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The Millennium Effect

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Chances are that your institution is already engaged in a plan for Year 2000 compatibility operations. If not, experts say there is still time to coordinate an effective strategy—but organizations must act quickly to catch up with a host of technical, financial, and liability issues. Cancer programs and oncology practices will not be immune to the Millennium Bug.

By now most of us are familiar with the typical doomsday scenario afflicting computer systems upon the arrival of January 1, 2000: A patient is admitted to a hospital on December 31, 1999, and is discharged on January 2, 2000. The computer billing system, reading 12-31-99 and 01-01-00, bills the patient for a 100-year inpatient stay. This scenario depicts only one of what may be hundreds of ways in which this kind of malfunction could affect the computerized processes of your institution or practice.

Debate still rages over the way in which the problem—known as the Millennium Bug, Y2K, or the Year 2000 Problem—will present itself. Some experts foresee an immediate stoppage of systems, with everything from elevators to ATMs to utilities coming to a halt on January 1, 2000. Others warn that a less catastrophic event could have severe consequences when we discover the smaller but just as critical glitches in computer hardware and software, medical equipment, and database and interface systems.

The problem centers on the fact that most computers and software programs were designed to read only a two-year, not a four-year, date format (e.g., 01/01/00 vs. 01/01/2000). As a result, mainframe computer systems, PCs, software, databases, and any equipment with date, age, or timing mechanisms are at risk of malfunctioning or breaking down entirely.

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Total costs for correcting this deficiency are estimated as high as $600 billion nationwide.[1] These figures include costs for the vast amount of staff time necessary to oversee the process and for the purchase of software, equipment, and consultant services. How much of those costs will be borne by hospitals, and more specifically, cancer programs and physician oncology practices? There is still no definitive answer to this question. However, nearly every expert agrees that, for those who have procrastinated, the costs of correcting the problem only increase the closer we get to 2000.

ONCOLOGY 2000

Much of the responsibility for correcting the Y2K problem lies with hospital information systems and engineering departments. However, many oncology programs are playing a part in institution-wide efforts to ensure that computerized systems (e.g., clinical, lab, and pharmacy systems; patient registration systems; medical devices and equipment, such as infusion pumps and patient monitoring systems) comply with Year 2000 requirements. Institutions are setting up multidisciplinary Y2K teams to study the problem and enlisting the help of cancer program staff to identify the medical equipment and systems at risk of operating in the year 2000. Typically, these teams follow a process that includes: inventory and impact assessment, analysis and planning, renovation and conversion, and testing and validation.[2]

Inventory and impact assessment. Each piece of hardware, including office and telecommunications equipment and medical devices, should be itemized and divided into three categories: those lacking any kind of date mechanism, those with a date mechanism not expected to affect operation of the device, and those with date mechanisms that could cause malfunction.[3] The inventory also includes an investigation of computer software expected to be affected by the year 2000. Software programs, such as Impact 2000 from Computer Associates in Islandia, N.Y., are available to help pinpoint software date fields affected by Y2K.[4]

Analysis and planning. The next step is to examine options and resources and create a budget for Y2K expenditures. For many businesses, ensuring Year 2000 compliance includes strategies for systems developed in house and those purchased by outside manufacturers. In-house systems require line-by-line examination of date fields in the program codes. This process is time-consuming, expensive, and usually requires the help of consultants who are in ever-growing demand. However, it is estimated that as much as 70 to 80 percent of programs used by health care institutions are vendor-supplied.[5] Correcting these applications requires working with external manufacturers to verify systems and equipment compliance for the year 2000. This process is typically overseen by an organization's Y2K committee, with assistance from designated staff.

Health care providers are also taking steps to identify compatibility issues with external medical, surgical, or pharmaceutical suppliers. An organization's own success with Y2K will be limited if its business partners cannot fulfill orders for goods and services. At risk are purchased goods such as food and linen as well as services that may be outsourced, such as utilization management or claims processing.[6] An institution should hold discussions

with its suppliers, especially those with whom it communicates electronically, regarding Year 2000 issues and the compatibility of their solutions.

Renovation and conversion. In this step, applications and equipment are converted or replaced. In some cases the software that supports a certain type of machinery, such as a linear accelerator, will not meet compliance standards and will have to be upgraded. Vendors may pick up the costs for replacing software, depending on the age of the software and the institution's or practice's contractual arrangement with the company. However, if the software is an older, out-of-date version, some vendors may choose to discontinue the product. Institutions may be forced to purchase new software along with the equipment it supports, or consider legal action.

Testing and validation. All systems and equipment, including those expected to remain unaffected by Year 2000 computer problems, must be tested for compliance. Tim McFarlan, an engineer with Good Samaritan Regional Health System in Phoenix, Ariz., is overseeing his organization's Y2K conversion. McFarlan advises institutions to verify the manufacturer's claim that its product will make the year 2000 transition. "You can't assume that just because they say its compatible that it actually is," McFarlan said. Technicians at Good Samaritan have developed internal testing programs for both its PC-based and non-PC-based computers. One test involves setting the computer's clock at 11:58 p.m., 1999, and watching what happens when the clock changes to midnight. The next crucial step is to turn the computer off and see if it restarts at all. For databases and interfaces, dates with the year 2000 are entered to test whether the system is accepting of, or corrupted by, such data.

LIABILITY AND COMPLIANCE

To protect themselves against liability for patient harm as a result of Year 2000 failures, institutions need to exercise due diligence, in this case, prioritizing patient-critical systems over those less crucial. According to Kim Sharkey, director of nursing support services at Saint Joseph's Hospital of Atlanta in Atlanta, Ga., and a member of the institution's system-wide Y2K compliance task force, due diligence efforts affirm that "as an organization, we are doing everything within our power to ensure that our systems will function appropriately in the year 2000."

System failures associated with care plans, medication dosage, lab results, and expiration dates are expected to place providers at greatest risk.[7] At Saint Joseph's, Sharkey and other task force members conducted a business assessment of all systems, ranking them on scale of 1-5, ranging from operational nuisances (1-2) to patient death (5). Systems and equipment with a ranking of 3 to 5 have received the highest priority.

Due diligence also includes developing contingency plans should systems and/or equipment fail. A very possible scenario could be the failure of utility companies to provide electricity, for example. An institution needs to test the Y2K compliance of utility back-up systems, which often contain

continued on page 36

Medicare 2000

Since 1997 the Office of Management and Budget has directed the Y2K compliance efforts of federal agencies, including the Department of Health and Human Services. In February 1998 President Clinton appointed a Year 2000 Conversion Council, comprised of senior executives from key federal agencies, to coordinate conversion activities among federal, state, local, and tribal governments—and their interactions with the private sector—to ensure continuity of federal programs through the year 2000.

By June the Office of Management and Budget released a report showing that 34 percent of systems within the DHHS were Y2K compliant. That same month the Health Care Financing Administration (HCFA) released a memo stating that implementation of changes to the Medicare program, as stipulated by the Balanced Budget Act of 1997, would likely be delayed because of Y2K compliance efforts. These delayed changes include updates to the RBRVS schedule as well as prospective payment systems (PPS), including ambulatory payment classifications (APCs).

Renovation of the Medicare system is expected to be one of the more complex of all the Y2K issues the government faces. HCFA contracts with sixty Medicare carriers who operate as many as seven separate systems with more than 49 million lines of code that use dates to make treatment and billing calculations. These contractors process 900 million payments per year for the roughly 33 million Medicare beneficiaries in fee-for-service plans. At the same time, HCFA is correcting its own internal systems and addressing compatibility issues with providers that contract with Medicare carriers. Medicare contractors have until December 31, 1998, to become Y2K compliant.

According to the OMB, HCFA officials have been performing on-site visits with Medicare contractors. The agency is using an independent verification and validation contractor to perform a risk assessment of Medicare carriers. As of June, HCFA was wrapping up its contractor assessments and moving toward its renovation deadline of September 1998. Validation of systems is expected by December, with implementation due by July 1999. ■

SOURCES:

Barr S. Health industry "not ready" for 2000. *The Washington Post*, July 24, 1998.

Barr S. Raises in Medicare payments set for 2000 may be delayed. *The Washington Post*, June 28, 1998.

HCFA sets 1998 deadline for Medicare contractors to be Yr-2000 compliant. *Inside HCFA*. 1(1):1,17, March 5, 1998.

Raymond J. The Millennium Notebook: The Y2K Watch. *Newsweek*, p. 12, June 22, 1998.

continued from page 34

embedded microchips. Contingency plans should also be formed with local hospitals or physician practices in case of system failure.[8]

A hospital must be able to produce a documentation trail showing its efforts to arrive at compliance through interaction with vendors and independent testing procedures. Such documentation will help protect the hospital in instances where a system or piece of equipment fails and results in patient detriment.[9] This process, albeit a tedious chore, must be completed thoroughly to ensure compliance as well as to protect an institution from possible liability claims. While there is no definitive consensus on who would be liable for system failure—physicians, hospital CEOs, vendors—there is widespread agreement on a solid strategy to attend to patient-critical areas first, and thoroughly document those efforts.

A typical approach for receiving vendor compliance documentation involves a query to each manufacturer asking for verification that its systems will function in 2000. Letters to vendors are best written with oversight from the hospital's legal counsel. The most effective letters include the hospital's definition of compliance, a list of specific compliance questions pertaining to the item in question, and a time frame in which to receive a response.[10] Each query should request evidence of the vendor's claim of compliance.[11] Vendor responses may have legal implications, thus hospitals are advised to develop a system for assessing the thoroughness of each response. Determination of liability due to system failure will likely depend on the organization's attention to this process as well as the contracts and warranties it holds with vendors.

DATABASE DILEMMAS

Some of the more prevalent problems affecting health care providers are expected in the area of documentation rather than clinical care.[12] Still, documentation problems could have a significant financial impact on an institution. Stories abound about databases crashing when dates after January 1, 2000, are entered. What cancer programs, as well as physician practices, need to keep in mind is the relationship between the database software, the individual PC it runs on, and the network server that connects it to a system of satellite stations. If, for example, the software and the PC are compliant with the year 2000, but the network is not, the database will not function properly. Moreover, if two computer programs, each of which is Y2K compliant, need to communicate with each other, they will not function properly if their compliance was achieved using inconsistent "fixes."

Sharkey cautions organizations against what may appear to be a "simple" solution. At Saint Joseph's Hospital, Sharkey uses an automated nurse staffing program. A new release due in July would supposedly make the software Year 2000 compliant when installed. However, like many organizations, Saint Joseph's had not been keeping up with each latest release, operating instead an older version of the program. To install the Y2K-compliant upgrade, Saint Joseph's had to first purchase and install all the previous upgrades provided by the manufacturer—and make related upgrades to the network server. "This has not been an inexpensive undertaking," Sharkey stated.

Health care and other industries are facing a deadline that cannot be pushed back: January 1, 2000, is coming whether health care providers are ready or not. No one can state definitively what the outcomes of this approaching milestone will be. Whether a full-blown crisis or a large-scale nuisance, oncology providers have a responsibility to protect patient care throughout.

REFERENCES

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[2]McCormack J. Beyond the hype. *Health Data Management*, pp. 46-48, January 1998.

[3]McCormack J. Medical devices make the problem even more complex. *Health Data Management*, p. 40, January 1998.

[4] McCormack J. Beyond the hype. *Health Data Management*, p. 48, January 1998.

[5]McCormack J. *Health Data Management*, pp. 46-48, January 1998.

[6]Ackerman JM. Prudent paranoia. Published by Rx2000 Solutions Institute. Available at www. rx2000.org. Accessed June 15, 1998.

[7]Goldberg SH. Liability of managed care organizations for Year 2000 computer failures. Published by Rx2000 Solutions Institute. Available at rx2000.org. Accessed June 15, 1998.

[8]Quayle C. Year 2000: Bug or bugaboo? Either way, start upgrading your facility's equipment for the new millennium. *Health Facilities Management*, February 1998. Available at www.hfmmagazine.com. Accessed June 15, 1998.

[9]McCormack J. Year 2000 issue opens a legal Pandora's box. *Health Data Management*, p. 46, January 1998.

[10]Cohn M. The hidden challenges of managing vendors and their Year 2000 compliance. Available at www.year2000.com. Accessed March 3, 1998.

[11]Ibid.

[12]Van J. Hospitals rush to cure millennium bug. *Chicago Tribune*, May 25, 1998. Available at www.chicago.tribune.com. Accessed June 15, 1998.

For institutions getting a late start on this process, a number of organizations provide information on the Y2K compatibility of microchip-embedded medical equipment, as well as information on the legal, insurance, and other implications of the Year 2000:

Connecticut Hospital Association
Community Health Information Management Exchange
http://www.chime.org/y2k

Premier
http://www.premierinc.com

RX2000 Solutions Institute
http://www.Rx2000.org

Food and Drug Administration
Center for Devices and Radiological Health
http://www.fda.gov/cdrh/yr2000/ipyr2000.html

Year 2000 Information Center
http://www.year2000.com

Comlinks
http://www.comlinks.com