

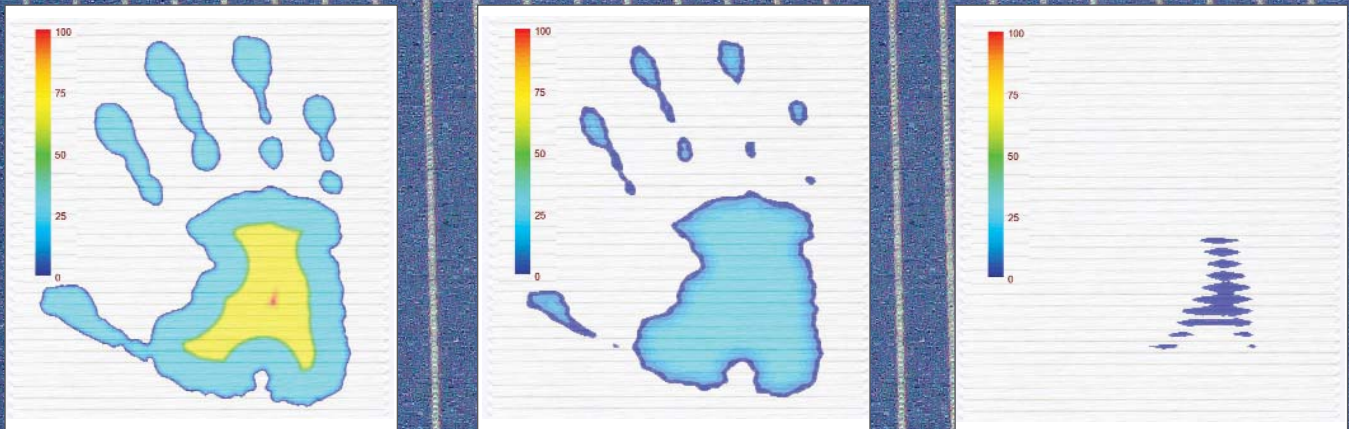
A Silver Lining in Healthcare Fabrics

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It might come as a surprise to realize that many patients pick up infections after entering the hospital environment. During the last few years, a hospital “superbug” has appeared in the UK called MRSA (methicillin resistant staphylococcus aureus), which has been particularly resistant to drugs. Responsible for up to 5,000 deaths a year in the UK’s National Health Service (NHS) hospitals, the average cost of treating a patient with MRSA is about three times that of a non-infected patient.

For generations, silver has been known to have anti-microbial properties, even though the reasons were never understood. For example, on old sailing ships, dropping a silver coin into water barrels helped to keep the



A hand print on a swatch of See-it-Safe Toray fabric shows the concentration of MRSA bugs a) initially, b) after 20 minutes, and c) after 50 minutes; within 60 minutes, 99.9% of the contamination has been removed; a sample of the fabric is shown in the background

water pure and drinkable during long voyages. At Toray Textiles Europe Ltd. the potential of weaving silver into textiles used for pajamas, bedding, surgical gowns, and drapes has recently been explored as a mechanism for killing hospital bugs that are otherwise difficult to treat. The silver threads are typically 70 denier (or 70g per 9000m) in diameter and spaced 5mm apart. When exposed to water: humidity in the air or moisture on the skin, a silver ion film forms over the surface of the fabric. This film of silver ions attacks any microbes on the surface of the clothing, killing them quickly and maintaining a healthy environment for patients with wounds to be healed. Rigorous scientific studies have been carried out to verify

the effectiveness of the cloth. The preliminary findings showed that Toray's silver threaded See-it-Safe™ textiles will kill 99.99% of MRSA-type germs within one hour of being exposed.

In addition to laboratory tests, CFD was used to simulate the behavior of the silver ion film on a typical section of See-it-Safe fabric for different silver thread weave spacings. CFD is also being used to visualize the complex anti-microbial behavior going on in the fabric so that hospital workers and non-medical industry professionals can understand the hidden action of this smart fabric.

Toray has begun clinical trials on their fabrics, based on recommendations by the NHS Rapid Review Panel,

and these are ongoing at Newham University Hospital in East London. If the fabric continues to demonstrate the successful outcomes reported so far, it could transform British health-care so that all patients will be required to wear pajamas containing silver threads in the future. ■

For more information

Toray Textiles Europe Ltd:

<http://www.seeitsafe.co.uk/>