DESIGN OF THE CENTRALISED ENDOSCOPE DECONTAMINATION UNIT AT QEHB

Christina Bradley
Hospital Infection Research Laboratory
Queen Elizabeth Hospital
Birmingham, UK

tina.bradley@uhb.nhs.uk
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HIRL prides itself on its impartiality when dealing with industry so advice was provided by HIRL to hospital staff on what to look for when selecting decontamination equipment but was not involved in the final selection process.
QUEEN ELIZABETH HOSPITAL BIRMINGHAM
QEHB

- 1300 in patient beds
- 100 Critical care beds
- 30 operating theatres
- 44% single rooms
- Off-site SSD provider
9 separate reprocessing facilities with different washer disinfectors
- QED
- QE theatres
- E5 (QE ENT ward)
- QE ENT OPD
- Neurology Theatres
- Cardiology (TOE probes)
- SOH theatres
- SOH ward B2
- SOH ENT OPD
ISSUES WITH OLD SET UP

- Too many machines located in areas not designed for endoscope decontamination
- Too many operators – training problems especially in theatres
- Lack of standardisation in practices
LOCATION OPTIONS

1. Centralised away from the procedure rooms
   - Potential delays for busy endoscopy lists. No SSD on site

2. Adjacent to procedure room for all areas
   - Configure clinical services around endoscopy suite

3. Adjacent to procedure room for busy areas e.g. endoscopy with transfer of clean and dirty endoscopes to/from peripheral areas
ENVIROMENT DESIGN AND LAYOUT

- Dedicated decontamination area with restricted access
- Separate dirty, clean and storage areas
- One-way flow for equipment
- Suitable facilities for manual cleaning
ENDOSCOPE FLOW

Dirty receipt

Manual cleaning and leak test

Loading of AER

Unloading from AER

Storage
DECONTAMINATION AREA

- Hand washing
- Protective clothing station – gloves, apron, visor
- Manual cleaning sink
  - Detergent dispenser
  - Sufficient depth and diameter to accommodate the endoscope without excessive coiling
  - Rise and fall sink
  - Leak equipment
- Rinsing sink
CLEAN AREA

- Hand washing
- Tables
- Trolleys
- Trays
- Storage/drying cabinets
- Documentation
- Hatch
WHY CLEAN AND DIRTY SEPARATION?

- Reduce risk of cross contamination
  - Aerosol production
  - Hand contamination
  - No shared surfaces
- Reduce risk of using an unprocessed endoscope
  - Direct from procedure room
  - After manual cleaning prior to AER
TRANSPORT
ENDOSCOPE WASHER DISINFECTORS
FACTORS TO CONSIDER

- Compliance with EN ISO 15883–1 and 4, HTM 2030 (CFPP 01–06)
- Foot print – h, w, d
- Single door or double door
- Service requirements – power, water, drainage, ventilation
- Quality of water supply
- Cycle length
FACTORS TO CONSIDER

- Number of endoscopes processed
- Capacity for larger endoscopes
- Connectors for all endoscopes
- Chemicals – single or multi use
- Chemical compatibility with endoscopes
- Ease of use
HOW MANY WD’s?

- Workload
  - Per day
  - Distribution during the day
- Downtime for servicing, testing and breakdowns
- Time for machine disinfection
- Cycle length
- Number of endoscopes per chamber
- Use of endoscope drying cabinets
UHB ENDOSCOPY WORKFLOW

Before 07.00
07.00-08.00
08.00-09.00
09.00-10.00
10.00-11.00
11.00-12.00
12.00-13.00
13.00-14.00
14.00-15.00
15.00-16.00
16.00-17.00
17.00-18.00
18.00-19.00
19.00-20.00
After 20.00

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
WHY
Short cycle time – 25 minutes
Water treatment built in – RO
Process 2 endoscopes/cycle
Nasendoscopes
- 4 scopes per cycle
TOE Probes

TOE probes from Cardiology and theatres processed in UVC cabinet
MANUAL CLEANING
MANUAL CLEANING

- Neutral detergent
- Dosing system
- Automated irrigation device
- Single use channel cleaning devices
- PPE
- Long sleeved gowns, gloves, facial visor
INDIVIDUAL ENDOSCOPE STORAGE

Used for ITU bronchoscope and ENT ward nasendoscopes
OTHER THINGS TO CONSIDER

- Ensure sufficient storage for chemicals and other consumables
- Installation of traceability system to coincide with opening of unit
- Good communications with endoscope users
- Correct number of staff but distribution of hours constantly under review
DISCUSSIONS WITH ENDOSCOPY STAFF

- Explained the proposal to move to technicians delivering the decontamination service
- Release nurses from decontamination duties
- Managed by Decontamination Service
- Initially, wary of “relinquishing control of their endoscopes”
- Now – unanimous support from GI medics and nurses
STAFFING OF DECONTAMINATION FACILITY

**Pros**
- Traditional
- Ready pool of staff
- Training for out of hours

**Cons**
- Inappropriate use of trained staff

**Pros**
- Releases nurses to do nursing duties
- Less expensive

**Cons**
- Out of hours service provision
- Can staff be trained to appropriate level
Out–patient endoscopy – attached to decontamination unit – 5 drying cabinets
In–patient endoscopy – 1 drying cabinet
Theatres – 2 drying cabinets (also serves ITU)
Ambulatory care theatres – 1 drying cabinet
ENT OPD – 1 drying cabinet
STAFFING

- 2010
  - 7 WTE – Band 2
- 2014
  - 9.5 WTE – Bands 2 and 3
OPENING HOURS

- Monday to Friday
  - 7am to 8pm (last procedure scheduled for 7pm)
- Saturday and public holidays
  - 8am to 4pm

Out of hours – pre-clean procedure carried out by nursing staff and endoscope placed in tray with red cover until next day.
WORKLOAD/week

- January 362
- February 392
- July 775
- August 502
- September 854

- Largest increases in TOE probes, gastroscopy and nasendoscopy
WHAT HAVE WE LEARNED?

- **Set up a design and advisory team**
  - User
  - Infection Control input is essential
  - Decontamination Advisor
  - Estates and planning
  - AE(D)

- **Procurement** – establish all costs – pre and post rebuild or refurbishment – any savings to be made

- **Establish workload and allow capacity for maintenance and testing of washer disinfectors and increase in workload**

- **Management support**

- **Continuous vigilance required**
THANK YOU FOR LISTENING