95%
REDUCTION
IN BACTERIA

IN A NURSING HOME

The role of nursing homes has expanded in recent years as a result of a growing elderly population, a consequential rise in chronic geriatric conditions and a shift of care delivery from the acute to residential setting.

Like in hospital settings, outbreaks of MRSA and other harmful bacteria are a continuous threat. Nursing home acquired infection is complex with a range of contributing factors including chronic illnesses, recent hospital admission, the presence of healthcare workers, care provided by family members and the use of antibiotics.

The introduction of the Health and Social Care Act 2008 and the Care Quality Commission has lead to health and social care establishments implementing infection control strategies aimed at breaking the chain of cross-contamination between sources of harmful bacteria and patients.

BioCote Ltd works with manufacturers to incorporate silver ion technology into their products at the time of manufacture, making the surfaces of the finished products antimicrobial. Antimicrobial products are being used by the medical community to reduce both levels of contamination and HCAIs in the healthcare environment.

This study is the first to investigate the effectiveness of silver ion (BioCote®) treated products in a nursing home setting, by measuring their ability to reduce levels of microbial contamination.

Study

During refurbishment of a nursing home in Leicester, one residence, comprising of a bedroom and bathroom was refitted with a range of BioCote® treated antimicrobial products (Unit A) and another with untreated, comparable products, to serve as the control (Unit B). Both units were occupied by single residents for the length of the study and were cleaned by nursing home staff on a daily basis.

Swabs were collected from treated and untreated surfaces located in the bedroom and bathroom of each unit over a five month period. They were processed for total counts of bacteria and results expressed as average counts of colony forming units (CFUs). A number of untreated products were also positioned and swabbed in unit A.

Results

The following observations were made:

• The average difference in bacterial counts between all BioCote® treated products in Unit A and all untreated products in Unit B was 94.8%.

• The average difference in bacterial counts between all BioCote® treated products and all untreated products in the bedroom areas was 97.2%.

• The average difference in bacterial counts between all BioCote® treated products and all untreated products in the bathroom areas was 92.4%.

• An untreated chair in Unit A harboured an average of 72% less bacteria than the equivalent chair in Unit B.

• The average bacterial count per swab collected from Unit A before the inclusion of BioCote® treated products was 2375 CFU and during the study was 65 CFU. The average bacterial count per swab collected from Unit B during the study was 1952 CFU.

Table 1: Unit A - BioCote® treated vs Unit B - Untreated % reduction of CFU counts, on products

Product	% Reduction
Door	76%
Door handle	80%
Architrave	90%
Light switch	23%
Radiator guard	89%
Bed	99%
Wardrobe	92%
Bedside table	92%
Bin	99%
Curtains	61%
Safety rail	68%
Hand wash basin	98%
Tap	98%
Moulded sheet tiles	99%
Soap dispenser	68%
Toilet seat	89%

Differences in average bacterial counts between Unit A and Unit B in this study.

Unit A with a number of BioCote® treated products	94.8% overall average bacteria reduction	Unit B with untreated products
Bathroom	92.4% average bacteria reduction	Bathroom
Bedroom	97.2% average bacteria reduction	Bedroom

Average bacteria count per swab:
65 CFU

Average bacteria count per swab:
1952 CFU

Conclusions

This study provides evidence that products treated with silver ion antimicrobial technology can reduce contamination in the nursing home environment. Results showed there were fewer bacteria contaminating the surfaces of both treated and untreated products in Unit A.

The untreated products in Unit A also harboured less bacteria than their equivalent products in Unit B. The lower bacterial counts on BioCote® treated surfaces may have resulted in the lower counts on untreated surfaces, because there were fewer bacteria being transferred from one to the other. Using a number of antimicrobial objects in a healthcare environment may, therefore, help the decontamination of the wider environment.

Both treated and untreated products were cleaned according to the same regime, so whatever decontamination was achieved by the BioCote® products was in addition to the effect of normal cleaning. BioCote® treated products can be used alongside cleaning practices to help sustain low levels of bacteria on surfaces and in the wider healthcare environment.

A reduction of 95% in bacterial contamination can be viewed as a desirable feature of a nursing home environment. A number of studies have shown that cleaning and decontamination may help reduce nursing home-acquired infections. Further research is required to investigate the clinical outcomes of BioCote® protected products.

BioCote®