

Copper against germs: Expectations surpassed - Asklepios Clinic in Hamburg, Germany

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Asklepios Clinic in Hamburg, Germany, used special door handles and light switches against antibiotic-resistant bacteria – for the benefit of the patients

Hamburg, Germany, June 16, 2009. Door handles and light switches made of copper are an effective additional means of stopping the distribution of dangerous germs in hospitals. This is the result of a worldwide recognized field trial in the Asklepios Clinic Wandsbek in Hamburg, Germany. During this field trial, two hospital wards were equipped with door handles, door plates and light switches made of special copper alloys over a period of several months in the summer of 2008 and in the winter of 2008/2009. For the purpose of the research, the adjacent areas kept their common handles and switches of aluminum, stainless steel or plastic. Independent scientists of the University of Halle-Wittenberg, Germany, regularly collected samples and compared the number of germs on the different contact surfaces. The desired effect was observed above all on the door handles. Thus, it could be proven, under daily life conditions, that the number of antibiotic-resistant bacteria (MRSA) was decreased by one third. The resettlement of the copper door handles and copper switches through germs was considerably decreased as well. This was of direct benefit for the patients: On the wards equipped with copper handles, an enjoyable trend towards lowered infection rates in patients was observed during the trial period. However, this still has to be examined more thoroughly in larger studies.

Expectations surpassed

“The now obtained results, i.e. a reduction of germs by more than one third, raise hopes. Contact surfaces such as handles and switches made of copper can thus be a reasonable supplement to existing hygiene measures such as hand disinfection”, says Professor Jörg Braun, MD, Chief Physician of the I. Medical Department at Asklepios Clinic Wandsbek. The trend towards the decrease of the so-called nosocomial transmission, i.e. infections caught in hospitals, is also to be positively evaluated. “This clinical effect has surpassed my expectations”, says Professor Braun. Professor Dr Dietrich H. Nies, Director of the Institute for Biology at the Martin-Luther University of Halle-Wittenberg, Germany, and specialist for biometal metabolism, also gives a positive assessment: “Only 63 percent of the germs were found on the copper surfaces compared with the control surfaces, i.e. the common door handles, door plates and light switches. Moreover, it has been shown in practice that copper considerably reduces the resettlement of surfaces with germs.”

The field trial “Antimicrobial copper surfaces” – in each case for 16 weeks in summer and winter – was prepared and performed by physicians of the Asklepios Clinic Wandsbek, Germany, in cooperation with scientists of the University Halle-Wittenberg, Germany. The project was supported by the German Copper Institute (DKI). Very promising laboratory

tests had been previously performed, which gave rise to expectations of a significant efficacy of special copper alloys in the fight against germs, also in the clinic daily life. Current research is closing a scientific gap which has existed for a very long time: “Humanity has had positive experience with the hygienic effect of copper for thousands of years”, says Anton Klassert, DE, Business Manager of the German Copper Institute (DKI). Now, this experience would be scientifically proven. “It is fascinating for me to see how research in Hamburg, Germany, has developed after the preliminary trials in Japan and England since 2008“, says Dr Klassert. According to him, this dynamic still continues: “At the moment, the American Department of Defense is starting a large-scale research project in the intensive-care units of three clinics in New York City and Charleston, South Carolina, US” says Dr Klassert, who is also the Head of the European Copper Competence Center “Antimicrobial Properties”.

Sometimes something well-tried can also be innovative: in Ancient Greece already, copper was considered to be very antimicrobial. This ability is now playing an important role in the struggle against dangerous hospital germs. Because the germs are not only transmitted from one hand to another but, in many cases, also by touching door handles and switches. In this context, the biggest danger comes from antibiotic-resistant bacteria (MRSA), with which more and more patients worldwide fall ill in clinics and nursing homes.

Research is done at full speed worldwide

The field trial in the Asklepios Clinic Wandsbek fits into the worldwide context with research being done at full speed. At the moment, scientists in England, Japan, South Africa, Chile and the US are also testing various copper alloys at the most different sites of application, in order to find the best suitable alloy and fields of application. Under laboratory conditions, it has already been proven that surfaces made of copper can eliminate up to 99 percent of the germs within the shortest period of time. Although frequent hand disinfection is part of the daily routine for physicians and nursing staff, it is not always sufficient despite the greatest precautions and hygiene regulations. Precisely, weakened patients must be especially protected against dangerous hospital germs. “The struggle against highly resistant pathogens cannot be won with the hitherto existing means, such as the use of each time newer antibiotics and more intensive disinfection measures. We must break new grounds in order to reduce the potential danger for our patients”, explains Professor Braun of the Asklepios Clinic Wandsbek.

Classical sanitary measures are insufficient to prevent a further spreading of MRSA. Surfaces made of copper alloys can make an essential contribution to hospital hygiene.

Year after year 50,000 fatalities in Europe, 100,000 in the US

According to serious estimates, more than half a million of such nosocomial infections – i.e. caught in the clinic – occur every year, in German hospitals alone. According to the European Centre for Disease Prevention and Control (ECDC), there are three million cases all over Europe, of which 50,000 are fatal. In the US, hospital infections cause even 100,000 fatalities – with two million infections – according to the estimations of the Infectious Diseases Society. Antibiotic-resistant germs such as MRSA (MRSA stands for Methicillin-resistant Staphylococcus aureus) represent a particularly high danger in this context.

In addition to the partly life-threatening danger for the patients, there is also an enormous economic damage which might amount to billions in Germany alone. For the US, there is an estimate by the Center for Disease Control (CDC), according to which nosocomial infections incur costs of more than 4.5 billion US dollars. In Great Britain, the National Health Service (NHS) estimates the additional costs at one billion pounds sterling every year. According to estimates, patients who contract MRSA in the clinic stay in sickbed up to four days longer on average and incur additional costs to the amount of 4,000 euro, in individual cases even up to 20,000 euro. The most frequent complications with weakened patients after a MRSA infection include wound infections, pneumonias, blood poisonings, and urinary tract infections.

Photographic and film material as well as the PowerPoint presentations of the speakers on the topic “Copper & Germs” are available on request.

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Asklepios:

Asklepios is one of the leading and most innovative international clinic chains. The group is responsible for more than 100 facilities, almost 40 day hospitals, approx. 22,000 beds and 36,000 employees in Germany, Europe and the US. Every year, more than one million patients entrust their health to Asklepios. The family company is owned by a sole shareholder who assigned all facilities the task to commit themselves to prevention work, especially at schools but also for adults. With these characteristic numbers and a turnover of about 2.3 billion euros of the overall group, Asklepios is the biggest private clinic chain in the Federal Republic of Germany and in Europe. Every 40th baby in Germany is given birth in one of the Asklepios Clinics between Sylt and Lindau, Germany. Asklepios leads the Deutsches Kinderherzzentrum (German Pediatric Heart Center) in St. Augustin, Germany, and is also in charge of almost one third of all psychiatries in Germany, as well as many facilities of hospital order treatment. In Hamburg, where Asklepios runs altogether six obstetric wards, among them the two biggest ones in Northern Germany, two of four newborns are given birth at Asklepios. In the Hanseatic city, the most important clinic city in Germany, the Asklepios Clinics Hamburg GmbH is one of the biggest private employers with about 11,000 employees. In Hamburg, every other hospital patient is treated in Asklepios Clinics – twice as much as the University Hospital of the Hanseatic city. Far more than half of the cardiac and stroke patients in Hamburg are cared for in an Asklepios facility. Asklepios Clinics in and around Hamburg are located in the following areas: Altona, Barmbek, Cardio Clinic, Harburg, Klinikum Nord (Ochsenszoll / Heidberg area), St. Georg, Wandsbek, Westklinikum Rissen, Bad Oldesloe, Bad Schwartau, and Sylt.

Innovation: Together with its partners Intel and Microsoft, Asklepios founded the "Asklepios Future Hospital Program" in 2006. Within the framework of this program, numerous worldwide leading partners (among them Bosch, Fujitsu Siemens, HP, Lufthansa Systems, SAP, T-Systems etc.) are meanwhile continuously developing innovative solutions for the entire global health system together with Asklepios in the facilities of the clinic chain. The sustainability and systematics of the cooperation with so many leading health care companies guarantees all Asklepios facilities a permanent position at the top of worldwide development.

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