

Y20K! Rollover Uneventful for Nuclear Medicine

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Health and Human Services (HHS) Secretary Donna E. Shalala spent the much-anticipated New Year's eve on the phone. During the day she spoke with health ministers from New Zealand and Australia and later with their counterparts in Europe. At the Food and Drug Administration (FDA), a special emergency operations staff stood by to monitor malfunctions in medical equipment. At home computers and in hospitals across the nation, anxious health care professionals watched for possible breakdowns and malfunctions.

As the new year rolled across the world it became clear that the transition would be as smooth for medicine as for major industries and utilities. Shortly after midnight in HHS's Coordination Center at the department headquarters in Washington, DC, Shalala spoke with staff at the FDA, the Centers for Disease Control and Prevention, the National Institutes of Health, the Indian Health Care Service, and the Health Care Financing Administration (HCFA). The initial report was encouraging: all was calm.

The media was geared up to cover medical problems that might result from computer glitches associated with the new date. But on January 1, 2000, and succeeding days there was little to report. Children born in a Korean hospital received birth certificates dated 1900. A Fairfax, VA, hospital computer had difficulty coping with birth certificates for twins born on either side of midnight. Medical records computers in the midwest spit out files with an extra numeral in the year. Although inconvenient, these events were hardly threats to the fabric of modern medical care.

Isolated reports of problems with medical equipment began to appear on January 1, but almost all were outside the United States and most required simple resetting of readouts. The first Web report of a malfunctioning medical device came through the Emergency Care Research Institute (ECRI) in Plymouth Meeting, MA (www.health-care@ECR.org). The ECRI site included a review and reporting process for monitoring Y2K-associated problems in hospitals and other medical facilities. On January 1 ECRI (and later the FDA) reported malfunctioning dialysis units made by Gambro Healthcare of Stockholm, Sweden.

Reports out of Scotland noted that the machines did not handle the date rollover, a problem that could lead to shutdown during timed autodisinfection. No patients were harmed and the fix was simple: reset the date and time. Also on January 1, ECRI reported an error message during testing of a Picker Explorer mobile X-ray unit. The message was corrected, and the problem was not reported from other hospitals with the same apparatus.

FDA spokesperson Sharon Snider reported to the radiology internet news source *auntminnie.com* that the agency had received “no reports of Y2K-related incidents with imaging devices. In fact, there were no Y2K incidents of any significance that would affect public health in the U.S.” The only nuclear medicine difficulties reported in the first 2 weeks of January have been anecdotal accounts of electronic clocks and readouts that needed to be reset by hand. Supplies of pharmaceuticals and radiopharmaceuticals were unaffected by the rollover. The closest thing to a widespread problem came on January 3 when a Chicago bank computer stalled Medicare payments to hospitals and other health care providers in at least 8 states. HCFA reported that software replacement had payments back on line and on schedule by January 6.

The big question was posed almost immediately across the United States and the world: was it really necessary to spend more than \$600 billion on Y2K preparations or was this simply a technological form of millennial mass hysteria? In some countries the anticlimactic news of a smooth rollover angered those who felt that U.S. and European technological advisers had stirred millennial fears in order to make a profit. These sentiments were especially strong in countries with infrastructures that could ill afford the massive expenditures necessary to retool antiquated systems. The leader of Argentina's Y2K task force, Leandro Popik told the *Washington Post*, “I don't think there's any question that some foreign companies tried to make a buck off us.” Closer to home, U.S. federal agencies were quick to defend their Y2K strategies and expenditures. John Koskonen, Assistant to President Clinton

(Continued on page 32N)

ABNM (Continued from page 15N)

examination has been in the process of centralization over the last year at the ABNM office in Los Angeles, with completion scheduled for 2001. Turn-around time for grading and analysis of each candidate's performance has already improved significantly.

ABNM examinations are based on criterion referenced testing, in the belief that candidates should be measured against the skill and knowledge represented in each test question. All questions are single-response multiple choice items. The stem and responses for each question are written carefully to be clear and precise. Many questions with high-quality images requiring interpretation and explanation are meant to simulate practice conditions.

The ABNM is currently updating "Components of

Professional Competence of Nuclear Medicine Physicians," (*J Nucl Med.* 35:1994;1234-5). A new section on medical ethics will be added later this year. Format and contents will conform to recommendations of the ABMS Task Force on Competence and will be submitted for publication in the *Journal of Nuclear Medicine*.

International efforts at coordination among medical examining boards are ongoing. The ABNM is in contact with the Canadian Board of Nuclear Medicine, the European Board of Nuclear Medicine, and the Latin American Board of Nuclear Physicians and welcomes contacts with other boards.

—Edward B. Silberstein, MD, Chair,
American Board of Nuclear Medicine

Y2OK! (Continued from page 25N)

and Chair of the President's Council on Year 2000 conversion responded on January 2 to reporters' questions on Y2K by saying, "We've made it look too easy in many ways... it is important to put it in the right context as we go forward. And as I've said on numerous occasions in the past, individual companies did not spend in many cases hundreds of millions of dollars for public relations efforts. They are not susceptible to responding to hype. They actually spent that money because their systems were at risk."

Greg Mack, Information Technology manager for the American Chemical Society, who has worked extensively in nuclear medicine systems research, commented for Newsline on the Y2K effort in medicine: "Dramatic breakdowns did not occur in either medical apparatus or delivery precisely because so much planning and preparation were involved. And many of

the dollars spent on Y2K will pay future dividends in systems that are now more updated, more completely coordinated within their institutional networks and with outside sources, and more ready for unexpected events."

Where do these "non-events" leave the field of nuclear medicine? Ready to face the 21st century, whatever lies ahead. In the January 2000 Newsline SNM president Robert F. Carretta wrote, "We can know only one thing for certain: we must be prepared to deal strategically and effectively with rapid technological change and with the clinical, regulatory, and economic results that inevitably accompany such change." On January 1, a collective sigh of relief was breathed in nuclear medicine departments everywhere when it became clear that this century of change had begun not with medical meltdowns, but with fireworks, champagne, and hopes for a bright future.

Newsbriefs (Continued from page 28N)

the complete genetic sequence of the bacteria *Deinococcus radiodurans* in the November 19 issue of *Science*. The organism's remarkable ability to repair DNA damage from radiation has made it the object of much speculation in the search to understand the mechanisms of cellular degradation and repair.

TIGR investigator Owen White led the team that sequenced the nearly 3.3 million individual chemical base units making up *D. radiodurans*' DNA. Kenneth W. Minton and Michael J. Daly from the Uniformed Services University of the Health Sciences performed the genetic engineering research and collaborated on the sequencing project. They examined the bacterium's cellular repair genes and discovered that, although *D. radiodurans* contained the usual complement of repair genes found in other radiation-sensitive bacteria, it has an unusually large redundancy of repair functions.

D. radiodurans was originally isolated from colonies of

nonpathogenic bacteria growing on samples of canned meat thought to be sterilized by gamma radiation. The microbe also withstands extreme desiccation and UV-irradiation. Since its discovery in 1956, *D. radiodurans* has been found to occur naturally.

The results of the DOE-funded sequencing of *D. radiodurans* have been cited as offering possibilities as diverse as nuclear waste clean-up and cancer research. "We anticipate a terrific boost for industrial and environmental microbiology," said TIGR President Claire Fraser. "Publication of the *Deinococcus* sequence will foster more research into cellular repair and damage resistance. We foresee its use for novel industrial processes that most bacteria cannot survive."

Photos of *D. radiodurans* and a detailed description of its genome are available through TIGR's Microbial Database on the World Wide Web at (www.tigr.org).

—Department of Energy