Creating the Ward Environment with Visible Light Activated Photocatalyst
Can reduce the Hospital Acquired Infection Rate

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Introduction:
Is there room for improvement in our current infection control strategy?
- At any time, 6-10% in-patient suffered from hospital acquired infection.1,2
- Current infection control relies on index case isolation and vector control (hand hygiene).
  
Compliance is not optimal (and will hardly be perfect) (3).
- Little attention is paid to a cleaner and safer environment.

Is the ward environment safe?
- Ward environment is known to serve as a secondary reservoir for pathogen.
  
Even decontamination procedure cannot guarantee disinfection.
- > 99% bactericidal rate for wide spectrum of bacteria and virus.
  
Recommended by Japan and Malaysian government for infection control in the community.

Visible light activated photocatalyst
- Commercial product with good safety profile.
  
It decomposes all organic material if illuminated by visible light.
- > 99% bactericidal for wide spectrum of bacteria and virus.
  
Recommended by Japan and Malaysian government for infection control in the community.

Methodology:
Study group:
- Patients admitted to the 2 coated cubicles of the male orthopaedic rehabilitation ward in Sandy Bay.
  
Coated area included wall, door, handle, furniture, and mattress.

Control group:
- Patients admitted to 2 uncoated cubicles of the same ward.

Outcome:
- Environmental cleanliness was monitored by Hygeina SystemSure Plus ATP luminometer.
  
Clinical outcome included surgical site infection (SSI) rate, influenza like infection (ILI) rate, pneumonia, urinary tract infection (UTI) rate.
  
Episodes of fever and use of antibiotics were also recorded.

Study period:
- From August-2010 to March-2011.

Result:
106 patients were recruited in the study, contributing a total of 1589 bed-day. The mean age was 78.6 year-old, of no significant difference between the groups.

Conclusion:
Visible light photocatalyst can reduce 94.2% of the total microbial load of ward environment.

A 53.2% reduction in hospital acquired infection rate is noted in patient admitted to the visible light photocatalyst coated cubicles.

Reference:

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