Furby does not interfere with medical devices

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The Furby, a stuffed animal toy with a built-in computer chip, was an extremely popular Christmas gift last year. There have been media reports that a hospital in Scotland banned the Furby from patient care areas because of concerns that it produces an electromagnetic field that could interfere with medical devices.[1] Inquiries from biomedical engineers and the media prompted Health Canada to assess the susceptibility of various medical devices to electromagnetic interference from the Furby.

Thirteen medical devices were tested for susceptibility to electromagnetic interference; 10 of the devices (incubator, automatic external defibrillator, pulse oximeter, syringe pump, infusion pump, enteral pump, electrocardiogram monitor, ventilator, renal dialysis machine and pacemaker), all of which were manufactured before 1993, were selected for testing because they are known to be vulnerable to interference from analog cellular telephones.[2,3] Three other devices (Holter monitor, anesthetic system and ultrasound system), manufactured before 1996, were selected because of concerns about possible interference.

A magnetic pick-up coil (EMCO model 7604, Electro-Mechanics Company, Austin, Tex.; frequency range 20 Hz to 500 kHz), an active rod E-field antenna (EMCO model 3301B; frequency range 30 Hz to 50 MHz) and a broadband log-periodic antenna (model AT1000, Amplifier Research, Souderton, Pa.; frequency range 150–1000 MHz) were used to measure the magnetic and electric fields produced by the Furby. A spectrum analyser (model 8591E, Hewlett-Packard, Palo Alto, Calif.) was used to display the results, and electric and magnetic field strengths were calculated from the readings.

The Furby has no on–off switch. Once the 4 AA batteries are in place and the battery cover is closed, sound and light stimuli activate the toy — it speaks, blinks its eyes and wiggles its ears. In the absence of a stimulus the Furby goes into standby mode.

The Furby did not generate any electromagnetic waves in the standby mode, but it did generate broadband electric and magnetic fields when it was activated. With the centre of the pick-up coil 5.5 cm from the forehead light sensor the magnetic field strength was about 0.3 microtelsa. With the antennae 0.5 m from the sensor the electric field strength was 0.07 V/m at 410 MHz.

To test for electromagnetic interference with the medical devices the Furby was placed at a distance of 30 cm from each device, the toy was activated and the performance of the medical device observed. If no interference effects were noted the Furby was moved closer to the device and the procedure repeated. All distances were measured from the light sensor on the forehead of the Furby to the surface of the medical device; the minimum distance tested was 2 cm.

The Furby did not affect the performance of any of the 13 medical devices tested at any distance. The electric and magnetic field strengths generated by the Furby were very small — about 70 times weaker than those from a digital telephone. It is therefore very unlikely that the performance of medical devices will be affected by the Furby.

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