Why hand hygiene plays a critical role in the containment of multi-resistant pathogens.

How to fight a superbug

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Dear Readers,

The discovery of penicillin in the 20th century ushered in a new era of medicine. Until then, patients were highly susceptible to bacterial infections that could cost them their lives. The sentiment that antibiotics are indispensable to our health has since extended beyond the medical industry and into societal consciousness.

However, due to their excessive use in medicine and in agriculture, antibiotics are increasingly becoming less effective. The World Health Organization (WHO) estimates that by 2050, approximately 10,000,000 people worldwide could die from antibiotic-resistant bacteria if comprehensive countermeasures are not taken. Hand hygiene plays an essential role as the most effective infection prevention measure, drastically reducing the need for antibiotic use.

This is where our comprehensive hygiene and dispenser systems offer a wide variety of opportunities for thorough hand hygiene. We tackle the challenges of inadequate hygiene compliance in the healthcare sector with a complete concept. We use high visibility signal colors that encourage hand disinfection, touchless technology that prevents cross-contamination, and intelligent dispensers that provide detailed information on areas where hand hygiene can be improved. We also meet the changing requirements for dispenser systems with our recyclable pumps that eliminate the need for dispenser cleaning.

In our feature article, we focus specifically on the topic of antibiotic resistance and highlight the importance of hand hygiene - more exciting reports await you!

Happy reading.

Heiner Ophardt, CEO

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The rapidly growing popularity of foaming hand sanitizers has health-care facilities wondering whether they should replace their existing program with this new product.

A study published in January 2019 by Nina A. Gold and Ush Avaa suggests that regardless of the type of alcohol-based hand rub (ABHR), it is imperative that 2.4 - 3ml is rubbed into the hands for a period of 25 - 30 seconds. The study goes on to highlight, that whether liquid, gel or foam, ABHRs must have an alcohol concentration between 60 - 85% to be most effective, with higher concentrations in that range being generally more effective.

Quality of hand hygiene
There are several alcofoams that meet these concentration guidelines. However, the Gold et al. study points out that alcofoams do tend to show dry times that exceed 30 seconds at the recommended dosages. This increased dry time causes many users to use less than the recommended minimum dosages.

Alcofoam could therefore theoretically decrease what we call quality of hand hygiene, by causing users to use less product during each hand hygiene event. Though this has not been proven directly, this could theoretically result in increased infections.

Alcofoam and improved compliance
In contrast, an October 2018 study by Greenaway et al. focusing on the qualitative aspects of liquid, gel and foam ABHRs determined that foam was the most desirable medium used by health-care workers. The factors users favoured most were fast absorption, moisturized hands, non-sticky feeling, clean feeling, and a less powerful smell. The study concluded that alcofoam could increase compliance rates because it combined the benefits of both gel and liquid, leading to the most positive user experience.

Taking this one step further, a 2007 study led by Traore et al. attempted to compare compliance rates of gel and liquid hand sanitizers. The study indicated that the introduction of gel at a healthcare facility led to increased compliance, due to gel being perceived as the more skin friendly product.

Since alcofoam was rated to be preferred over gel, we could expect a study similar to Traore et al., focused on alcofoam, to show a more striking increase in compliance.

The user-friendly nature of alcofoam, is likely at the core of its fast market adoption. However, in order to properly assess the choice between alcofoam, gel, and liquid ABHRs, more studies are needed. These studies should focus in particular on the possibly counteracting effects of decreased quality of hand hygiene and increased compliance rates.

A Dutch School board has decided to renew its commitment to OPHARDT hygiene dispensers by installing more than 1,000 new dispensers across its school board.

The ZAAM Foundation is the authority for 23 interdenominational secondary schools in Amsterdam, Zaandam and Monnickendam. These schools offer education to more than 11,000 students, ranging from practical training to grammar school.

The schools have large sanitary facilities, which are used frequently and intensively by the students. Consequently, any equipment installed must be robust and vandal proof. The ZAAM Foundation therefore attaches great importance to equipping all schools with a uniform standard that is easy to maintain and will work as a long-term solution.

OPHARDT hygiene’s SanTRAL® series is a trusted choice by the ZAAM Foundation as it is a proven standard for public washrooms. The SanTRAL® series is impact-resistant and particularly durable due to its robust design. The lockable, welded stainless steel housing ensures the dispenser is tamper-proof, and the smooth surface created by the anti-fingerprint coating ensures the dispenser is particularly easy to clean. As a core feature of the SanTRAL® series, all dispensers are compatible with a wide range of hand care and paper products. This open system enables customers to avoid expensive service contracts, and enables the choice to switch between filling materials as desired.

In the past, the ZAAM Foundation worked with a leasing agreement to enjoy the advantages offered by the SanTRAL® series at a number of their schools. Following the end of the leasing contract, the ZAAM Foundation decided to continue with the SanTRAL® series in their schools.

By installing the new SanTRAL® dispensers, the ZAAM Foundation was able to improve the quality of the equipment in the schools’ washrooms, while at the same time reducing costs.
German clinic implements touchless PRAESIDIO disinfectant dispensers with eye-catching graphics

High impact hand disinfection

“Hand Disinfection Mandatory!” reads a prominent blue sign situated before the entrance of a hospital ward at the Herz-Jesu-Hospital in Germany. Upon closer inspection, the sign offers more information “When? Before entering the ward. After leaving the ward.”

Below the sign there is an arrow that draws healthcare workers, patients and visitors from the hallway to the unique-looking touchless disinfectant dispenser – the PRAESIDIO.

Why all the fuss? Healthcare environments can be areas where germs and bacteria thrive. Hospital staff, visitors and patients alike are all carriers of potential infections, particularly with their hands. To combat this threat, frequent and thorough hand disinfection plays a key role in preventing nosocomial infections.

Entrance areas and highly frequented corridors of hospitals typically see a high volume of people and therefore provide an opportunity to draw attention to the issue of hand hygiene. Many facilities use disinfectant dispensers for this purpose, but they are not always easy to reach and are often inconspicuously placed.

Appealing graphics raise awareness
This hospital is pursuing an innovative approach to sustainable infection prevention that uses the positive effect of colours and eye-catching graphics to attract attention from healthcare staff, guests and patients for hand disinfection.

The clinic recently outfitted their main entrances and ward entrances with a total of twelve wall-mounted touchless hand disinfectant dispensers. The area on the walls surrounding the PRAESIDIOS were painted a different colour to bring attention to dispensers.

The PRAESIDIO dispensers were provided with a customized logo, designed to emphasize the values of the clinic. Besides the customizability, this unique sensor-controlled dispenser helps to effectively prevent cross-contamination. The patented shower nozzle, contained within the hygienic chamber, aids in distributing hand sanitizer, without aerosolizing the alcohol.

PROFESSIONAL OPINION

The disinfectant dispensers are very well received and frequently used. We regularly receive positive feedback from visitors and employees about the devices. In addition to the visually appealing design, intuitive operation plays an important role in the use of these devices.

Astrid Gödel, Hygiene Specialist at Herz-Jesu-Hospital Münster-Hiltrup
The rise of multi-resistant bacteria poses a massive challenge to modern medicine, but the solutions are hiding in plain sight.

Ominous European infection data published in the Lancet at the beginning of 2019 indicated that antibiotic-resistant infections more than doubled from 2007 to 2015 in Europe – 240,000 became 600,000 in the span of eight years. The number of deaths resulting from these infections tripled in that same period.²

The major factors for increasing resistance are well known. Probably the most significant driver is over-prescription of antibiotics in animal farming. The largest portion of antibiotics produced worldwide is used in this sector – mainly to prevent infections and promote growth. The second main driver is the overprescription of antibiotics in human medicine, which is often used needlessly to treat viral infections.

An important finding of the Lancet study is that the majority of infections involving multidrug-resistant organisms (MDRO) occur in healthcare facilities such as hospitals and nursing homes. These areas in particular harbor numerous pathogens that often encounter immunocompromised patients. In these settings, the most important weapon for infection prevention often appears to be neglected – hand hygiene.

Prevention over therapy
It is estimated that more than 80 percent of all infections are transmitted by the hands.³ This sobering figure underlines the importance of thorough hand hygiene to prevent infections.

Keeping this in mind, there appears to be significant potential to contain antibiotic-resistant organisms before they infect patients. Better infection prevention efforts would have the added effect of reducing both the number of patients infected, and the number of antibiotic prescriptions required – thereby protecting the efficacy of these drugs.

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But how can hand hygiene compliance be improved in healthcare?

The World Health Organization (WHO) clearly defines the multimodal approach as the best standard. This approach attempts to solve the issue that positive hand hygiene behaviour, through the use of stand-alone concepts, tends to evaporate after a short period of time.

A holistic approach is therefore needed, with several components of hand hygiene coming together. The first important component for increasing hand hygiene compliance is optimizing the availability of hand sanitizer, which must be located as close to the point of care as possible.

When workflow is interrupted by a dispenser that is located far from a patient, either the patient care suffers, or hygiene compliance is not adhered to. Therefore the consequence of not optimizing dispenser availability is the increased spread of infectious pathogens, including MDROs.

Another useful tool to promote hand hygiene is the employment of touchless dispenser systems. Automatic dispenser systems have been proven to increase dispenser use by more than 50 per cent and can increase hand hygiene compliance rates. As an added benefit, touch-free sensor technology reduces the possibility of cross-contamination at the point of the dispenser.

Feedback systems on hand hygiene behaviour for doctors and nursing staff have proven to be particularly effective psychological tools. As a result, feedback systems have been an increasingly prevalent component of the multimodal approach. Technical innovations that support compliance feedback, through dispenser data transmission, already exist. These systems conveniently report back to healthcare staff via live screens in central locations. Though these feedback systems have been proven to motivate users themselves, detailed data can be analyzed by hygiene departments to carry out targeted compliance training sessions.

Finally, in addition to the psychological and infrastructural factors, there must also be a personnel framework to ensure that hand disinfection is carried out in accordance with the rules. The trend toward increased work loads per healthcare worker has been shown to decrease compliance, and therefore poses a threat to overcoming the problem of antibiotic resistance.

**Psychological tools**

Healthcare facilities also have multiple psychological tools available to them. The WHO sees the use of visual reminders as another useful piece of the puzzle to improve hand hygiene compliance. Bright, high-visibility colours on dispenser systems, for example, have been shown to increase compliance by up to 6%.

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**PROFESSIONAL OPINION**

With good hand hygiene, we can not only avoid infections that often lead to septic syndrome and end fatally in hospitals, but also counteract the development of antibiotic resistance and minimize the spread of MDRO.

_“_Dr. Andreas Glöckner  
Medical Director at OPHARDT hygiene_”

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Teaching best practices for hand hygiene in diverse environments

Model hospital offers world’s first dispensing systems course

Knowledge is consolidated in two ways - theory and practice. This is exactly where OPHARDT hygiene’s state-of-the-art Compliance Campus comes in, offering facilities for high-quality product presentations, seminars and lectures.

The training center for hand hygiene in Issum, Germany is modelled on a modern hospital wing, offering more than 500 square meters of presentation space.

In addition to regular events, such as the annual OHMS Forum (OPHARDT Hygiene Monitoring System®) and the BRAIN Forum (Breaking the Chain of Infection), the TÜV-Rheinland certified course for hygienic dispenser system consultants has established itself as another key event in the Campus’ calendar.

Theoretical content, hands-on experience
The two-day TÜV course is offered at the Compliance Campus several times throughout the year. Participants are trained in a total of nine different modules relating to the use of hygiene dispenser systems in medical and (semi-) public areas. Following the successful completion of a written exam, participants are awarded an official certificate from TÜV Rheinland, certifying the knowledge they have acquired.

The course is offered in both the German and English language. The inaugural course was offered in German, and took place in December 2018. The course was fully booked, with 15 participants who successfully completed the course. The second German-language course followed in May 2019, and the first English-language course is planned for the end of the year, taking place November 21-22, 2019.

External trainings, lectures and product tests
In addition to the TÜV course, the Compliance Campus regularly hosts conferences for companies in the industry, networking events for relevant trade associations, and any other hygiene-related topics. The Campus also offers the right conditions for our partners to test their products in a practical setting.

Are you interested in visiting or learning more about our unique facilities? Please contact compliance-campus@ophardt.com for further information and availability.

PROFESSIONAL OPINION

“The expert consultant course further developed my specialist knowledge and has produced interesting possibilities in this area. I would recommend this course to anyone in the field, as it is instructed with a high degree of professionalism.”

Thorsten Strauß
Maco Hygiene GmbH
Working to improve hand hygiene in food manufacturing

OPHARDT hygiene monitoring system enters food industry

The importance of hand hygiene cannot be understated, especially when working in hygiene sensitive areas. Healthcare environments require rigorous protection against germs and infection, but so do food processing facilities.

OPHARDT hygiene has recently worked with Wyman’s of Maine to implement the OPHARDT hygiene Monitoring System (OHMS). The goal was to increase compliance of hand hygiene and improve efficiencies throughout their facility.

Wyman’s was looking to find new ways to minimize risk of product contamination in the food manufacturing environment and so they recently installed, state-of-the-art, touchless hand sanitizing dispensers, that use the OHMS technology. These intelligent dispensers automatically record their usage data, making it easier to monitor and enforce hand hygiene compliance. Managers can access detailed reports on hand hygiene behavior via web-based software in real time. Using this information, Wyman’s can hone in on potential problem areas, improve compliance, and reduce the risk of product contamination.

From healthcare to food
This comprehensive solution was originally targeted for use in hospitals and medical facilities where hand hygiene is critical. However, considering the public concern regarding foodborne illnesses and recalls involving norovirus and hepatitis A, these units were identified by Registered Chemicals Corporation as an ideal candidate for food/beverage manufacturers that are committed to food safety.

Registered Chemicals Corporation elected to partner with OPHARDT hygiene and subsequently approached Wyman’s of Maine with the idea. Wyman’s, being passionate about food safety, recognized the value of technology that would give them data on the quality of their hygiene program. As such, they agreed to become the first food manufacturer in the world to implement OHMS.

Since installation at the beginning of 2019, OHMS has not only increased the quality of hand hygiene at Wyman’s of Maine, but also the efficiency of their operations. The software data, which tracks when, where and how much product is dispensed, also sends out alerts when a dispenser is empty - assuring that employees never have to wait for a dispenser to be refilled.
We work hard to offer meaningful contributions to the communities in which we live and work. At our Canadian plant in Beamsville, Ontario, we continue a long tradition of collaboration with local organizations where our aim is to help foster a positive social impact within the local community.

Increasing social activities
There is an ongoing need of support for community members living in shelters, and for community members making the transition from shelters to living on their own. This cause has been close to our hearts over the years, and we continue to hold fundraising activities and collect donations to help those in need.

In December, OPHARDT Canada partnered with the Niagara Chapter of the United Way to address the growing need for hygiene related items for community members living in poverty and in crisis shelters. In support of these local men, women, and children, we purchased hygiene-related products and assembled more than one hundred hygiene kits.

Providing the essentials
Each kit contained daily essentials that many of us take for granted, including a toothbrush, toothpaste, dental floss, soap, a wash cloth, deodorant, shampoo, conditioner and a comb. The kits were donated to the local Employment Health Centre for distribution at the beginning of February. This month, we continue to collect donations in support of local families currently staying in shelters, as well as those making the transition to living on their own.

OPHARDT Canada will continue its efforts to supply the community with the hygiene tools it needs, because Breaking the Chain of Infection starts in our own backyard.
Canadian plant adds solar power to manufacturing facility

Another ray of sunshine from OPHARDT

At OPHARDT hygiene, we are committed to being good environmental stewards and responsibly managing the environmental impact of our operations.

As part of our ongoing efforts to expand our renewable energy portfolio, we are proud to announce the installation of the second photovoltaic system in the OPHARDT Hygiene Group of Companies at our Canadian plant in Beamsville, Ontario. Construction of the 44.40 kW system was completed this month, and will be fully operational in time to take full advantage of the summer rays. With this new installation, we will be able to produce approximately 56,000 kWh of electricity per year via sunlight.

The first photovoltaic system in the OPHARDT Hygiene Group was installed at our Maaseik, Belgium location in 2012. Since installation, we have been able to subsidize 17% of the plant’s total electricity requirements with solar energy.

A global energy effort

Additional efforts to ‘green’ our renewable energy portfolio include purchasing Guarantees of Origin at our manufacturing locations in Ireland, Germany, and for the remaining energy requirements at our Belgian plant. A Guarantee of Origin is a tracking certificate for renewable energy, regulated by the European Commission, under European Directive 2009/28/EC, article 15. When a company purchases a Guarantee of Origin, the corresponding amount of electricity is canceled in the electronic certificate registry.

This single standardized system makes it easy to track ownership, and ensure there is no double-counting of certificates. Guarantees of Origin enable European electricity consumers to support the production of renewable energy and build market momentum for increased renewable energy production.

For more information on our ongoing sustainability initiatives, please refer to our annual sustainability report.
Fuel cell operated disinfectant dispenser presented for the first time.

**The future of self-powered dispensers**

The Hannover Messe is regarded as one of the most important industrial trade fairs in the world. This year over 200,000 visitors were able to experience an innovative new hand sanitizer dispenser unlike any other.

Together with the Environmental Campus Birkenfeld (UCB) of the University of Applied Sciences Trier, OPHARDT hygiene presented the first alcohol-based disinfectant dispenser operated through fuel cell technology. The principle behind this ground-breaking invention revolves around a small portion of the alcohol-based hand sanitizer being converted into electrical energy in the fuel cell.

This technology is integrated into the existing system of the PRAESIDIO dispenser, providing both an economic and ecological benefit by eliminating the need for batteries. Final development phases for this dispenser are scheduled for the coming months.

**PROFESSIONAL OPINION**

"A real eye-catcher at this world-leading forum for current developments in fuel cell technology. The appearance in Hannover and the reaction of the visitors confirm that the innovation has extraordinary market potential."

Prof. Gregor Hoogers  
Head of the Fuel Cell Competence Center at UCB.

**OPHARDT hygiene newsletter - Stay updated!**

Our monthly e-mail newsletter keeps you informed about the latest news on hand hygiene.

**Event Outlook 2019**

- **11.06.-13.06.2019**  
  ISSA | Toronto

- **10.09.-13.09.2019**  
  ICPIC | Geneva

- **24.09.-27.09.2019**  
  CMS | Berlin

- **05.11.-08.11.2019**  
  A+A | Düsseldorf

- **18.11.-21.11.2019**  
  ISSA | Las Vegas

- **18.11.-21.11.2019**  
  MEDICA | Düsseldorf

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