

protective coatings



Resysten surface treatment

the use case of
Markhot Ferenc Hospital project



Route of infection

- ▶ The most common way to get an infection is by touching a surface
- ▶ Contact with surfaces contaminated with infectious microbes is an everyday transmitter of a disease

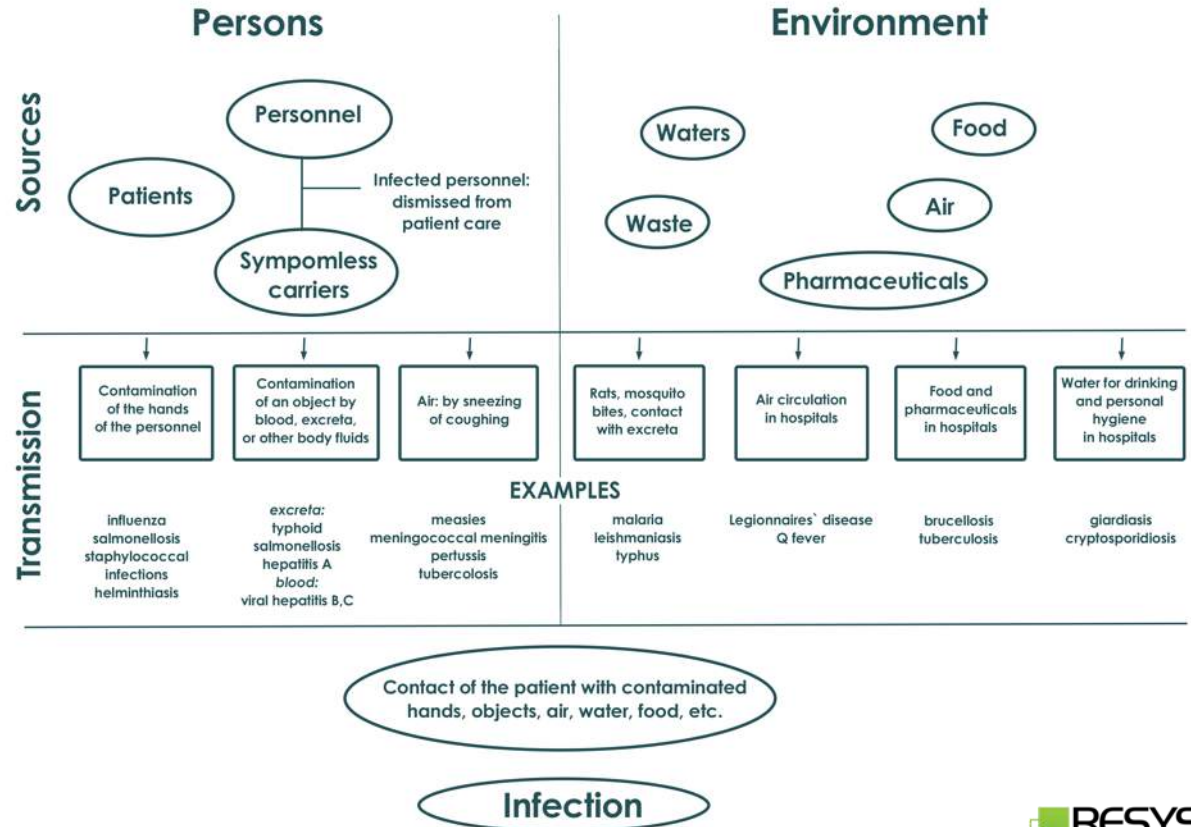
These problems could only be treated with traditional chemicals – until now.

WHO Facts



- Health care-associated infections **10%:** 1 in 10 patients get an infection while receiving care.
- Surgical site infections - **50%:** More than 50% of surgical site infections can be antibiotic-resistant.
- Impact of infection prevention and control - **30%:** Effective infection prevention and control reduces health care-associated infections by at least 30%

High number of sources of infection



Route of infection

Contact transmission

Droplet transmission

Airborne transmission

Common vehicle transmission

Vector borne transmission

Direct contact

body surface –to- body surface

Indirect contact transmission

This involves contact of a susceptible host with a contaminated intermediate object, usually inanimate, such as contaminated instruments



Frequently touched surfaces

The top ten items most commonly touched in the patient room

computer on wheels (634), bedrail (375), IV pump (326), bed surface (302), tray table (223), vitals machine (213), wall shelf (110), door (90), and in-room computer (78)



Inanimate surfaces: Jinadatha, et al. (2017): portable medical equipments(PMEs)

Out of 144 total hours of observation, there were 274 sequences.

These sequences varied in length from 1 to 98 touches (mean = 12 .9, median = 8, IQR = 9).

Among all observation sequences, 151 (55.1%) of them involved movement of PME in and out of the room.



1
YEAR
guarantee

Resysten

The most advanced photocatalytic hygienic coating technology

Resysten is a photocatalytic coating system based on a uniquely developed chemical solution. Light gives the Resysten™ coating photocatalytic properties, which means that light helps neutralize harmful substances in the environment. The coating system - thanks to our recent researches - integrates into the surface on a molecular level therefore it cannot be removed by conventional cleaning methods and remains active continuously for up to 1 year. These two unique properties of our system result in a surface, which keeps its long-term continuous effect, protecting the users and the environment from contamination.

Resysten

Proven effects confirmed by academic research results and SGS lab tests

- ▶ Excellent hygienic effects on any surface
- ▶ Keeps the surfaces clean mineralizing the pollutants
- ▶ Purifies air and neutralizes odour
- ▶ Significantly reduces VOC emission
- ▶ **Long lasting vs fast ageing effects of chemicals**
- ▶ **The altered molecule structure of WhiteTitan™ builds into the surface on a molecular level**
- ▶ **Flexible usability**
Applicable on any type of surface without changing any attributes of the treated material
- ▶ **Green solution**
 - ▶ Non-biocidal substance
 - ▶ Strictly environment friendly, consists of natural ingredients



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SGS certified results

Usual suspects

We can treat almost **all surface types** (wood, metal, glass, textile, plastic), occurring in our everyday life or **health care environment**.

Our coatings can be applied even on electrical devices: frequently touched screens or control panels of the different specialisations(departments) can be covered

So the main transmitters and the links of infections chain can be treated

Expectation: a complete solution can be provided, which covers all the *critical surfaces* of a Hospital, ensuring less infections caused by HAI-s **by at least 10%** (depending on the type of institute)

Save
10%

Application method

Thanks to our special spraying technology we are able to provide uniformly distributed coating, which is invisible to the naked eye. Application of the treatment is done in multiple layers. Choosing the right composition is planned by our engineers, according to the requirements.

The treatment of 1000m² takes about 5-8 hours without preparation, drying time is around 15-30 minutes between the layers and at the end.

Quality control

A comprehensive range of world-leading inspection and verification services help you to control the quality and meet all relevant requirements across different fields of use with our technology.

The certified ATP test is efficient and shows results quickly using on-screen displays. We use state-of-the-art equipment in all our laboratory analyses. The test involves measuring the bioluminescence of the test sample. The ATP's reaction with the enzyme luciferase produces light, which can be measured by a luminometer. The amount of light shows the extent of living microorganisms in the test sample.

We offer our solutions not only as a one-time treatment but as continuous services as well. During the contracted period we guarantee a safe, hygienic environment.

Our services comply with the ISO framework.

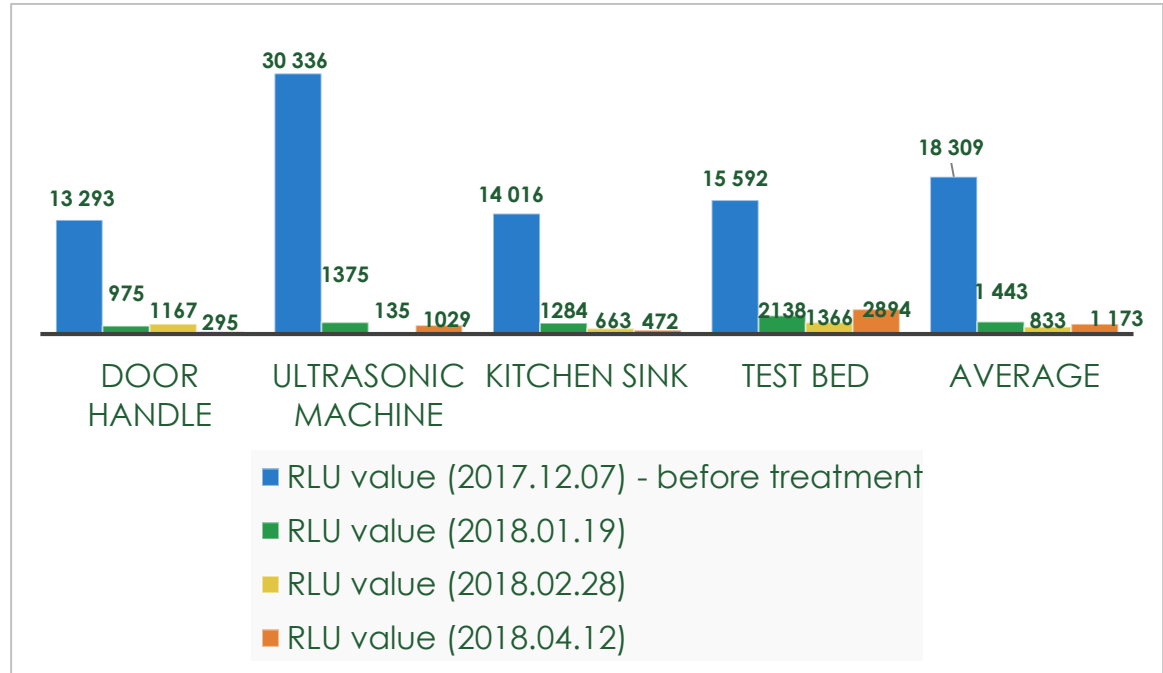


Control measurement on RailJet trains

Typical ATP results

Csolnoky Ferenc County Hospital in Veszprém (Hungary)

Surface treatment of the Urological Department's examination room 2017



Resysten benefits

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- ▶ **85-93% less contamination**
- ▶ Reliable, **constant, long-term** protection
- ▶ **Less disease, more hygienic environment**
- ▶ **Improvement of air quality**
- ▶ Odourless restrooms



Markhot Ferenc Hospital EGER

North-East Hungarian county
central Hospital of 1014 beds,
4 locations, 35.000 patients
yearly

Agreement framework

Contract duration: 36 months

Financial structure: flat-rate, monthly fee

Service includes:

- ▶ First time application of the nearly 4.000 m² identified critical surface
- ▶ Regular measurement and discussion of efficiency
- ▶ Reserve replacement (for e.g. changed equipment or furniture in a hospital, repainted wall in a hotel, changed windscreen on a bus)
- ▶ Renewal of the treatment annually

Project scope surfaces treated



- Phone buttons and screens
- Beds, bedrails
- Nightstands
- Wardrobes
- PC, mouses and keyboards,
- Doors, light switches
- Toilettes, pissoirs
- Refrigerators
- Counters
- Washers
- Special electrical devices for every department (pumps, infusion stands, fitness machines, EKG, etc.)
- Seats
- Dishwashers
- Carriers
- Tables
- Examination beds
- Showers

Project scope logistics

~ 4.000 m² treated health care equipments and critical surfaces of all departments within 22 days

A team of three carried out every field task. Our head of technology was coordinating with the **nursing directorate** and the lead nurse of the departments.

Spraying technicians were going room by room during the day, and they worked in the consulting area (clinic)





REUTERS TV



[NOW THIS news portal: Stopping the chain of infection:](#)

Semmelweis University

II. Pediatric Clinic

After the partial renovations of the Clinic, the surface treatment was obtained on the oncology department.

In the project, the painted walls of the rooms, the doors of the doors, the surfaces of washbasins, the touching surfaces of the bathrooms, bedside cabinets, bed ends, infusion racks have got the treatment.

The main purpose of the project is to prevent ill children under treatment with weak immune functions and to avoid infectious diseases that can be overcome by the healthy body, but a huge risk to them in that case. The project will be followed by the co-operating partnering for longer periods and the results of the sampling measurements will be evaluated and published.

Budai Hospital of the Hospitaller

The project involved coatings on the following surfaces:

- Medical tubs.
- Stainless steel sink and faucet (gastroenceorology)
- Tilewall for drying (gastroenceorology)

The purpose of the treatment is to further improve the hygiene conditions and to minimize the possibility of contamination between two disinfectants process.

The project will be followed by the co-operating partnership with further projects in extended areas based on the content of the published measurement results.

Csolnoky Ferenc County Hospital in Veszprem

Cooperation with surface treatment of the Urological Department's examination room.



Lumniczer Sándor Hospital-Clinic Kapuvár



We have cooperation within the framework of the EU-EFOP Operational Program, under the *"Implementation of a Decontamination Support System"* project.

the Hospital decided to use the Resysten Hygiene Coating System for washrooms and toilets in the Urology Rehabilitation Department, at the spa facilities and in the Chronic Internal Medicine Department.

We are particularly proud of the **long-term professional cooperation** that will provide effective prevention to the hospital with the Resysten coating system **for 6 years.**

Felső-Szabolcsi Hospital Kisvárda



As a responsible and innovative healthcare institution, the Felső-Szabolcsi Hospital has chosen Resysten's permanent hygienic coating to introduce a protective coating system on **all critical surfaces of 6 departments**, which defends not only the healing patients of the hospital for a year, but also the health of the healthcare staff serving in the hospital. Thanks to the hospital's exemplary approach and collaboration, the deployment of the defense system could only take place over 4 weeks-ends.

Medcity Medical Center

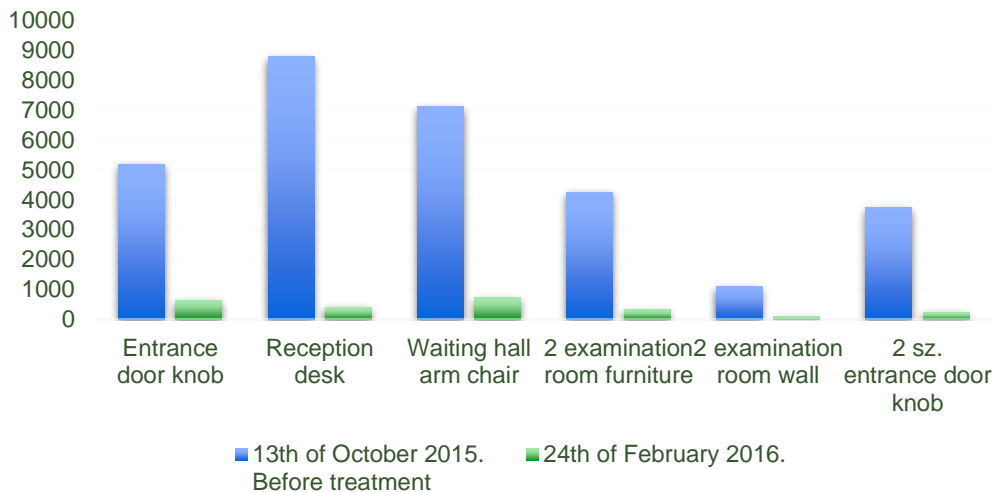


The Medcity Private Health Center chose Resysten coating system, we have signed a **3-year service contract** with them.

Healthcare clinic gynecology examination department and waiting room – 2015.



Saint Gellert Clinic Budapest- ATP results after 4 month period



Pharmacies

In cooperation with the National Association of Private Pharmacists, Resyten coating was applied to the three reference point of Budapest's pharmacies.

The aim of the project is to provide protected environment to the customers themselves to significantly reduce the risks of pathogenic crossinfections.



Treated surfaces In pharmacies

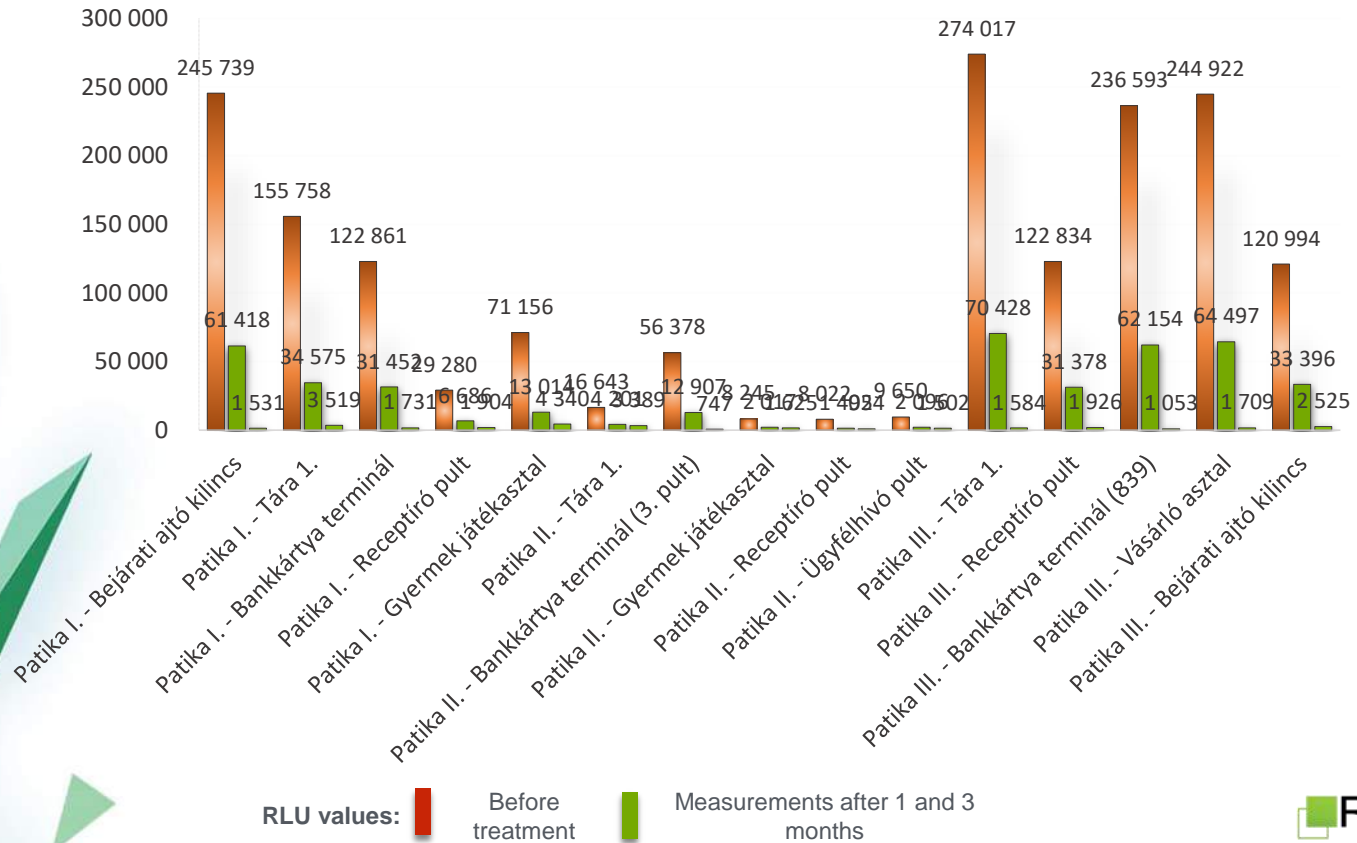
The most critical surfaces frequently touched by the customers:

- Entrance Door Handles and their Environment
- Signal bell, intercom
- Bail signing stand
- Delivery desk, publishing window and their environment
- Customer desks and chairs

Recommended for treatment:

- Critical interfaces used by staff
- Aseptic room (and related environment) equipment and boundary surfaces
- Laboratory work surfaces
- Enemy work surfaces
- Sink and social rooms

Pharmacies - results





OMSZ ambulance cars

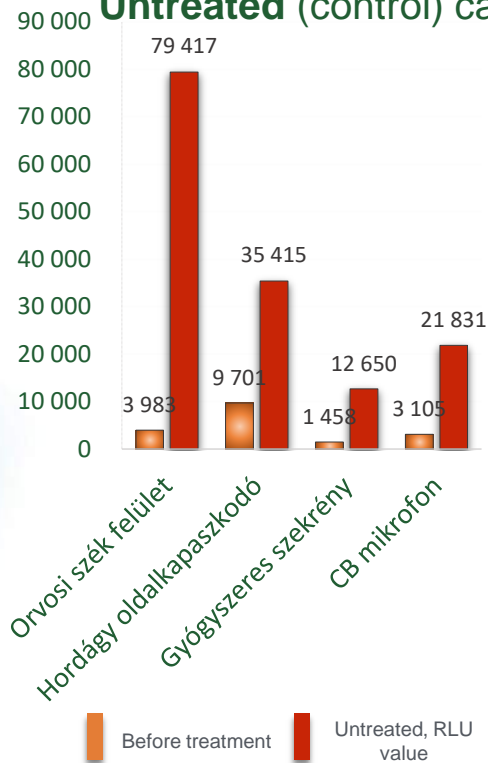
The project scope is to protect the inner patient area of the ambulance cars providing preventive and long-term solution against cross-infections between the conventional disinfection procedures by inhibiting the formation of microbial plaques and biofilms. The applied coating on five vehicles is continuously reducing the risk of nosocomial infections.

Treated surface:

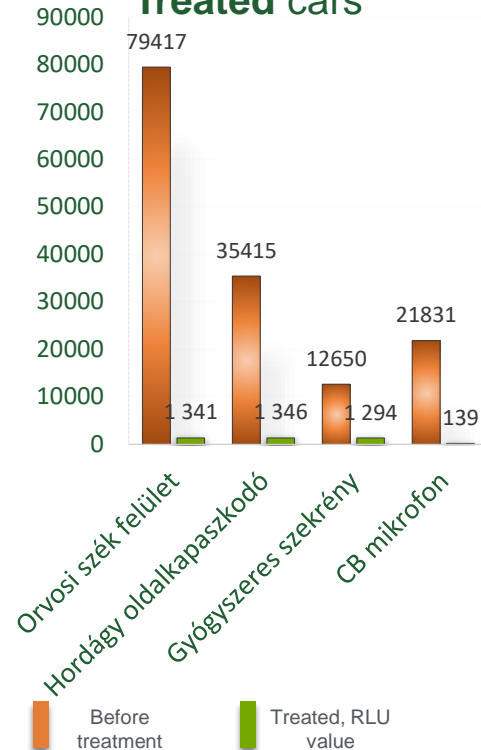
the entire interior surface of the ambulance caregiver

OMSZ Ambulance cars - results

Untreated (control) cars



Treated cars



Highlights

100 000+

sq.m coated surface

27300+

Meter coated handrail
and handles

800+

Vehicles coated

90%+

Measured effectiveness
on coated surfaces