Restrict cell phone use, at least near devices, ECRI recommends

Lifting cell phone restrictions isn’t a good idea, especially in device-intensive areas like the OR and critical care units, advises ECRI, a nonprofit organization that researches health care technology.

“We’re still recommending avoiding use of cell phones if possible except in the lobby of the hospital or in areas that are not near medical equipment,” says Art Augustine, senior project engineer with ECRI. ECRI’s recommendations are outlined in the December 2006 Health Devices.

If there is a clinical need to use cell phones in areas with medical devices, ECRI advises staying at least 3 feet from any device.

“In most studies we’ve reviewed, 3 feet or closer seems to be the distance where interference has been observed,” says Augustine. “Basically, the farther you are from the device, the less the likelihood of interference.”

ECRI continues to give this advice despite a recent report from the Mayo Clinic that found no clinically important interference in tests of 2 cell phones from 2 different carriers. In all, 300 tests were conducted involving 192 devices in various patient care units.

Another study from the Mayo Clinic published in 2005 did find some clinically significant interference. The study ran 510 tests of 6 cell phones with 16 different medical devices; interference occurred in 21% of the tests, with clinically significant interference in 1.2%.

ECRI says published evidence it has reviewed plus reports from health care facilities indicate cell phones still pose a risk, though a low risk. In one incident a couple of years ago, several ventilators alarmed and stopped ventilating when a cell phone was used close by. The ventilator manufacturer determined the cause was electromagnetic interference (EMI) and has modified its ventilators to reduce the effect.

There have also been reports of rate changes in infusion pumps related to cell phones.

“There are a lot of anecdotal reports. There are not a lot of well-documented reports, but a number of studies have suggested EMI does exist,” Augustine says. “When you test for EMI, in our opinion, your result is only good for that test. The results may not be applicable to other institutions.” A number of variables affect EMI, he notes, including other radiofrequency sources in the area, the facility’s design, and the number of people and objects in the area that could affect the signal path.

Other technologies

There are alternatives to cell phones, but all have a cost. For that reason, ECRI advises not implementing an alternative solely to reduce potential EMI because the risk is low, but reducing EMI would be a side benefit. Among the options are:

• **Microcell systems.** These are basically mini-cell phone systems in which a cell phone provider (or providers) installs a network of antennas in the facility. Anyone with a cell phone from the same providers can use the antennas to connect to an external cell tower. The antennas reduce the cell phones’ output power, which is a factor in interference. This can be an expensive solution. One option is to install antennas only in areas of the facility where medical devices are used.
• **Wireless Voice over Internet Protocol (WVoIP).** In this less-expensive option, WVoIP phones connect to a wireless network, enabling the phones to operate at low output powers.

• **Cordless phones.** These phones work much like phones in the home, with a base station and cordless phones that can be used within range. The phones have all of the features of a desk phone but can be carried and used with a headset.

*For information on the Health Devices report, contact ECRI at 610/825-6000, ext 5891, or e-mail communications@ecri.org.*

**References**

