

PATHELEN HEALTH CARE AG

Switzerland 

**AN INNOVATION IN
MODERN WOUND CARE**





A new and innovative wound treatment!

PATHELEN[®] Hybrid is a combination of active ingredients consisting of various fumed silica which efficiently eliminate biofilms and multi-resistant germs by physically removing them out of the wound.



THE PROBLEM



The burden on the health system caused by chronic wounds

The most common chronic wounds include venous leg ulcers (Ulcer cruris), diabetic foot syndrome and pressure sores. In addition to the considerable costs of the respective standard treatment, these wounds are usually infected with germs that require the additional use of antibiotics.

- The average costs for a grade 1 decubitus are €1.489, €6.162 for grade 2, €10.238 for grade 3 and €14.771 for a grade 4 decubitus¹, the latter for a treatment period of at least 180 days.
- The average costs for leg ulcers are €9.060 per year.²
- The average costs for DFU amounted to €1.293 in the first quarter of the new diagnosis plus rising follow-up costs. If an amputation is required, the costs increase by € 14.284 plus follow-up costs.³

Sources

1. Eibel Gregor, Kostenfaktor Dekubitus, 2012, S. 71.
2. Augustin M, Brocatti LK, Rustenbach SJ et al. Cost of illness of leg ulcers, 2014, S. 283-292.
3. Kähm K, et al. Diabetes Care 2018, S. 971-978.

THE PROBLEM



Antibiotic resistance: a global health threat

TABLE	
Selection of pathogens that are becoming problematic germs when special resistances occur	
PATHOGENS	RESISTANCE AGAINST
Gram positive bacteria	
Staphylococcus aureus	Methicillin (MRSA)
Streptococcus pneumoniae	Penicillin (PNSP)
Enterococcus spp.	Vancomycin (VRE)
Mycobacterium tuberculosis	multiresistente Form (MDR-Tb), extrem resistente Form (XDR-Tb)
Gram negative bacteria	
Klebsiella pneumoniae	Cephalosporine der 3. Generation und Carbapeneme (ESBL), Chinolone
Escherichia coli	Cephalosporine der 3. Generation und Carbapeneme (ESBL), Chinolone
Pseudomonas aeruginosa	Carbapeneme (ESBL)
Acinetobacter spp.	Carbapeneme (ESBL), Chinolone, Aminoglykoside, Cortrimoxazol
Neisseria gonorrhoeae	zunehmend gegen Cephalosporine der dritten Generation

According to the WHO, 25.000 people die each year in Europe from infections with multi-resistant pathogens. Treating patients with multi-resistant pathogens costs the European Union around €1.5 billion annually. One reason for the growing resistance to antibiotics is the increased consumption of antibiotics worldwide. Globally, it has increased by 36 percent between 2000 and 2011.

Sources

Dtsch Ärzteztbl 2015, 112(23); A-1046 / B-874 /C-848 Hacker, Jörg; Krumm, Sandra

Zusammenfassung der Daten aus: World Health Organization. Antimicrobial Resistance. Global Report on surveillance 2014 und European Centre for Disease Prevention and Control. Annual epidemiological report 2014.

THE PROBLEM



Antibiotics in Wound Care

Since 2011, western countries like Germany have been advocating a systematic reduction in the use of antibiotics.¹ In Germany a S3 guideline on the rational use of antibiotics (antibiotic stewardship) has been in place since December 2013.²

In the treatment of chronic wounds, the local application of antibiotics is already no longer standard of care and thus obsolete. Local application of antibiotics can lead to the development of polyvalent contact allergies, the formation of resistance and thus a decisive disturbance of wound healing.³

Systemic antibiotic therapy is only indicated if MRSA is detected and a wound infection is present. Reserve antibiotics are used for this purpose⁴

Sources

1. Deutsche Antibiotika-Resistenzstrategie (DART), Bundesministerium für Gesundheit, April 2011, erweitert 2015
2. With de K, Allerberger F, Amann S, et al. S3 Leitlinie Antibiotika Anwendung im Krankenhaus.
3. Altmeyers Enzyklopädie, Std: 25.3.2019
4. Streit M et al., Infektionen chronischer Wunden, ZfW 2009 Nr.3, S. 172

THE PROBLEM



Biofilm in chronic wounds

Biofilm is a complex microbial community of bacteria and fungi that forms a viscous matrix of sugar and proteins to protect against external threats. 60 to 90% of all chronic wounds have a biofilm.

Biofilms stimulate a chronic inflammatory reaction as the body's immune response and thereby impede wound healing. The resulting increase in wound exudation helps the biofilm to improve its nutritional situation. The biofilm is therefore better able to establish itself in the wound.

To date, there is no one-step solution to eliminate biofilms.¹

Sources

1. Wundzentrum HH, Behandlungstandard: Behandlung von chronischen Wunden mit Biofilm

THE SOLUTION

PATHELEN® Hybrid is the first one-step solution for the efficient removal of biofilm.

PATHELEN® Hybrid is a wound therapy containing both hydrophilic and hydrophobic fumed silica. The extra large surface structure of the fumed silica (1 bottle of Pathelen Hybrid contains 2g with a surface area of approx. 600 m²) generates an extra high capillary action for the adsorption of biofilm, wound exudate, toxins and pathogenic germs. This ensures fast and efficient physical wound cleaning.

PATHELEN® Hybrid is a medical device class 1 registered with SWISSMEDIC and US FDA and approved in the EU, Turkey, Canada, EFTA and USA.

