Management Issue Arising From OT Sterilization
Infection Control?

Introduction
Aim
Section 1 - Basic Issues in Infection Control
1.1 Hand Hygiene
1.2 Personal Protective Equipment
1.3 Decontamination - Cleaning, Disinfection and Sterilization
1.4 Isolation Precautions
Section 2: Prevention of Healthcare Associated Infections
2.1 Prevention of Surgical Site Infection
2.2 Prevention of Catheter Related Urinary Tract Infection
2.3 Prevention of intravenous Catheter Related Infection
2.4 Prevention of Healthcare Associated Pneumonia
Section 3: Environmental Control
3.1 Ventilation
3.2 Environmental Hygiene
3.3 Linen Management
Section 4: Special care areas
4.1 Outreach Service
Section 5: Outbreak Management
5.1 Notification of Communicable Diseases
Section 6: Occupational Health
Section 7: Surveillance
How to Address the Significance

• Fact –finding
• Engagement of key stakeholders
• Solicit professional view
• Immediate settlement
• Governance
• Planning and Coordination
• Natural intelligence and mindfulness
Standard Workflow of CSSD for Reprocessing of Surgical Instrument

- Soiled OT sets
- Ultrasonic cleaning
- Disassembly and manual cleaning (if required)
- Washer Disinfectors
- Drying
- Decontamination Area
  - Negative Air Pressure
- OT Rooms
  - OT Clean Corridor
  - Clean Transportation
- Flash Sterilizer
- Sterilization Area
  - Sterilization
  - Positive Air Pressure
- Sterile Store
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- Packaging Area
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Decontamination & Disinfection: From Dirty to Clean
Pre-vac Sterilization
Wrap & Pre-pack OT sets

Pre-Vacuum Sterilizer
(>1 Hour Sterilization for instruments)

Flash sterilization
Un-wrap

Downward Displacement Sterilizer
(3-15 minutes) – Flash Sterilization
Instrument Tracking system

Track up to patient level VS Unable to track
Engagement of Stakeholders

- Infection Control Team
- Hospital administrator
- Operation Theatre Nurses
- Nurse in-charge of Theatre Sterilization Service Unit
- Central Sterilization Service Department
- Surgeons and anesthetists
- Facility manager
- Procurement officer
Solicit Professional View

• CICO
• ICOs
• ICNs
• CSSD nurses
• TSSU nurses
### 5.1 Identify / adopt international standards for corporate-wide practice by May 2010

| Local | Recommendations on Prevention of Surgical Site Infection  
Feb 2009, Centre for Health Protection (CHP) |
|-------|-------------------------------------------------------------------------------------------------|
|       | **Guideline to Limit Flash Sterilization**  
Mar 2010, Disinfectant / Sterilant Assessment Committee, Chief Infection Control Officer Office |
| Australia | **Evaluation of Quality & Improvement Program on Standards (EQuIP 4)**  
2006 Australian Council on Healthcare Standards |
|        | **Standards, Guidelines & Policy Statements**  
2000, Australian College of Operating Room Nurses (ACORN) |
| United State | **AS /NZS 4187: Cleaning, disinfecting & sterilizing reusable medical & surgical instruments & equipment, & maintenance of associated environments in health care facilities**  
2003, Australian/New Zealand Standard |
|        | **Guideline for disinfection & sterilization in healthcare facilities**  
2008, Centres for Disease Control (CDC) |
|        | **Comprehensive Guide to Steam Sterilization and Sterility Assurance in Health Care Facilities**  
2006, Association of Advanced Medical Instrumentation (AAMI) |
Immediate Response

- No. of surgical set is determined by turnaround time and multiple factors e.g. No. of OT rooms & schedule, operation types...

<table>
<thead>
<tr>
<th></th>
<th>Theatre-based Instrument Rooms</th>
<th>Central re-processing unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Estimated % of Routine Flash Sterilization #</td>
<td>90%</td>
<td>30%</td>
</tr>
<tr>
<td>B Estimated No. of Instrument Set</td>
<td>900</td>
<td>2,200</td>
</tr>
<tr>
<td>C No. of OT Rooms *</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>D Average Instrument Sets/OT Room</td>
<td>82</td>
<td>100</td>
</tr>
</tbody>
</table>

# Source: Survey on Sterilization Practice by CICO in Jan 2010
* Source: OTMS- OT Rooms for elective surgeries
Governance

Task Force on Sterilization Standard of Operating Theatre

Chaired by WL Cheung & HW Liu

Policy & Standard of Disinfection & Sterilization of Surgical Instrument
- Q&S, Clinicians & Nursing

Surgical Instrument Tracking & Tracing System
- Q&S, IT, Nursing & BSS

Governance Structure & Workflow
- Nursing

Facility Enhancement
- CS, Q&S & S&P
<table>
<thead>
<tr>
<th>Corporate level Hospital level</th>
<th>Immediate Issues</th>
<th>Concerns from OT staff</th>
<th>Management concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flash sterilization practice</strong></td>
<td>Explicit HA’s position on flash sterilization to align with international standards within an agreed grace period To increase CSSD/TSSU capacity to provide at least 50% instrument by using pre-vacuum autoclaving cycle, e.g.: • To extends service hour in CSSD/TSSU • To cease reprocessing OT linen • Surgical scheduling to accommodate and mitigate equipment shortage</td>
<td>To maintain workable stock level of surgical instrument, e.g.: • Purchase of additional frequently flash-sterilized items • Ensure timely delivery of instrument from vendors</td>
<td>Engage an external consultancy to review disinfection &amp; sterilization of surgical instruments, including the HA governance structure, service delivery, and to build a new CSSD / TSSU</td>
</tr>
<tr>
<td><strong>Tracking for OT instrument</strong></td>
<td>To link sterilizer batch records with patient record by using peelable adhesive label</td>
<td>Form working group for developing the electronic tracking system</td>
<td></td>
</tr>
<tr>
<td><strong>Governance structure</strong></td>
<td>Formulate governance structure at corporate level Set up cluster governance &amp; policy on disinfection &amp; sterilization</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Demarcation of clean &amp; dirty areas</strong></td>
<td>Functional separation through airflow patterns or separation of activities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Planning and Coordination

- Corporate policy & structure
- Eliminate Flash & Enhance Sterilization
- Tracking and tracing system
- Surgical instrument provision
- Central re-processing unit: Service & capacity
- Sterilization standard
Proposed Phase I (2011/12)

- Work on feasible short-term improvements
  
  1. Pilot migration from Theatre-based Instrument Rooms to central re-processing
     
    - Close down Instrument Rooms & satellite sterilization sites
    
    - Achieve 80% pre-vacuum sterilization of surgical instrument for elective surgeries
    
    - Testify the feasibility and cost-effectiveness of migration to central re-processing unit
  
  2. Eliminating flash sterilization for critical instruments
  
  3. Preparation for corporate tracking & tracing system

- Communicate to stakeholders
## Proposal for Phase I (2011/12)

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>HAHO</th>
</tr>
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<tr>
<td>Migration to Central Re-processing Unit</td>
<td>➢ TMH CSSD modification</td>
<td>-</td>
<td>➢ Migrate Instrument Room to TSSU</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td>Elimination of Routine Flash Sterilization</td>
<td>➢ Eliminate 80% flash sterilization in TMH OT</td>
<td>➢ Additional telescopes &amp; critical instruments</td>
<td>➢ Eliminate 25% flash sterilization practices</td>
<td>➢ Additional critical instruments ➢ Eliminate 40% flash sterilization</td>
<td>➢ Additional telescopes</td>
<td></td>
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Shaded items can achieve targets of Phase I: $79.35Mn

- $ from OLV
- $ from MX8100
- $ from CBV
- $ (Consultancy) ??

Proposal for Phase I (2011/12)

$ from OLV $ from MX8100 $ from CBV $ (Consultancy) ??
Migration of the Theatre-based Sterilization to Centralized Sterilization

In its recent survey, the Australian Council on Healthcare Standards (ACHS) has recommended a number of areas for improvement for HA to address the identified problems in disinfection and sterilization practices, such as routine use of flash sterilization and lack of tracking and tracing system for reusable medical devices. An Expert Group in HAHO was formed with the aim of formulating updated HA standards and practices on disinfection and sterilization. “Guideline on Disinfection and Sterilization of Reusable Medical Devices for Operating Theatre” will be released to align the practices and meet the requirements.

To learn more, please visit the Quality & Safety Division website. http://qsd.home

Number of Operating Room for Elective Surgery Using Sterilization Services

<table>
<thead>
<tr>
<th>Sterilization Services Provided By:</th>
<th>New Territories East Cluster</th>
<th>Kowloon East Cluster</th>
<th>Cluster A</th>
<th>Cluster B</th>
<th>Cluster C</th>
<th>Cluster D</th>
<th>Cluster E</th>
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<tr>
<td>TSSU/CSSD</td>
<td>24</td>
<td>19</td>
<td>17</td>
<td>22</td>
<td>23</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Instrument Room</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>22</td>
<td>6</td>
<td>8</td>
<td>11</td>
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TSSU : Theatre Sterile Supplies Unit  CSSD : Central Sterile Supplies Department

Source: Operating Theatre Management System, 2010
Major Issues Pending Resolution

1. Formulating service model e.g. rationalization & centralization
2. Modernizing practices e.g. use of disposal linen
3. Matching capital planning e.g. decanting service

Enhance Standards of Sterilization and Disinfection

Conduct external consultancy based on the evaluation of the pilot migration

- Full migration of Theatre-based Instrument Rooms to CSSD/TSSU
- Standard of surgical instrument provision
- Rationalization of CSSD/TSSU services
Natural Intelligence

- Migration from theatre base to centralized process unit
- Catalogue of surgical instrument development
- IT tracking to serve financing, procurement, and supply of sterilized tracking system
- Sterilization standards
- OT external consultancy for sterilization on unknown areas
Level 5 Leadership: Humility + Will

Based on Jim Collins article, “Level 5 Leadership: The Triumph of Humility and Fierce Resolve”, in Best Of HBR, HBR, July-August, 2005, p.136-146