POLICY:
Duke University Health System recognizes that the proliferation of electronic devices in use within the hospital environment poses a potential electromagnetic interference (EMI) risk to medical equipment. Cellular/cordless telephones, wireless computers & handheld computers (Palm Pilot, Pocket PC, etc.) and the two-way radios often employed by hospital personnel are all recognized as potential sources of EMI.

The Health System will minimize the risk associated with this phenomenon by limiting the use of EMI generating devices in Patient Dependant on Equipment (PDE) locations such as CCU, PICU, NICU, Emergency Department, Operating Room, etc. A PDE location is defined as an area which has equipment attached to patients which, if the equipment malfunctions, could cause or contribute to the serious illness, injury, or death of the patient.

PURPOSE:
This policy shall define:

- Potential EMI generating devices
- Restricted areas for use of EMI generating devices
- Procedures for emergency use of two-way radios in restricted areas
- Procedures for notification of restricted areas
- The effective period of this policy

PROCEDURE:
The following devices are considered to be unacceptable for use in PDE locations:

- Two-way radios
- Ham (CB) radios

The use of the following devices in PDE locations should be used with caution:

- Cellular/Cordless Telephones
- Computers with a wireless network or a wireless modem
- Wireless handheld computers (Palm Pilot, Pocket PC, etc.)
- Two-way pagers
- Any device known to emit electromagnetic energy

Although these devices are not specifically prohibited in PDE locations, staff and visitors should be encouraged to use these devices only when essential and preferably in areas away from life support medical equipment. DUH Staff should ensure that EMI generating devices are not within three (3) feet of critical medical devices.
**Restricted Areas**

Two-way radios and ham radios are restricted from use in all PDE locations to include:

<table>
<thead>
<tr>
<th>ACS Operating Room</th>
<th>Birthing Center</th>
<th>Cardiac Cath &amp; ICC Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke North Operating Room</td>
<td>ECT Lab</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EP Lab</td>
<td>Eye Center Operating Room</td>
<td>Full Term Nursery</td>
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<tr>
<td>ICN</td>
<td>PACU</td>
<td>Peds Flex Unit</td>
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<td>PICU</td>
<td>Radiology</td>
<td>2100 &amp; 2200</td>
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<tr>
<td>3100, 3200 &amp; 3300</td>
<td>4100 Step Down &amp; 4200</td>
<td>5200 &amp; 5300</td>
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<tr>
<td>7100, 7200 &amp; 7300</td>
<td>8200</td>
<td>9200 – BMTU</td>
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</tbody>
</table>

**Procedures for Emergency Use of Two-Way Radios In Restricted Areas**

Although there are certain potential risks associated with using two-way radios in Patient Dependant on Equipment locations, there are clearly unacceptable risks in prohibiting the use of these devices by Public Safety, hospital safety/security officers, EMS personnel, and Life Flight personnel. This policy is not intended to prohibit the use of two-way radios in PDE locations, but rather to limit their use to emergency situations.

Whenever a Public Safety, Hospital safety/security officer, EMS personnel or a Life Flight employee is in a PDE location and an emergency occurs which requires the use of a two-way radio, they should make their best effort to adhere to the following guidelines which are listed in order of preferred compliance:

- Leave the PDE location to use the two-way radio: (Interference created by RF devices is minimized as the distance between the RF device and the affected equipment is increased.)
- Keep the two-way radio at least ten (10) feet from any energized medical device
- If output levels are adjustable, use the lowest setting possible which still facilitates acceptable communications

**If any equipment in the vicinity of the radio user should malfunction while the radio is in use, use of the radio is to be terminated immediately! Any further use should be conducted from a non-PDE location.**

**Electromagnetic Compatibility (EMC)**

Procurement Services will incorporate language in future bid requests and contracts to require manufacturers to certify the electromagnetic compatibility of the requested medical device(s) as defined by international EMC standards. For example, NFPA 99, Standards for Health Care Facilities, paragraph 9-2.1.6.4, states, “All appliances shall be designed so that they are capable of operating in a radio...
frequency electromagnetic environment where limits are established by IEC 60601-1-2\textsuperscript{1}. The Center for Devices and Radiological Health (CDRH), a division of the FDA, in cooperation with the Association for the Advancement of Medical Instrumentation (AAMI) has also developed guidance standards for medical device manufacturers seeking pre-market approval.

\textit{Review}

Clinical Engineering will continue to review technical publications and standards for trends and updates relating to this issue and communicate noteworthy advances to the Safety Committee. Clinical staff will contact Clinical Engineering through the Device Hotline (phone 681-2500) if they suspect that the function of a medical device has been affected by an EMI generating device. All such incidents will be followed up by Clinical Engineering and reported to Risk Management.

\textit{Exceptions}

Exceptions to this policy must be approved by the Safety Committee. To date, the Safety Committee has only approved one exception to this policy.

\begin{itemize}
  \item The DUH Emergency Department has a very low power mini-cell installed in order to facilitate the emergent nature of their business. The phones have a very small operating range, which is primarily limited to the ED. This unit was tested by Clinical Engineering to identify any obvious interference. No obvious interference was detected.
\end{itemize}

NOTE: Air waves are unprotected and conversations may be intercepted by other telephones. Refrain from the disclosure of protected health information during cellular phone conversations to prevent the breach of a patient's right to confidentiality.

\textit{Effective Period For Policy}

This policy is effective immediately and shall remain in effect until it is changed or deemed unnecessary by the Hospital Safety Committee. Any questions pertaining to this issue should be directed to DUHS Clinical Engineering at 919-681-2525.

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\underline{DUHS Reviewed By} \hfill \underline{Date}
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