



DMS geneticist Victor Ambros, Ph.D., received the 2005 Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research, for his discovery of the first microRNA gene.

Simulators can improve sedation safety

At DHMC, patient simulators are being used as “crash-test dummies” to see how well health-care teams respond to pediatric sedation emergencies. There are medications that can alleviate the pain and anxiety that children experience when undergoing procedures such as bone marrow biopsies or spinal taps. However, complications like respiratory depression, the slowing or stopping of breathing, may occur as a result.

In a recent paper published in *Anesthesia and Analgesia*, George Blike, M.D., and colleagues showed that patient simulators—high-tech mannequins—can be used to assess medical teams’ ability to rescue sedated patients from life-threatening complications. That lets them identify and thus correct errors.

Previous studies by Blike and a fellow DHMC anesthesiologist, Joseph Cravero, M.D., have shown that clinicians “were undertreating pain” in children, explains Blike. That’s because while doctors want to make children as comfortable as possible, they of course are reluctant to risk serious complications or even death.



Anesthesiologist Blike demonstrates use of emergency airway equipment on a simulated patient.

“If we were going to get people to be more aggressive and not undertreat pain any longer, we had to address the fear of overdose and the fear of sedation complications,” says Blike. He reasoned that if the rescue response could be studied and improved, then doctors would feel more comfortable using sedating medications.

With the simulator, “we don’t have to wait for you to have an accident and then try to look at it after the fact,” says Blike. The mannequin can be programmed to generate specific sedation-related complications. Then caregivers’ responses can be observed and, if necessary, improved before they have to handle such emergencies in real patients.

Signs: In this study, a life-like pediatric mannequin was programmed to respond like a four-year-old child experiencing respiratory depression as a result of having been sedated. The “patient” showed low blood-oxygen levels and a slowed heart-beat. If the team managed the respiratory depression appropriately by opening the airway and providing ventilation in a timely manner, the simulator’s vital signs improved. If the team failed to resuscitate the “patient,” its vital signs remained low. In a real patient, that could lead to brain damage or death.

“We are not as prepared for critical incidents related to sedation as we might think,” says Cravero. Problems identified by the study included not having emergency airway equipment set up and not calling for help soon enough. The researchers also found that caregivers who perform this type of rescue regularly had more success.

“Powerful technology,” like specially programmed simulators, “gives you a wealth of information about your vulnerabilities so you can take corrective action—and that’s how you create safety,” concludes Blike. KRISTEN GARNER

How low should we go?

Lowering the threshold for what’s considered abnormal in the most common prostate cancer-screening test “would be a mistake,” said three DMS researchers in a paper in the *Journal of the National Cancer Institute*. Some doctors feel prostate-specific antigen scores as low as 2.5 should be flagged as abnormal. But doing so, wrote H. Gilbert Welch,

M.D., et al., would double the number of men defined as abnormal and subject about 1.35 million more men aged 40 to 69 years to unnecessary biopsies. “It is easy to diagnose more prostate cancer,” the authors wrote. “It is not easy to know who has clinically important disease.”



Much ado about melanoma

Another paper by the same team, this one in the *British Medical Journal*, concluded that a dramatic increase in melanoma is “largely the result of increased diagnostic scrutiny and not an increase in the incidence of the disease.” Welch et al. examined 15 years of

Medicare data and found that “the incidence of early-stage disease has risen rapidly, whereas the incidence for late-stage disease and mortality have been relatively stable.” Since it’s unlikely that treatment advances exactly keep pace with the rising incidence, they argue, “overdiagnosis” is the most plausible explanation.

