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CPD Article

Published on 12 November 2019 14:35

Understanding Infection Control with the use of Carpets

There is a common misconception that there can be infection control issues with having carpet within healthcare settings including residential care homes and mental health facilities. This CPD Article looks at various studies and research findings around some of the common misconceptions of the use of carpets within non-clinical healthcare environments with a focus on infection control and cleaning. danfloor's research failed to discover any papers advising against the use of carpeting in non-clinical healthcare facilities, including bedrooms in mental health units. Infact there are many theraputice benefts to having a soft flooring finish within care environments including; creating an acoustically sound environment, improved air quality, increased comfort under foot and that all important home from home feeling.

Key Learning outcomes

- Gain an understanding of why carpets shouldn't be considered as a hotpsot for the spread of infections
- Appreciate that carpets are no more susceptible to contamination by fungi and bacteria than any other surfaces within a healthcare environment

1.0 Do carpets create a hot spot for the spread of infections?

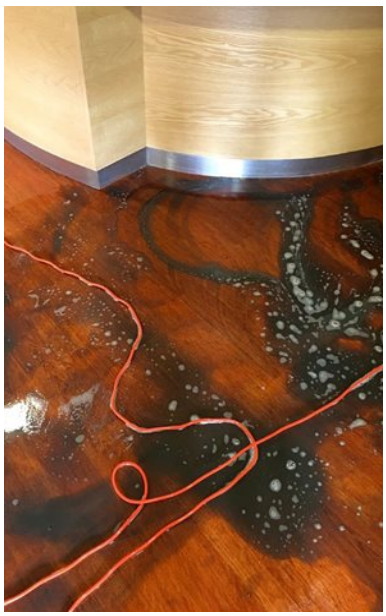
Within care environments, especially mental health facilities, infection prevention and control teams have an input into the specification of floor coverings. Often these advisors come from a clinical NHS background and apply their expertise and experience to their recommendations for non-clinical environments, which are very different care facilities and require a different approach to interior design.

As previously mentioned, there are many therapeutic benefits to using carpet within care environments so if you do encounter an opinion that carpets create a hot spot for the spread of infection, then it's useful to site research by Dr Stephanie Dancer from NHS Lanarkshire.

Dr Dancer found that the most common MRSA sites within hospitals were that of bed linen, gowns and tables, items that people come into direct contact with on a regular basis, rather than floors. Dr Dancer states "Visual assessment is no longer acceptable for grading hygiene . . . Locating the site of potential pathogens is an area that requires further work. Prioritizing the cleaning of floors and toilets is not necessarily the answer to controlling hospital-acquired infection (HAI). Pathogens are delivered to patients on hands, and … prioritising hand-touch sites might be more appropriate to consider when directing cleaning schedules." to combat the spread of such infectious diseases.

Dr Dancer calls "for extra attention to be given to sites which might look "clean" but were likely to harbour germs. One study found that even when up to 91% of a hospital's wards seemed visibly clean, they were only 30 to 45% microbially clean."

Proffesor Dr Markus Dettenkoffer, who in 2013 was the acting Director of the institute of Environmental Medicine and Hospital Hygiene, stated in response to Dr Dancers findings that "Floors and walls are not critical surfaces – these types of surfaces are in fact hardly ever the source of nosocomial infections – but objects and surfaces with frequent hand contact are."



Hard flooring may appear clean to the eye but isn't always clean. The owner of this floor thought the black spots were part of the design – it was in fact dirt.

2.0 Are carpets susceptible to contamination by fungi and bacteria?

Micro-organisms are part of our everyday lives and include many diverse organisms. They include bacteria, fungi, yeast and algae that are found wherever moisture, temperature and food sources allow. Some of these organisms are beneficial and a natural part of our environment. Others can cause serious problems including deterioration, defacement, rotting, surface degradation, staining, and health problems ranging from simple discomfort to physical irritation, allergic sensation, toxic responses and infection.

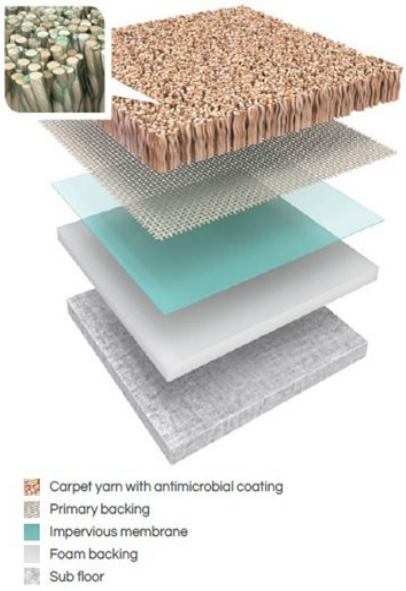
Additionally, carpets require the need to control microscopic arthropods such as mites. Mites are associated with dirt and dust and their presence in carpeting has been linked to allergenic responses in humans. The ability to make surfaces and carpeting resistant to microbial contamination has advantages and values in many applications and market segments where carpeting is used.

Any floor covering, whether it be hard flooring or carpet, that's not maintained properly, or engineered to combat the growth of bacterial contaminants, may become susceptible to the growth of mould and bacteria, which is one of the most common causes of odour issues in flooring.

However, A rigorous study conducted by Lankford et al (2006) suggests that certain pathogens such as VRE (Vancomycin-resistant enterococci) survive less well or for shorter periods on carpet than on other floor coverings, including rubber tile, linoleum, vinyl sheet goods, and vinyl composition tile. In addition to discovering that carpet harbours less VRE, this research found that carpeting also transferred less VRE to hands via contact than rubber and vinyl flooring and performed as well in cleaning as any other flooring tested.

Furthermore carpets that are treated with an anti-microbial yarn coating provide a permanent barrier against microbes and inhibit bacterial and fungal growth.

Some anti-mircobial treatments are based on the fixation of a non-migrating permanent coating on the carpet fibres. The coating acts a little like a sword, stabbing the cell membrane when it comes into contact with the carpet fibre and deactivating the microorganisms. Some offer up to a 4 log reduction (99.99%) in bacteria, including the likes of MRSA. Therefore carpets which are maintained properly and include such a coating will help combat the spread of infection.



This diagram shows the composition of a carpet engineered for the Care sector. It includes an anti-microbial yarn treatment and an impervious membrane.

3.0 Infection control say carpets are not allowed – is this true?

The Health Building Note 00-09 - Infection control in the built environment (DH 2013) advises that carpets should not be used in clinical areas, or areas where there is high risk of blood and body fluid spillages, but are acceptable elsewhere for example in interview rooms, counselling suits, waiting rooms and consulting rooms. However a clearly defined maintenance and cleaning programme must be in place.

In addition to this the notes also state –" Where the care environment is also a person's home, such as a residential setting for people with a learning disability, carpets may be acceptable. The use of carpets may be appropriate in such facilities but the need for frequent cleaning should be considered in the design stage, both in the choice of carpet and its continued maintenance."

Furthermore the Care Quality Commission (CQC) states – "Carpets - There is no legislation that forces you to replace your carpets in favour of hard flooring or lino. You can have carpets as long as you keep them clean and infection free."

The following learning point will clearly explain that a proper cleaning and maintenance programme for carpet is no more difficult or expensive than one that maintains a hard flooring finish properly.

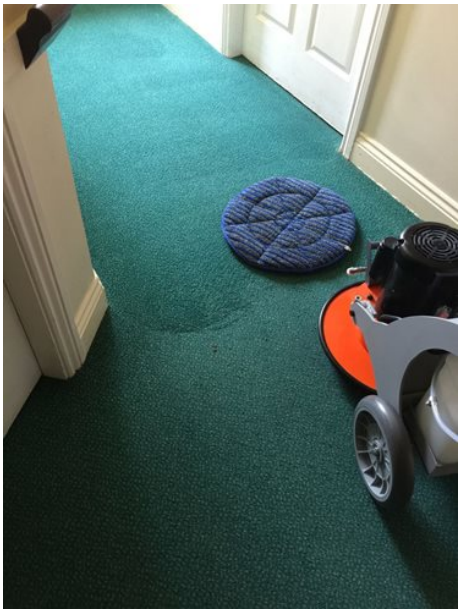
The installation of carpet brings with it many therapeutic benefits including a reduction in sound impact and that all important home from home feeling.

4.0 Is carpet any more expensive to maintain than hard flooring?

Referring to the point above both the Health Building Notes and CQC state that carpets are acceptable, but a pre-planned cleaning and maintenance schedule must be in place. There is a common misconception that carpets are more difficult and costly to clean than other hard flooring options like lino, vinyl and laminate, however this is not the case and many studies have been conducted into Carpet Lifecycle costs, cleaning costs and energy saving costs from the use of carpet.

One of these studies included a life cycle cost analysis for floor coverings in school facilities by the Institute, Cleaning and Restoration Certification. It found that Carpet could be 65% less expensive to maintain than hard surface flooring. Additional research studies also suggest that carpets come over very favourably when it comes to the costs, time and difficulties of cleaning various floor finishes. Just because a hard floor finish looks clean it doesn't always mean it is. On an annual basis research suggests that it takes two-and-a-half times longer to clean hard floors than carpet and the cleaning chemicals needed for hard floors are seven times more expensive.

In addition to the above cost savings, carpet acts as a thermal insulator, it improves energy consumption and has low heat conduction. Therefore, it's estimated that energy savings of between 8-13% can be achieved with the installation of carpet and a reduction in energy costs can also be experienced.



Carpets are actually two and half times quicker and seven times less expensive to clean than other hard flooring options, making them ideal for the non-clinical care sector.