PREVENTIVE MAINTENANCE PROCEDURE

INFUSION DEVICES - Applies to most types of electromechanical devices that regulate the delivery of fluids to a patient, including general-purpose infusion pumps, multichannel pumps, microinfusion pumps, patient-controlled analgesic (PCA) pumps, syringe pumps, ambulatory pumps, enteral feeding pumps, and infusion controllers.

For details, refer to Health Devices Inspection and Preventive Maintenance (IPM) procedure and to the appropriate manufacturers specifications.

Infusion Devices
ECRI Procedure/Checklist 416-0595

Equipment Needed: electrical safety analyzer; stopwatch; 25 ml graduated cylinder; pressure gauge; applicable I.V. bag and tubing

1. Qualitative Tests
1.1 Chassis - verify physical integrity, cleanliness
1.2 Mount - verify physical integrity of mounts
1.3 Casters/Brakes - if mounted on IV pole, verify physical integrity
1.4 AC Plug - verify integrity
1.5 Line Cord - verify proper insulation and integrity
1.6 Strain Reliefs - verify physical integrity at both ends of line cord
1.7 Circuit Breaker/Fuse - verify integrity of external circuit breaker and/or value of external fuse
1.9 Cables - inspect drop sensors and external air-in-line detectors as appropriate
1.10 Connectors examine all cable connectors (drop sensor, nurse call, etc.)
1.13 Controls/Switches - verify proper operation; inspect membrane switches
1.18 Indicators/Displays - verify proper illumination and operation
1.20 Alarms - verify proper operation; specifically verify (as appropriate) air-in-line, empty container, infusion complete, open door/misloaded set, nurse call
1.21 Audible Signal - confirm appropriate volume and operation of volume controls
1.22 Labeling - verify presence and placement of all labels, placards, instruction cards, etc.
1.23 Accessories - verify physical integrity, connection, and proper operation of drop sensors and external air-in-line detectors
1.24 Flow-Stop Mechanisms - verify operation and integrity
1.25 Lockout Interval (PCA Pumps Only) - verify operation

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2. Quantitative Tests
   2.1 Grounding Resistance [< 0.5 ohm]
   2.2 Chassis Leakage [< 300 microamps]
   2.10 Flow Accuracy

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FLOW RATE ACCURACY
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<table>
<thead>
<tr>
<th>Set Rate</th>
<th>Duration</th>
<th>Desired Volume</th>
<th>Flow Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 ml/hr</td>
<td>5 min</td>
<td>5 ml</td>
<td>+/- 5%</td>
</tr>
<tr>
<td>120 ml/hr</td>
<td>5 min</td>
<td>10 ml</td>
<td>+/- 5%</td>
</tr>
<tr>
<td>240 ml/hr</td>
<td>5 min</td>
<td>20 ml</td>
<td>+/- 5%</td>
</tr>
</tbody>
</table>

2.11 Maximum Pressure/Occlusion Alarms
(exclude infusion controllers) [manufacturers specs]

3. Service/Self Test Mode
   Enter service/self test mode and verify proper operation. Restore settings as they were initially found.

   IMED PC-1 - press and hold the "hidden" key during power up. Keep the "hidden" key pressed until "Maintenance" appears on the display. Successive presses of the "hidden" key will select each test, while pressing the "START" key will begin the test.

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Infusion Device (ECRI)
infusion.doc