Establishment of a systematic monitoring for electrosurgery instruments in laparoscopy

Frédy Cavin CSSD Manager
CHUV- Lausanne - Switzerland
CHUV

- Located in Lausanne and built in 1982
CHUV

- Hospital of 900 acute care beds
- 23 operating rooms
- 20,000 surgeries
- CSSD
  - 3 sites
Establishment of control under the microscope

Magnification 8X to 32X
Incident in 2007

- A patient had a lesion of the small intestine following surgery with electrosurgery instruments in laparoscopy
- Second operation necessary
- Declaration of incident
What we find in the literature on this subject?
Electrosurgical injuries are often the result of stray current.
Advancing Patient Safety in Laparoscopy: The Active Electrode Monitoring System

Vangie Dennis RN, CNOR, CMLSO

http://www.psgh.com/mayjun05/aems.html
May / June 2005

Technology
Accidents reported

- Burns leakage current
- Fatal perforation of the colon
- Necrosis and perforation of the bowel during dissection of adhesions
- Perforation of bile duct
- ...

10th world congress of sterilization
What do the records?

- Good practice Switzerland
  After cleaning, you should visually check the cleanliness of the components of medical devices and medical device and reassembled to ensure that no damage is likely to affect its safety, integrity or proper functioning.
FD S 98-135 (France)

- Guide for control applied to reusable medical devices
- It can be sterilized only equipment as functional, capable of fulfilling its role
Controls so far

- Visual inspection
  - Cleanliness
  - Integrity
  - Dryness
- Control possible with a magnifying glass
Reflexion for solutions

- Collaboration with biomedical engineers
- 2 control devices found on the Swiss market
  - Isofox®
  - InsulScan®
- Decision
  - Make a preliminary test with the 2 devices
Connection to electricity
If non-comply:
- ringtone
- red light

Dring !!
Fisrt test to monitor the integrity of the instruments (July 2007)

- 47 controlled instruments
  - Isofox® 3 instruments do not comply
  - Insulscan® 17 instruments do not comply

36 % !!
First conclusion

- We identify more with the system Insulscan®
- But we are not too severe?
- We did a test with new instruments and all instruments were comply
Decision

- Buy device Insulscan®
- Routine checking each reprocessing
  - When packaging
  - In the U.S., before intervention which requires a system control sterile
# Contrôle des instruments gainés

**Date :** 25.1.2008

<table>
<thead>
<tr>
<th>N°</th>
<th>Instrument contrôlé</th>
<th>1er 2ème et 3ème</th>
<th>Contrôle</th>
<th>Résultats</th>
<th>Visa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pince Préhension</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Crochet n° 2</td>
<td>1er 3ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gaine de R.</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Gaine de R.</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Pince Préhension</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Crochet</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Crochet</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Gaine de R.</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1er 2ème et 3ème</td>
<td>C S</td>
<td>NC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarques :**

Pce 2

**Signature :**

F. GAUVIN

**Date de fin de l'exécution :** 21.12.2007
Result 2008 (BOP5)

1st control

- Tested: 240
- Non comply: 26
- In %: 10.8 %
In the operating room of the maternity

- **1st control**
  - Tested : 56
  - Non comply : 7
  - In % : 12.5 % !!!!!!

- We obtain similar percentages
## Result 2008

- **2nd or more control**

<table>
<thead>
<tr>
<th></th>
<th>BOP5</th>
<th>Maternity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested</td>
<td>6135</td>
<td>481</td>
</tr>
<tr>
<td>Non comply</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>In %</td>
<td>0.4 %</td>
<td>0.2 %</td>
</tr>
</tbody>
</table>
Result 2009 (-> 31.7.2009)

- **BOP5**
  - **Tested**: 5304
  - **Non comply**: 14
  - **In %**: 0.3%

- **Maternity**
  - **Tested**: 1469
  - **Non comply**: 8
  - **In %**: 0.5%
For Staff

- Utility quickly understood
- Easy to use
- Quick
  - To go to the control table
  - Less of 10 seconds
- Does not require additional staff resources
Costs

- Control system: € 5’483.-
- Handpiece: € 53.60
  - for 40 controls
  - 6616 contols = 165 x 53.6 = 8’865.-
- Change of insulation: € 76.50
Wish

- It would have been desirable to determine various parameters
  - the average time before a surgical instrument is defective
  - or
    - the average number for a given before the surgical instrument is defective
- but it must have a traceability system to the instrument
Conclusion

- Today, in literature we find no description of the problems related to the fact that the instruments are not sterile.
- Procedures exist to validate the washer disinfectors, sealing systems, and sterilizers.
- My opinion is that we must do more to control the functionality of instruments and not simply wait for complaints of surgical.
- Systematic control of laparoscopic instruments is a means to arrive.
Conclusion

Thank you for your attention and does not stay behind, go for it!