

# **The Changing Role of People & Technology in Medical Devices Reprocessing**

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**Toronto, ON**



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# Key People in Infection Control

- Reprocessing
  - Manager leads team
  - Staff
  - Educator
  - Data Coordinator
- Infection Control
  - Director
  - Infection Control and Prevention Committee
  - Link to senior management for reprocessing
  - Required for Accreditation in Canada
- Users
  - Operating room staff
  - Manager, charge Nurses, surgeons
  - Clinics
- Other Departments
  - Purchasing
  - Biomedical Engineering
  - Endoscope



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# Role of Medical Devices Reprocessing

- Prevent infection
  - Reduce patient Risk of nosocomial infection
- Quality assurance
  - All processes and products
- Training and education
  - Staff, nurses, community
- Research and development
  - Advance science of medical devices reprocessing
- Healthcare management
  - Contribute to decreasing wait times
- Provide professional services and advice



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# Implementing Infection Control in MDRC

- Requires right ingredients
  - Competent, educated, dedicated staff
  - Appropriate, functioning technology
- Needs evidence-based standards
  - Trials, research and development: technology
- Relies on observing standards of practice
  - Evidence-based practices and recommendations
  - Avoid dogmas, beliefs, and practices having no factual basis
- Evidence-based recommendation
  - Provincial Infectious Diseases Advisory Committee (PIDAC),
  - CSA, CSGNA, CDC, ETC.



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# Nosocomial and Surgical Site Infections

- Annual nosocomial infections statistics in Canada
  - 250,000 nosocomial infections
  - 8,000 deaths due to nosocomial infections
  - 17% of nosocomial infections are surgical site infections (SSI)
- Annual nosocomial infection statistics in the United States
  - 2 million nosocomial infections
  - 99,000 deaths
  - 38% of nosocomial infections are SSI
- 60% of all SSI's are preventable



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# Sunnybrook Health Sciences Centre



- Tertiary care hospital & teaching institution (3 sites)
  - Bayview Campus (Main site)
  - Sunnybrook Women & Babies Program
  - Holland Orthopedic & Arthritic Centre
- 1206 beds
  - 671 acute care beds
- Regional trauma centre
  - 750 cases annually
- 21 OR's
  - >19,000 cases annually



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# Instrument Tracking Systems

## *What do instrument tracking systems do?*

- Track individual instruments and set precisely
  - Through reprocessing to specific patients
  - Back to reprocessing
- Canada: <10% of hospitals use a tracking system
- North York General Hospital
  - Manual tracking (13 Years)
- Humber River Regional Hospital
  - Alex Tracking System (4 years)
- Sunnybrook Health Sciences Centre
  - Sterile Processing Microsystems (SPM): 11 Years
  - T-DOC:5 Years



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# Instrument Tracking Technologies

## *Type Of Technologies*

- Stand-alone systems: one per site
- Network Systems: One server for server sites
- Barcode scanning
- Dot peen marking
- Laser etching
- Single instrument tracking
- Micro Dot



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# Instrument Tracking Benefits

*What are the benefits of instrument tracking?*

- **Inventory Management:** Tracking of stock daily and for decision making for old, new or retired items, repairs, loaners etc.
- **Quality control:** Identify source of infection, damage, loss
- **Productivity reports:** track volume, error rates, staff productivity
- **Staffing rationale:** identify work flow and efficiencies for staffing levels and budgeting
- **Efficiency:** Must demonstrate savings and improvements
- **Morale:** Improves by taking pride in ones work and in the forefront of technology
- **Outsourcing Weapon:** Valuable statistics



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# Staff Benefits

- Increased staff computer skills create numerous benefits
- Engagement and motivation
- Increased motivation
- Can see their productivity daily
- Teaching tool for management
- Communicate with users with real time data

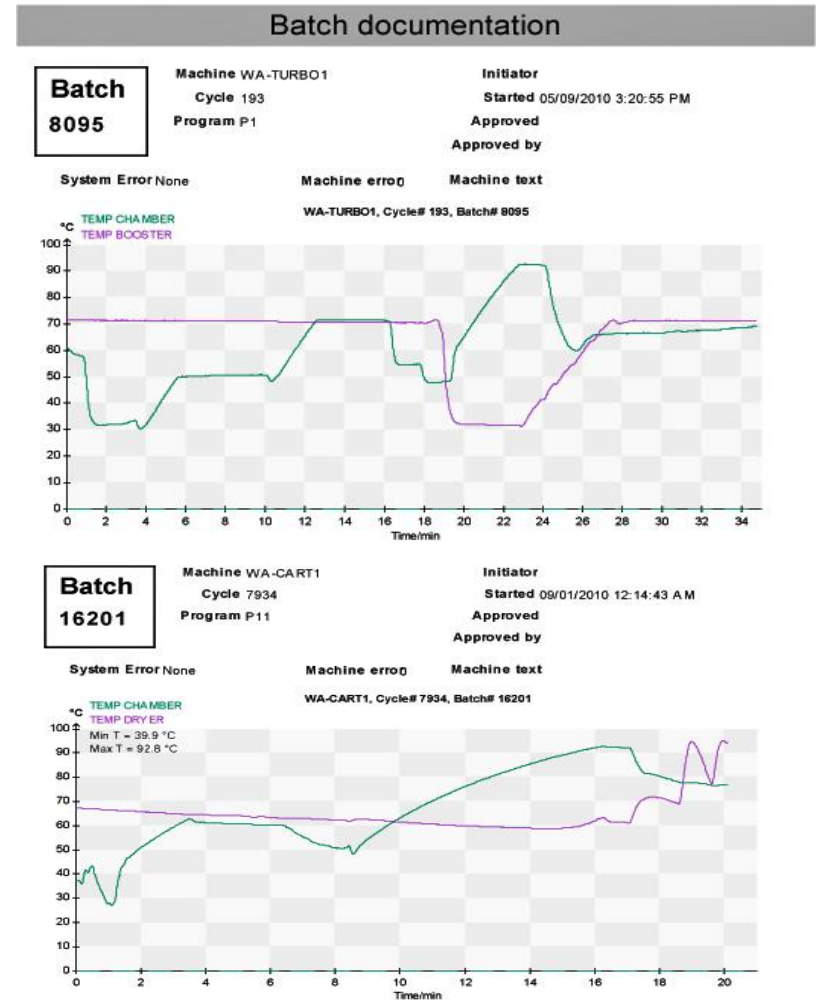


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# Quality Assurance: Decontamination

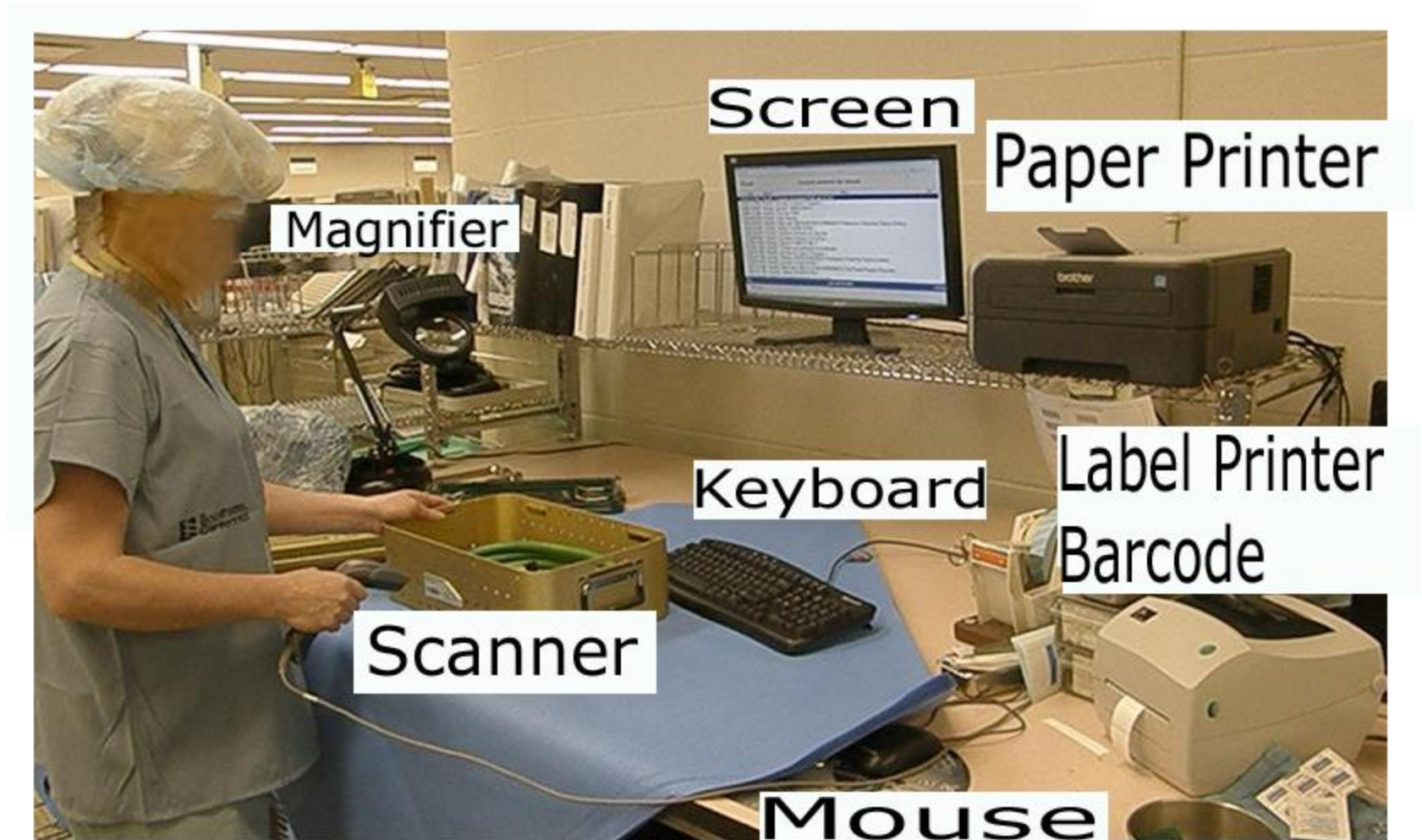
- **Tracks:** Chamber activities of turbo, tunnel, and cart washers
- **Verifies:** Compliance with parameters
- **Improves:** Staff morale



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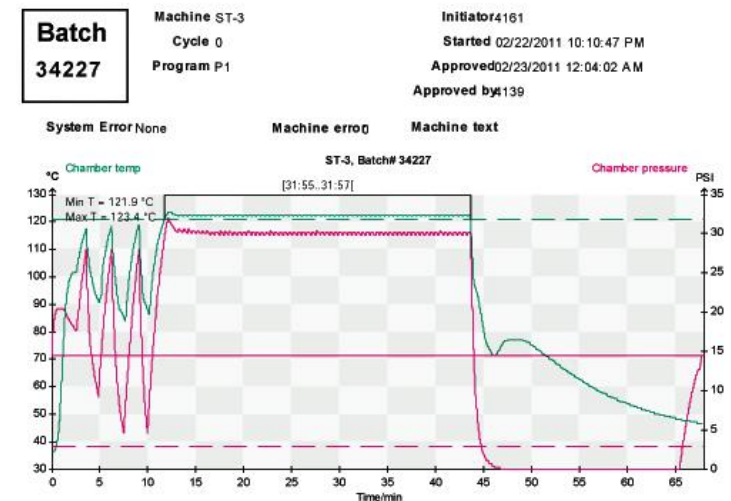
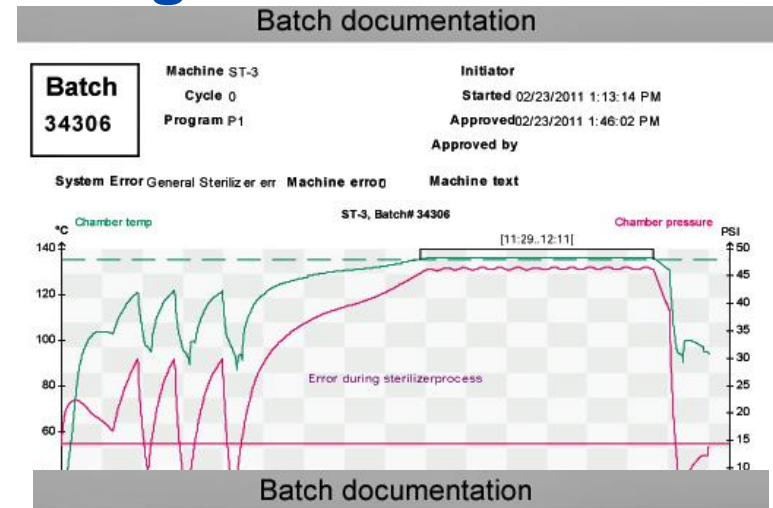
# Quality Assurance: Workstations



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# Quality Assurance: Steam Sterilizing

- Electronic module hookup to each steam sterilizer
- Paperless tracking of chamber activities
- Instant documentation
- Track in real time the chamber activity



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# Quality Assurance: Sterilization Benefits

- Provides Additional validation and reassurance
  - All loads checked against sterilizer and printer parameters
- Bookwalter retractor stat scenario
  - Sterilizer printer module failed
  - All parameters zero

DATE 02/25/11 TIME 12:17:50PM	DATE 02/25/11 TIME 11:37:47AM
MANUAL CYCLE ASORT	
CYCLE SETTINGS	
CYCLE UNWRAPPED GOODS	CYCLE UNWRAPPED GOODS
EXPOSURE TEMP 15 DEG C.	EXPOSURE TEMP 15 DEG C.
EXPOSURE TIME 00:00	EXPOSURE TIME 00:00
DRY TIME 00:00	DRY TIME 00:12
LOAD CONTENTS	LOAD CONTENTS
CONDITIONING	
EXPOSURE 00:00	EXPOSURE 00:00
CYCLE COMPLETE	CYCLE COMPLETE
CYCLE TIME 00:39	CYCLE TIME 00:00
CYCLE HAD NO CAUT. WARN	CYCLE HAD NO WARNING
VERIFIED BY	CAUTION 00 11:37:10
QUALITY ASSURANCE	
BIOLOGICAL	BIOLOGICAL
CHEMICAL	CHEMICAL
VACUUM CHECK	VACUUM CHECK
MAINTENANCE	MAINTENANCE
APPROVED BY	APPROVED BY
CYCLE NO. 000738	CYCLE NO. 000737
DAILY CYCLES 06	DAILY CYCLES 05
STERILIZER NO. 03	STERILIZER NO. 03
LOAD CONTROL NO. 0225306	LOAD CONTROL NO. 0225305
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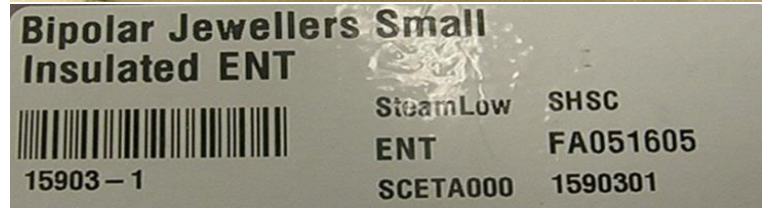


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# Quality Assurance: Scanning and Delivery

- Each case cart tracked and delivered to one of the 21 operating rooms
- Each instrument pack tracked and delivered to sterile storage



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# MDR Management Reports

*Global statistics available (Sunnybrook MDRC definition)*

- Staff productivity. Improve performance
- Labor Use. Budgeting and benchmarking
- Maximum workload staffing. Good for scheduling
- Quality assurance
- Accuracy and quality control
- Tracking systems: 100% correct 100% of the time



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# Documentation of Benefits of In-House MDR

- Ongoing validation of infection prevention and control
- Collaborative link with operating rooms
- Cost reductions
- Solid case for in-house reprocessing
  - 2 years' data prevent outsourcing of reprocessing
  - Staff and departmental functions protected through innovation



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# Sunnybrook Health Sciences Centre Medical Device Reprocessing

## *Production and Costing Summary*

Year	Total Sets (N)	Change (%)	Total Cost (\$)	Change (%)
2009	268,752		2,948,209	
2010	318,950	19	2,895,098	-2%
2011	352,524	10	2,955,098	2%
2012	409,246	16	3,025,098	2.3%



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# Conclusions

- Infection prevention and control
  - Risk management, patient, care, safety
  - Decreased risk of patient incident
- Quality assurance
  - Error control and increased efficiency
- Technology management
  - Budget control, cost control, and accountability
- Medical device reprocessing image
  - Professionalism and prestige, confidence
  - Reprocessing importance to staff, to patients, and users
  - You make it happen everyday



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# Future Innovation to Watch

- Vacuum boiling cleaning technology Japanese
- 3 zones for MDRC –
- Copper surfaces for infection control
- Formaldehyde steam as a low temp sterilization – steam stages
- 3 level endoscopic washer
- Biotak – Quantitative cleaning protocol similar to ATP
- TSO3 – In south America
- Adjustable workstation on Sinks
- Hockey Puck. Data Logger



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# Arc Health Solutions

1) Pre-Clean



Endoscope  
Cleaning Station

2) Wash &  
Disinfect



Partners  
PT3 AER

3) Dry & Store



Endoscope Storage Cabinet



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# Copper Surfaces Can Kill Off MRSA



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# Three Zone Reprocessing



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# Vacuum Boiling Washer

## Vacuum Boiling Washer Type RQ



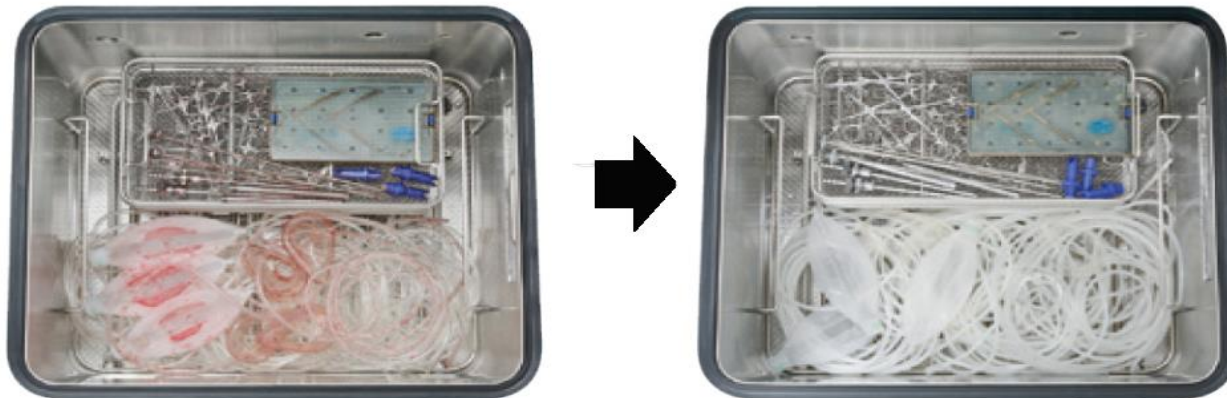
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# Vacuum Boiling Washer

## Advantage of Vacuum Boiling Washer

- Wash without removing from the case
- Wash without connecting to the ports



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# Low Temperature Steam Formaldehyde



The Process Consists of Four Stages:



Pre- Treat- ment	From- sterilisation admission	Sterilisation	Post- Treatment
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# DATA LOGGER



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# Decontamination Technology

[Play Video](#)



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**Live as if you were to die tomorrow.  
Learn as if you were to live forever  
Ghandi**



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# Thank You



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