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## **TAKING HYGIENE MEASURES TO PREVENT HOSPITAL-ACQUIRED INFECTIONS: A CASE STUDY AT THE UNIVERSITY HOSPITAL BASEL CONFIRMS THE HIGH EFFECTIVENESS OF AN ANTIMICROBIAL COATING ON ADHESIVE FILMS.**

**In a clinical study that lasted several months, the effectiveness of antimicrobial treated surfaces against hospital pathogens was examined under real-life conditions at the University Hospital Basel in Switzerland. The research team, headed by Prof. Dr. Andreas Widmer and Dr. R. Frei, confirmed that the HEXIS S.A.S. PURE ZONE® adhesive film Sanitized® treated developed jointly has 98 % effectiveness against microbes. The results were first published in the peer-reviewed scientific journal “Antimicrobial Resistance & Infection Control”. The study was supported by Innosuisse, the Swiss Innovation Agency.**

Despite improvement in hygiene measures, it is estimated that hospital-acquired infections claim 37,000 human lives in the EU every year, whereas in the United States, they claim over 98,000 lives. In addition, high economic losses are involved. Therefore, the development and research into the effectiveness of hygiene measures is critical, since the microbes that cause infections can survive on surfaces for hours or even months and be spread from there. One current field of research are antimicrobial coatings.

A case study at the University Hospital Basel headed by Prof. Dr. Andreas Widmer and Dr. R. Frei addressed the issue of whether and how effectively the antimicrobial coated plastic adhesive film from Hexis S.A.S. acts against the cause of what are commonly known as hospital-acquired infections (HAI).

In this study, the commercially available PURZON060B adhesive film by HEXIS S.A.S. was tested, which is a flexible and transparent product with a silver-ion-based active ingredient supplied by SANITIZED.

### **Study setting: Frequently touched surfaces, with and without a Sanitized® treated coating**

A real-life situation was created by focusing the study on frequently touched surfaces in six patient rooms, three in the surgical and three in the medical department. Specifically, overbed tables, bedside tables, arm rests of patient chairs, dining tables, toilet seats, and toilet flush handles were included. The Sanitized® treated film was applied onto half of the surface, while the other half remained in its original state and served as the control surface (Fig. 1).

During the study's several-month duration, the patients' rooms were cleaned normally once a day, and the bathrooms were disinfected once a day. Swabs from the treated and untreated surfaces were taken twice a week from a 25 cm<sup>2</sup> area and examined for microorganisms. The number of microbes was determined by plating on culture media, and isolates were examined for clinically relevant pathogens such as *Staphylococcus aureus* (incl. MRSA).



**Long-term effect: A clear and significant reduction in pathogens.**

All in all, 403 swabs were analyzed. The Sanitized® treated film led to a reduction in total viable count of 98.4 % across all six different surface types. The largest reduction was measured on the toilet seats and on the toilet flush handles (99 %). In addition, the scientists have confirmed a highly significant reduction of pathogens, particularly enterococci. Their multi-resistant strains can survive on dry surfaces for up to four years and they were responsible for a nationwide outbreak in Swiss hospitals in 2017, which could only be contained after two years.

The long-term effect of the treated Sanitized® PURZON060B adhesive film by HEXIS S.A.S was confirmed by repeating the measurement after six months. "A long-lasting antimicrobial surface supports hygiene management in hospitals and care facilities," explains Michael Lüthi, CEO SANITIZED AG.

"The study results show that antimicrobial-treated surfaces can make a valuable contribution to preventing the spread of multidrug-resistant pathogens in hospitals. Even daily disinfection of surfaces cannot prevent recontamination within a few hours: antimicrobial-treated surfaces can close this gap," explains Prof. Dr. Andreas Widmer.

"For our antimicrobial adhesive film, we have cooperated with SANITIZED AG. Hospitals, senior residences and care facilities thus benefit from decades of experience and the highest quality," explains Clément Mateu, CEO of HEXIS S.A.S.

**Hexis S.A.S.**

The company specializes in high-performance self-adhesive cast PVC, polyurethane and latex films and offers highly innovative solutions for professionals of digital printing, signage, visual communication, vehicle wrapping and textile marking. The applications for these products are billboards, the decoration of premises and objects, signage, light boxes, markings for vehicles (cars, trains, trams, boats, planes), objects and textiles, lamination, etc.

The PURE ZONE® antimicrobial protection film is manufactured in France by HEXIS. The PURE ZONE® technology, registered in 2013 and developed by the HEXIS R&D laboratory, a pioneer in the development of antimicrobial film, provides continuous 24-hour preventative protection against bacteria and coronavirus. [www.hexishealth.com](http://www.hexishealth.com)

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Sanitized® enhances textiles, polymer products as well as paints and coatings. The company develops its innovative technologies in Switzerland and markets them worldwide. Sanitized® ensures odor-free textiles, the responsible protection of paints and treats polymers permanently with a hygiene function and material protection.

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**Prof. Dr. Andreas Widmer**

He was the Deputy Chief of Department of Infectious Diseases and Hospital Epidemiology, and head of division of hospital hygiene at the University Hospital Basel and the founder and president of the Schweizer Referenzzentren für Infektprävention (Swiss Reference Center for Infection Prevention). He is Core Member of the Section Patient Safety of the WHO, Fellow of the Infectious Diseases Society of America (FIDSA), Fellow of the Society for Healthcare Epidemiology of America (FSHEA). [www.swissnoso.ch](http://www.swissnoso.ch)

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**Study Publication “Antimicrobial Resistance & Infection Control”**

<https://aricjournal.biomedcentral.com/track/pdf/10.1186/s13756-021-00956-1.pdf>

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**Treated Sanitized® PURZON060B adhesive film by HEXIS S.A.S**



***Bacteria enterococcus faecalis***





**Caroline Mateu, Chairman of the Board of Directors, HEXIS S.A.S.**  
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**Prof. Dr. Andreas Widmer**



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