Environmental Monitoring

Purpose

- To effectively detect an adverse change in microbial population within the department.
- Where applicable, allow for the identification of predominant organisms.
- Facilitate the identification of equipment failure, sanitisation practices, personnel habits, or training deficiencies and subsequently allow implementation of corrective actions
- To provide robust records to evidence environmental control

Environmental Monitoring – General

- Environmental monitoring should form part of the day to day management and become instituted in the quality assurance/control systems.
- Personnel should be identified and suitably trained in undertaking environmental monitoring.
- The frequency of audit/ monitoring should be determined.
- Environmental monitoring should include air, contact surfaces, water and compressed air and/or gasses.
- Personnel and protective equipment my also be monitored.

Air Monitoring - Microbiological methods

- **Settle Plate Analysis**

Passive settling of microbes using 90mm diameter ‘settle’ plates which contain either Tryptone Soya Agar (TSA) or Sabaroud Dextrose Agar (SDA).

Typical exposure time 1-4 hours

Active Air (impaction) sampling

Surface monitoring - Contact plate Analysis

- Flat surfaces
- Plates - 55mm dia. Area ~ 25cm2. TSA and SBA. Disinfectant neutraliser

- Swabbing :- For those difficult to get to places.

ATP bioluminescence

- Rapid screening of surfaces
- Detect Viable Bacteria
- Can be useful in determining efficacy of cleaning and disinfection.

- Concentration of ATP is dependant on the stage of growth of organisms
- Need validating in-house

Monitoring Programme

A monitoring plan (locations) of the sampling sites will typically include:-

- Close to where RIMDs are handled and stored
- Air inflows
- Areas of high activity
- Problem areas

- Immediately prior to or after disinfection?

- Monitor manned/ unmanned

Settle Plate	Position
S1	Entrance of Packing Room
S2	Middle of Packing Room Near Surgical Washer
S3	Front Work Bench
S4	Middle Work Bench
S5	Back Left Work Bench
S6	Back Right Work Bench
S7	Single Instrument Packing Room
S8	Left Hand Side Window Sill
S9	Right Hand Side Window Sill
S10	Middle of Room beside Autoclave room
S11	Middle of autoclave room
S12	Sterile goods store room
S13	Sterilisation Dispatch Room
S14	Lobby
S15	Sink in lobby

Contact Plate	Position
C1	Entrance door handle
C2	AER Washer Left Hand Chamber Door
C3	AER Washer Right Hand Chamber Door
C4	Surgical Washer 2 Panel
C5	Surgical Washer 1 Panel
C6	Middle Workbench surface
C7	Back Left Workbench surface
C8	Back Right Workbench surface
C9	Front Workbench Surface
C10	Door Handle on cabinet on front bench
C11	Single Instrument Packing Room workbench
C12	Autoclave room door handle
C13	Autoclave room work bench surface
C14	Sterilisation room exit internal door handle
C15	RHS autoclave control panel

Frequency of monitoring

- Base on a typical programme for a Class 8 Facility.

- Settle plates – monthly
- Contact plates – weekly
- Active air sampling – monthly (if used)
- Unusual circumstances i.e. breakdown, maintenance or change in practices

Analysis

Settle Plates	Tryptose soya agar (TSA)	Sabaroud Dextrose agar (SDA)
Target microbes	**Broad range of bacteria, some yeasts and moulds**	**Mainly yeasts and moulds**
Exposure time	1 -4 hours	1 - 4 hours
Incubation temperature	**30 -35°C**	**20 -25°C**
Incubation time	3 days (5 days to show moulds)	5 days
Results reported as:	**Colony-forming units/plate**	**Colony-forming units/ plate**

Particle analysers