Going for high-performance hospital hygiene decontamination solutions

H_2O_2 disinfects air, surfaces and rooms

Room decontamination by cold nebulization through hydrogen peroxide is a powerful solution for complete surface and final disinfection as well as outbreak management in modern hospital hygiene.

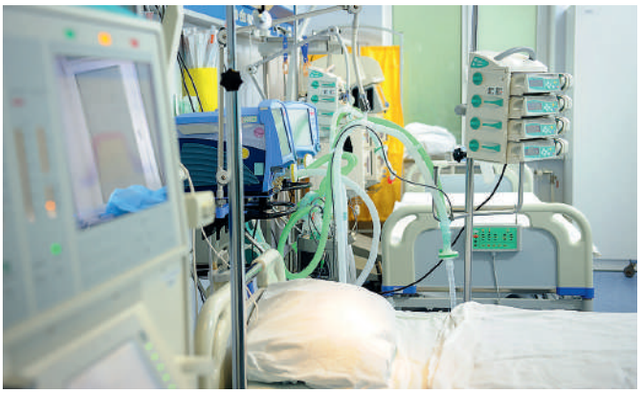
Significantly improved environmental hygiene – even in highly sensitive hospital environments such as intensive care units and operation theaters.

Up to today, most final disinfections in hospitals have only been carried out using the scrubbing and wiping method. However, this essential disinfecting measure entails dangerous risks, e.g. unnecessary gaps in surface disinfection (disinfection gaps up to 70%), incorrect chemical dosages, human errors due to time pressure and lack of validation possibilities. Who seriously wants to take a contamination risk of at least 30%?

Inadequate and faulty final decontaminations can lead to losses in disinfection quality (contaminated surfaces + equipment), high personnel costs (e.g. by repetition of disinfection processes) as well as to an increasing number of infections such as Methicillin-resistant Staphylococcus aureus (MRSA), Clostridium difficile-associated diarrhea (CDAD) etc. This places heavy financial burdens for economically weak hospitals.

How can hospitals secure themselves with regard to difficult and expensive cleaning and disinfecting processes? What are the possibilities for disinfection validation?

The answer is: by mechanical and automated disinfection methods which can be reliably validated, such as the hydrogen peroxide based room disinfection. In recent years, the so-called "cold nebulization", "aerosolized hydrogen peroxide (aHP)" or "aerosol disinfection" has emerged from these H_2O_2 procedures as being the most practical, user-friendly and, in addition, the most cost-effective disinfection method for final disinfections and outbreak situations in over 20 application areas. Including, among others, leading pharmaceutical manufacturers, federal institutes in the field of animal health, research centers, hospitals, food production, mold remediation companies, passenger shipping and international building service providers.



H_2O_2 room decontamination in intensive care

Especially in highly contaminated patient rooms, toilets, laundry services and other hospital environments, the residual risks and gaps of the disinfecting work carried out by humans can be mechanically secured. In addition, regular disinfection validations are carried out…

a) to reach compliance with national and international disinfection requirements,
b) as microbiological proof of the disinfection performance (areas of activity ABCD, sporicidal disinfection if needed) and
c) for a high quality assurance according to current state of the art methods.

For the simple, safe and fast implementation of a conclusive validation, "closed germ carriers"(e.g. DioFog-Controller or DioSpore-Controller) are recommended. These special bio-indicators virtually exclude the risk of recontamination by humans and the environment as they have no handling problems, transport complications or storage risks.

Depending on the disinfection requirements, bio-indicators for either bacterial activities of area A (incubated with the reference germ

The H_2O_2 nebulization method can eliminate hygiene risks like gasps in surface disinfection and recontamination by humans

Enterococcus faecium or Staphylococcus aureus) or the sporicidal area D (inoculated with Geobacillus stearothermophilus) can be used.

The validation itself is quite simple: the germ-equipped bio-indicators are placed in the areas which are to be monitored before the room is nebulized (e.g. patient-related surfaces, floors, bed frames, bedside tables, wet areas, etc.) and are collected again after the end of the disinfection process, placed into a plastic bag and sent to an accredited laboratory for microbiological evaluation. After laboratory evaluation, the hospital hygiene department receives corresponding documents to the hygienic examination, such as the log unit verification of the germ reduction, the test report and an independent hygiene certificate. Every room nebulization is accompanied by chemical indicators ("H_2O_2 test sticks") which proof the visible completeness of the disinfection process by automatic discoloration.

Which disinfection results can be achieved how quickly and at what costs?

Extremely difficult disinfecting processes, e.g. Acinetobacter baumannii, multi-resistant pathogens in general, norovirus outbreak or Clostridium difficile spores cannot be managed manually. In order to get these germs, viruses and spores inactivated and under control (microbiologically and financially), the H_2O_2 nebulization technology demonstrates its impressive performance at manageable costs and investments.

Cold nebulization based on H_2O_2 can cover the complete microbiological spectrum of activity (bacteria, fungi, yeasts, viruses and spores). For this purpose, as a rule, 4 ml per m³ of a disinfectant (for example Diosol) tested according to EN standards are applied via an AerosolGenerator (e.g. DiosolGenerator). Consequently, with a single 5 kg canister, 1,250 m³ of hospital environment can be decontaminated. Additionally, multi-functional systems can also safely and conveniently decontaminate hard-to-reach areas, such as shafts, ducts and air-conditioning systems.

Scientific advice and validation tools for the aerosolized Hydrogen Peroxide (aHP) room disinfection method

Difficult vehicle decontamination with H_2O_2 fogging technology

The microbiological exposure time including the process time (pure nebulization period) of the disinfecting nebulization lies at 90 minutes. If H_2O_2 concentrations > 5% are used, the ventilation/venting process (opening the window or switching on the exhaust air) must be observed before the room can be reentered. This process reduces the H_2O_2 gas load in the room air to below 0.5 ppm (workplace limit value in Germany) and takes between 15 and 45 minutes, depending on the hydrogen peroxide concentration (6-19%) which was used. The entire decontamination process therefore requires a maximum of 135 minutes from switching on the AerosolGenerator until the room can been re-entered.

Neither expensive training nor a time-intensive additional training is mandatory for the application of the H_2O_2 nebulization method. Nevertheless, training to "Certified disinfector" is recommended. Serious providers offer users in hospital hygiene a 2-3-hour expert training. All relevant questions are answered in a customer- and problem-solving-oriented fashion. All trained participants receive a certificate of competence for room disinfection.

A starter kit for room disinfection in hospital hygiene is already available at a cost of about 5,000 euros (net), depending on the type and model. Also interesting are the savings potential due to prevented contamination and significantly better disinfection results.

Appropriate scientific documents such as expert opinions, field studies, statements, toxicological reviews, validation results and expert reports are available upon request.

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