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TI Radiofrequency interference with medical devices. A technical information statement.
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AB The past few years have seen increased reports that medical devices, such as pacemakers, apnea monitors, electrically powered wheelchairs, etc., have failed to operate correctly because of interference from various emitters of radiofrequency energy. This condition is called radiofrequency interference (RFI). The consequences of these failures range from inconvenience to serious injuries and death. Reasons for this problem are twofold: 1) increasing numbers of electronically controlled medical devices with inadequate electronic protection against RFI, and 2) a significant increase in the number of RF sources in the environment. Medical devices are widely used outside the hospital and may be attached to, or implanted in, patients. Portable wireless communications equipment, including cellular phones, handheld transceivers, and vehicle-mounted transceivers, comprise one of the largest sources of RFI. Some medical devices are especially sensitive to the type of digital modulation that some of the wireless communications devices utilize. The prevailing international standard for the RF immunity of medical devices is the 1993 revision of the International Electro-technical Commission (IEC) Standard IEC 60601-1-2. This standard sets a minimum immunity level of 3 volts per meter (V/m) in the 26-1000 MHz frequency range. For non-life supporting devices, testing is required only at the specific frequencies of 27.12, 40.68, and 915 MHz. Technology exists to protect, or "harden," most medical devices from RF fields that are much more intense than the 3 V/m level specified in present RFI standards. Most of these techniques, including shielding, grounding, and filtering, are not costly if they are incorporated into the initial design of the electronics system. COMAR recommends that the various parties involved in the manufacture and use of RFI-prone medical devices take steps to avoid serious RFI problems that may lead to safety hazards. Medical device manufacturers should design and test their products to ensure conformance with current RFI standards and educate the users of their devices about the possible symptoms of potential RFI. If there exists the possibility of RFI problems to medical devices, steps should be taken to ensure that all sources of RF energy be kept at a sufficient distance.

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MH - Radio Waves/*adverse effects
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