Patient-Owned Equipment

At times, patients want to use their own personal equipment during their stay in healthcare facilities. They may enjoy the comfort of knowing how to use and operate their own equipment, may wish to avoid the additional costs of using hospital-owned equipment, or both. In order to support patients' rights while maintaining a safe environment, healthcare facilities should provide staff with guidance on accommodating patient requests for the use of nonowned equipment in the facility. For the purposes of this Risk Analysis, personal equipment is classified into two basic types — general and medical devices. General devices are those that may be used for entertainment or for personal care (e.g., electronic devices, electric shavers). Medical devices are those that are part of a patient's medical treatment or that assist with activities of daily living (e.g., ventilator, motorized wheelchair). A breakdown of the types of more common devices is displayed in "Common Types of Patient-Owned Equipment."

Healthcare organizations have a duty to ensure the safety of equipment and devices used within their institutions. When they allow the use of patient-owned equipment, they may also be assuming responsibility for that equipment's performance and safety. This places facilities at risk because they have never had control over the equipment's use or evidence of its proper maintenance, repair, or storage. ECTR is aware of two patient deaths that occurred while they were using their own continuous positive airway pressure (CPAP) units. In both instances, the hospital had to conduct extensive investigations on whether the CPAP units contributed to the deaths. One of the patients died after the CPAP unit was seen to be misting or smoking. The other patient was unable to maintain the humidifier used in conjunction with his CPAP unit, and cultures taken from the humidifier matched the organisms causing his postoperative infection. Therefore, facilities should be prudent when balancing patient requests to use their own devices with the risks associated with allowing the use of nonowned equipment in the facility. It is recommended that healthcare facilities develop a policy on patient-owned equipment. In general, patient-owned medical equipment should be prohibited, with exceptions made on a case-by-case basis. Information on the patient-owned equipment policy should be included in admission brochures to inform patients of the policy ahead of time. Some model language is provided in "Bringing Electrical Appliances into the Hospital" in Appendix A.

Unfortunately, there are few standards or guidelines on the topic by accrediting or professional organizations. In 1992, the Joint Commission on Accreditation of Healthcare Organizations eliminated the accreditation standard requiring policies for use of personal electrical equipment from its accreditation manual.

The majority (84%) of respondents to a 2003 Healthcare Risk Control (HRC) fax poll indicated that their facilities do allow patient-owned equipment to be used, and most (90%) said they had a written policy in place. The most common provision in the written policies was that the biomedical or clinical engineering department must inspect the equipment for electrical and mechanical soundness before use. In the absence of any standards or guidelines, this common practice is reasonable for healthcare facilities to perform to ensure at least some effort in protecting patient safety. Some facilities' policies include

<table>
<thead>
<tr>
<th>HRC TOOLS FOR THIS TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following tools and resources on this topic are available in your HRC System. Refer to this article, your HRC Index, the HRC Members' Web site, and other HRC resources for help.</td>
</tr>
<tr>
<td>Form</td>
</tr>
<tr>
<td>Sample Policy</td>
</tr>
<tr>
<td>Patient Safety Recommendations</td>
</tr>
<tr>
<td>Action Recommendations</td>
</tr>
<tr>
<td>Also Available On HRC Web Site</td>
</tr>
</tbody>
</table>

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the placement of an inspection sticker on the equipment indicating that biomedical or clinical engineering personnel have performed a safety check of the equipment. Just 20% of survey respondents indicated that a physician authorization for appropriateness of patient-owned equipment was required, and 20% said that the department with the most expertise with the clinical equipment inspects the device and reviews its use with the patient and assigned staff.

General (Nonmedical) Devices

Patient-owned grooming equipment, entertainment devices, and computers have no inherent risks that suggest prohibition across the board. Most currently manufactured devices, such as hair dryers, electric shavers, and radios, are safe when new (although they may be rendered unsafe through use or abuse). These devices can be permitted, depending on the patient’s medical condition. The nursing staff is usually able to determine whether it is safe for a patient to use such devices. However, a patient’s condition may change, and nursing staff should be alert to the patient’s ability to use the equipment safely. For example, unattended sedated or cognitively impaired patients may burn or otherwise injure themselves with equipment that is ordinarily in good working condition and safe to use. Patients may also forget to unplug a personal grooming device from an outlet in the bathroom, where surfaces may be wet. Patients may slip, or the device may fall into water. (Electrocutions have occurred in homes when hair dryers fell into a bathtub. Fortunately, most hospital rooms do not have bathtubs, but showers or sinks can pose a risk of electrocution. Ideally, a hair dryer should be used outside the bathroom.) For practical guidelines, refer to “Nurses’ Guide for Patient-Owned Electrical Devices,” reprinted in Appendix B.

Televisions are available to patients in most hospitals and many other types of healthcare facilities. Hospital-supplied televisions are of adequate quality, are installed with appropriate safeguards, and/or are periodically inspected to protect patients and staff. Under no circumstances should patients be permitted to plug line-powered video or electronic games into hospital-supplied televisions. In fact, battery-operated games are preferable so that patients will not tamper with hospital-supplied televisions.

Battery-operated devices present less risk of electric shock than line-powered devices; however, not all patient-owned equipment needs to be battery powered. Electric shock is not a probable or significant risk in well-designed and properly maintained equipment. Similarly, while three-wire power cords and three-prong plugs are standard for medical devices, personal-use items with two-wire cords and two-prong plugs may be equally as safe. (Any line-powered devices sold in the hospital gift shop should also meet the criteria for patient-owned devices.)

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Safety testing, if conducted by hospital engineers, can consume enormous amounts of time. Generally, an Underwriters Laboratories or Canadian Standards Association label provides some assurance of good design and construction practice for consumer products, minimizing the risk of electric shock and fire. However, it does not guarantee that equipment is free of manufacturing defects or deficiencies developed during use. Guidelines for nursing staff should prompt caregivers to look for these labels and check the equipment initially and periodically thereafter for damage or abuse. The hospital should be aware that it may be held liable for any patient injury resulting from use of the device, regardless of whether an inspection was performed. However, an inspection will reduce the likelihood of injury.

While many devices are safe, defective or high-wattage devices may overload electrical circuits and trip circuit breakers or blow fuses. This may endanger the life of the patient using the device or other patients nearby who may be dependent on electrically operated life-support equipment. Also, power distribution systems in some older facilities may be strained by simultaneous use of a number of high-wattage devices combined with normal loads. The electrician, plant manager, or safety
committee should determine which sections of the facility have adequate capability to support this load.

Portable and cellular telephones or other radio-frequency transmitting devices, business-band radios, personal digital assistants, or walkie-talkies may interfere with medical devices (e.g., physiologic monitoring equipment, infusion pumps, electronic thermometers); however, the risk is generally minimal as long as these devices are kept a safe distance from medical devices. It is recommended that the facility address the use of cellular telephones and other wireless technologies in a separate policy that meets its particular needs — one that balances the needs of the institution as a whole. ECRI has suggested a six-step process to build a wireless communication policy. (See the Risk Analysis, "Electromagnetic Interference and Medical Devices," located in this section of your HRC System.)

Medical Equipment

Sometimes, a patient or family member will request that a patient be permitted to use personal healthcare equipment in order to avoid the additional emotional or financial stress of using hospital-supplied equipment. For example, a patient may request to use a home dialysis unit to avoid having to learn to use a new model. While this practice may be advantageous for the patient, it may also present significant risk and safety concerns for the hospital, which may bear the brunt of liability for an injury resulting from the device.

Before permitting the use of personal medical equipment, the hospital should first obtain physician approval of the suitability of the device for the patient's current condition.

Before permitting the use of personal medical equipment, the hospital should first obtain physician approval of the suitability of the device for the patient's current condition. The physician would not certify that the equipment itself is fit for use, but rather that it is appropriate for the patient's current condition. Additionally, the hospital should verify the adequacy of the equipment's safety and performance. For example, the hospital should consider requesting evidence of proper maintenance from the patient. The failure to maintain devices increases the risk of a problem, and thus it is reasonable to look into maintenance history. Less than 4% of respondents to the HRC patient-owned equipment survey said that they request a machine history of the equipment from the patient. This information could be requested from the patient when it is known in advance that he or she will be bringing equipment to be used in the hospital.

The facility should also verify that there are no outstanding recalls or hazard alerts involving the equipment before its use is permitted in the hospital. HRC members can review the bimonthly Action Items for Risk Managers, which includes a summary of medical device problems, hazards, recalls, and updates. In addition, members have online access to ECRI's searchable Health Devices Alerts database located under Medical Device Safety at the HRC Members' Web site (http://members.ecri.org). If the maintenance history or device-alert check reveals inadequacies or uncorrected problems, the equipment should not be used in the facility. The patient should be notified of the potential problems and arrangements made for appropriate actions to be taken to repair or replace the equipment if it is to be used after discharge.

Patient-owned equipment should be tested by the department that ordinarily maintains and uses it (e.g., a ventilator should be tested by the respiratory therapy and/or clinical engineering department). After performance testing, all controls should be returned to their original positions, and clinical personnel should verify correct settings following inspection. Documentation should be maintained by the department performing the equipment inspections or testing. A safety sticker may be placed on the equipment to indicate that it has been inspected/tested. If the device does not meet the standards, the patient's physician should be advised and other arrangements made to obtain the equipment.

The act of testing poses risk management concerns, because the patient may rely on the hospital's expertise and believe that the hospital is assuming responsibility for the device. Thus, the hospital should consider having the patient sign a waiver, regardless of whether the hospital tests the device. The waiver should:

- protect the hospital from liability associated with a defective patient-owned medical device,
- include a statement that any inspection by the hospital should not be construed as a warranty that the device is safe or free from defects, and
- contain a statement that the hospital may provide a substitute if the patient becomes unable to safely use or maintain his equipment.

Even if the device is mechanically and electrically sound, there may still be reasons to prohibit its use. For example, if the hospital ordinarily requires that equipment (e.g., ventilators) have an alarm or that such an alarm (if present) be nondefeatable, and the patient's equipment lacks the desired feature, the equipment should be prohibited. In some cases, an exception to the
hospital's policy may be requested. In these cases, approval should be based on the recommendations of the clinical engineering department and clinical staff.

Critical equipment or equipment that may pose a risk to the patient should also be prohibited if the clinical staff caring for the patient are not familiar with its operation (in case the patient becomes unable to operate it). For example, patients with devices such as a patient-owned and -operated insulin pump are often the most adept at programming them (calculating basal and bolus dose rates) and making decisions about their insulin therapy. The following are recommendations for hospitalized patients with insulin pumps:

- Obtain orders from the physician to leave the pump in place and orders for specific basal rate and bolus doses, along with blood glucose levels.
- Do not remove the pump unless another means of insulin administration (e.g., subcutaneous, intravenous) is ordered. (The patient will need immediate, fast-acting insulin once the pump is removed.)
- Ensure that the physician or an alternate prescriber is readily available to contact for immediate consultation.

In addition to the above, the nursing staff caring for the patient on an insulin pump (or any other critical patient-owned equipment) should receive in-service training on its safe use by a qualified individual in cooperation with the patient. Also, an instruction/user manual should be made available for the hospital staff to review. Having a telephone number of the equipment manufacturer or distributor available is also a good idea for off-hours troubleshooting.

Nonelectrical and noncritical equipment, such as supportive and assistive devices, does not pose as much risk because it does not carry the same risks as electrical equipment. However, the use of patient-owned ambulation aids, orthopedic supports, and other items should still be approved by the physician and at minimum be inspected by the department most adept at their use (i.e., physical therapy.) Most facilities expressly prohibit the use of patient-owned items such as heating pads and suction machines because facilities usually have such items readily available from their own reliable inventory.

**Critical Care Units**

Some hospitals may be inclined to impose somewhat tighter restrictions on the use of line-powered, patient-owned devices in special or critical care units as an added precaution against the risk of electric shock and device interference, even though these risks are extremely low. In general, we believe that the risk of shock in these areas is much less than it once appeared to be and does not necessarily require special policies regarding line-powered, patient-owned equipment. (Some hospitals allow hair dryers in all areas of the hospital except critical care areas; the hospital supplies three-wire grounded dryers for these patients.)

Even for patients with external (temporary) transvenous pacemaker catheters or other conductive pathways to the heart, we believe that the risk of shock in special or coronary care units is extremely low. However, external pacemakers sense small electrical signals from the heart; therefore, they may be somewhat more sensitive to signals emitted from nearby electrical devices. Also, they do not benefit from as much shielding from the human body or a metal pacemaker case that most implanted pacemakers offer. Although they are usually designed to revert to a "safe" mode of operation in the presence of many interfering signals, it may still be prudent not to allow patients with external temporary transvenous pacemakers to use devices such as hair dryers, electric shavers, personal computers, and video games unless someone is present or has verified that adverse interference does not occur. (Domestic appliances generally pose very little risk of interference to other medical devices.)

**A Policy Statement**

The hospital's safety committee should consult with the risk manager, safety director, clinical or facilities engineer, nursing director, and administrator to develop safety policies. Such policies should encourage vigilance with minimal effort while keeping risks in perspective, as some incidents of equipment malfunction or misuse have been reported. To minimize risk of fire, patients receiving oxygen therapy should not be permitted to use personal electrical appliances. One facility's policy on patient personal equipment is reprinted in Appendix C.

An excerpt from a healthcare system's policy manual is succinctly stated in "Patient-Owned Equipment and Home Healthcare Patient-Care Equipment." The facility added to this policy in a recent revision to include that both the physician and nursing staff had to approve use of the equipment because they believed that nurses had to feel comfortable operating the device.

As previously noted, a statement of the facility's policy regarding patient-owned equipment should be included in the patient's admission packet. In addition to the written preadmission restrictions, facilities should consider having the patient sign a personal property statement that declares anything he or she may have brought in on admission or that is brought in later. The reasons for this statement are (1) to protect the patient's safety and (2) to protect the organization and patient in case of theft of personal property. If an item is brought into the facility and
Patient-Owned Equipment and Home Healthcare Patient-Care Equipment

Editor's note: Reprinted below is an excerpt from a healthcare system's policy on patient-owned equipment.

Patient-owned electrically powered medical equipment is not permitted, with the following exceptions:

- Patients may bring their own CPAP (continuous positive airway pressure) machines or BiPAP (bilevel positive airway pressure) machines to the hospital. The device must be inspected by the appropriate Designated Technology Management Group (DTMG) upon the patient's admission to the hospital.

- The patient owns and requires a unique device that is not in the hospital's inventory and is not easily obtainable. The device must be approved by the patient's physician and nursing staff and inspected and approved by the appropriate DTMG.

- If the patient-owned device does not have a hospital-grade three-prong plug on it, an isolation transformer is attached to it. Exceptions: if the DTMG determines that the device is double insulated, a two-prong plug shall be permitted. (Refer to Appendix B, Chapter 7 of Health Care Facilities, NFPA 99, for more information on this issue.)

- Patient-owned equipment must meet electrical safety standards and be labeled with an inspection date, actions taken, and the appropriate due date for reinspection.

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not declared on the list, then it is more difficult for the patient to claim that it was stolen from the patient room while he or she was elsewhere (e.g., in radiology or surgery). The attending physician would have to authorize the appropriateness of patient-owned medical devices and document this in the patient's medical record. A sample policy on inpatient portable ventilator use is reprinted in Appendix D.

ACTION RECOMMENDATIONS

Risk managers should collaborate with biomedical and engineering personnel and address the safety of patient-owned equipment through an appropriate committee (e.g., safety committee) when developing policies and procedures for their facilities. The following recommended actions should be considered:

- Use the list of common types of patient-owned equipment to determine the equipment likely to be requested to be used in the facility. Assess the facility's ability to inspect and test allowable medical devices for integrity and performance.

- Develop a policy statement on patient-owned equipment that clearly states the restrictions and allowances. Refer to the institutional policy on cell phone/wireless communication device use. Procedures should address biomedical or clinical engineering department safety inspections, which must include a check for electrical and mechanical soundness, placement of an inspection sticker on the equipment, a check for any equipment recalls or hazards, signing of any waivers, and actions to take for unapproved equipment or devices that do not meet acceptable standards.

- Include information about the facility's policy on the use of patient-owned equipment in the preadmission/admission brochures.

- Provide education and guidance to providers and staff on the policy, and include information about the risks of using non-facility-owned equipment. Specific training should be provided to staff responsible for visual inspection of personal electrical devices if they are permitted.

- Ensure that physician approval is obtained for the use of patient-owned medical devices and that nursing and other pertinent staff are knowledgeable about their operation.

- Work with legal counsel in the development of release forms waivers for patients to sign to indicate that the patient retains responsibility and liability for the equipment.

Notes

2. Ibid.
4. Id.
6. Id.
7. ECRI, supra note 3.
8. ECRI, supra note 1.