THEATRE DESIGN

4 zones
- Outer zone (rest of hospital) — close to facilities
- Clean zone (reception to theatre doors)
- Aseptic zone
- Disposal zone

Forced air duvet / Mattress

Temp 20°C with warming blanket for pt
> 24°C ↑ risk of infection & ↓ cement working time

Humidity 40–60%

Illumination 40 000 lux — No shadows & adjustable

Ventilation ultra clean laminar flow < 10 colony forming units/M^3

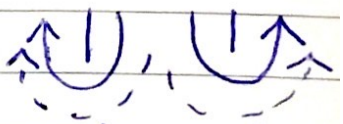
High efficiency particulate air filters (HEPA filters) clean air
filter particles 0.5μM size.

2 systems of ventilation

Plenum = Pressure in theatre > outside (15–25 air changes per hr)

Laminar flow = entire body of air (in designated space) moving in same direction at same speed

3 types:
1. Horizontal – Not practical (furniture & people)
2. Vertical Enclosure with panels from ceiling
   Entrainment causes dysfunction (Exponential)
3. Ex-flow system (Howorth enclosure)



Lidwell MRC ~~RCT~~ (1982) 8000 hip & knee replacements
Vertical laminar flow ↓ wound contamination & deep wound sepsis
More effective than horizontal laminar flow

Sliding doors

Charley 1972 CORR
↓ 7% → 0.5%

Lidwell MRC 1987
3.4% → 1.7% → 0.4% Did not randomise for ABx use
Non clean air theatre → Clean air → AB

Bi Lancet 2017
No benefit to Lower

Brand
Registry study – No benefit

Hooper BJJ 2010 & space suits
NZ jt registry ↑ risk with laminar flow

Thomas BJJ 2018 RNOH "The Mechanism"
Registry data no good as end point revision
∴ under report
MRC results still valid

Pinder BJJ 2016
Laminar flow ↑ SSI in NOF cf plenum
n = 800 000 2008 – 2013