provider errors in diagnosis, medication and surgery, and patient issues such as decision-making regarding illness prevention and self-care. Examples of the research findings include:

Nurses who recognize patient identification errors before giving medication appear to visually scan information differently from nurses who more frequently make mistakes, according to "Nurses' Behaviors and Visual Scanning Patterns May Reduce Patient Identification Errors ([/pubs/journals/releases/xap-17-3-247.pdf](#))", (PDF, 896KB)," Jenna L. Marquard, PhD, Ze He, MS, Junghee Jo, MS, Donald L. Fisher, PhD, and Elizabeth A. Henneman, PhD, University of Massachusetts, Amherst; and Philip L. Henneman, MD, Baystate Medical Center, Springfield, Mass. and Tufts University School of Medicine.

An analysis of eye movement data from surgical nurses found that visual attention and dealing with interruptions directly relates to performance during operations, reported in "Differences in Attentional Strategies by Novice and Experienced Operating Theatre Scrub Nurses ([/pubs/journals/releases/xap-17-3-233.pdf](#))", (PDF, 475KB)," Ranieri Y. I. Koh, BS, and Taezoon Park, PhD, Nanyang Technological University; Christopher D. Wickens, PhD, University of Illinois; Ong Lay Teng, MSN, and Chia Soon Noi, BSN, KK Women's and Children's Hospital, Singapore.

Surgeons doing minimally invasive surgery, which involves inserting instruments through small incisions and looking at tissues with a camera, may improve performance by using multiple camera views, reported in "Effects of Camera Arrangement on Perceptual-Motor Performance in Minimally Invasive Surgery ([/pubs/journals/releases/xap-17-3-210.pdf](#))", (PDF, 606KB)," Patricia R. DeLucia, PhD, and John A. Griswold, MD, Texas Tech University.

Using simple low-cost illustrations such as bar graphs in materials to educate young adults about prevention and treatment of sexually transmitted diseases was significantly more effective than materials without such illustrations, reported in "Effective Communication of Risks to Young Adults: Using Message Framing and Visual Aids to Increase Condom Use and STD Screening ([/pubs/journals/releases/xap-17-3-270.pdf](#))", (PDF, 411KB)," Rocio Garcia-Retamero, PhD, University of Granada and Max Planck Institute for Human Development; Edward T. Cokely, PhD, Michigan Technological University and Max Planck Institute for Human Development.

Other articles included:

"Teaching Post Training: Influencing Diagnostic Strategy with Instructions at Test ([/pubs/journals/releases/xap-17-3-195.pdf](#))", (PDF, 988KB)," Chan Kulatunga-Moruzi, PhD, Lee R. Brooks, PhD, and Geoffrey R. Norman, PhD, McMaster University

"Accurate Monitoring Leads to Effective Control and Greater Learning of Patient Education Materials ([/pubs/journals/releases/xap-17-3-288.pdf](#))", (PDF, 1.5MB)," Katherine A. Rawson, PhD, Rochelle O'Neil, BA, and John Dunlosky, PhD, Kent State University

"Interactions of Team Mental Models and Monitoring Behaviors Predict Team Performance in Simulated Anesthesia Inductions ([/pubs/journals/releases/xap-17-3-257.pdf](#))", (PDF, 657KB)," Michael J. Burtcher, PhD, and Michaela Kolbe, PhD, ETH Zurich; Johannes Wacker, MD, University Hospital Zurich; and Tanja Manser, PhD, University of Aberdeen.

Introduction: "Health Care Research That Delivers: Introduction to the Special Issue on Cognitive Factors in Health Care ([/pubs/journals/releases/xap-17-3-191.pdf](#))", (PDF, 99KB)," Daniel G. Morrow, PhD, University of Illinois at Urbana-Champaign, and Francis T. Durso, PhD, Georgia Institute of Technology; *Journal of Experimental Psychology: Applied*, Vol. 17, Issue 3

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