Technology, Machines, Robots:
Getting the Instruments Clean Requires the Human Factor

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This presentation brings to the forefront the importance of having human beings working in the CSSD that are capable of critical thinking. It is the job of the sterilization technician to aid in the eradication of bacteria.
Statistics from the CDC show that an estimated 1.7 million HAIs occurred in 2002 resulting from surgical site infections, were the cause of approximately 99,000 deaths.
The human factor plays an important part on the infection control team to assure that the instruments are clean and free of bacteria. Surgical site infection should not be an issue in CSSD.
The transformation of CSSD now includes the newest and greatest technology in the machines and robots. All of these changes make a department more efficient.

Efficiency alone doesn’t get the instrumentation needed in a surgical case clean. Technology allows the machines to clean and the robots to actually string instruments.

The individual influence of a human puts the check points in place. The human factor will look and see if an item is acceptable according to quality standards to be placed in a tray for patient use.

The human factor will reject an instrument that has rust, bone, or blood still attached. The machine will complete its task according to what has been programed into the main frame.
The written IFU of the device manufacture should always be followed. This is a process that requires an individual with the ability to use critical thinking. The human factor has to know when to check for updates and how to put them in action. The manufacturer’s written IFU should be kept on file and periodically reviewed for any updates.
The day in and out activities of the CSSD team requires the eyes and knowledge base of a human being. The human factor allows an instrument that is not quite clean to be re-washed.
All of the new and modern Technology aids the human in working smarter rather than harder. Rapidly changing technology, machines, and robots can’t replace the human factor needed in this process.
The individual in the CSSD must have demonstrated the experience, knowledge, and skills necessary to provide competent services as a central service technician.

The human factor in CSSD are integral members of the health care team who are responsible for decontaminating, inspecting, assembling, disassembling, packaging, and sterilizing reusable surgical instruments or devices in a health care facility that are essential for patient safety.
Automated Floor Loading Double Door Sterilizers
Robotic Decontamination Washer Disinfector Shuttle System
Rotary Washer Disinfector Automated System
Robotic Instrument Assembly

New Technology for the SPD

- **Penelope CS** automates the sorting, counting and restringing of basic “ringed” surgical instruments.
- System components: robotic arm, computer and unique machine-vision software designed for surgical instruments.
- Increases productivity of a technician using the system by **automatically** producing stringers, **accurately** and **quickly** and **fully documented**.
- Enables the technician to do **better inspection** of the instruments as they are loaded into the system.
The human factor in a CSSD reduces the possibility of a surgical team receiving contaminated instruments for a case. It is our fiduciary responsibility to process instruments according to best practice, and regulatory requirements. Machines and robots can aid that process but they will not replace the human factor needed to succeed.
Integrated sterilizers with tracking - paperless record systems

Technicians document loads via wireless scanner at sterilization hub

Loads automatically load into sterilizer via injector signaled by photo sensor – Sterilizers are double door automated pass through

Belimed 8535 software sends handshake file to Microsystems tracking
Times are changing and with technology, machines and robots the workflow in sterile processing departments has become more efficient.

Machines nor robots can replace the human who has to be able to smell blood or see oil droplets, cement and bone still attached to the instrument.

Sterile processing departments will continue to evolve and become more efficient with the help of new technology machines and robots.

The human factor will always be needed to control outcomes and get the instruments clean.
Humans will always be needed in CSSD
References

- Central Service Technical Manual 7th Edition
- Binder, Leah (The Leapfrog Group), Infections Caused by Health Care, Transcript of congressional testimony to the House Oversight and Government Reform Committee (April 16, 2008)
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