



SPECTRUM BLUE

Quantum Clean : Protecting lives and assets
Deep tech solution

spectrumblue.eu
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Common problem

Unwanted biofilm, mold, bacteria, virus, fungi

Goal with our solution: Protecting lives and assets

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✓ Editors' notes

Chlorine disinfectant is no more effective than water at killing off hospital superbug, new study shows

by University of Plymouth



SOCIETY

Five Romanians die every day due to hospital-acquired infections, health minister says

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Business area 1:
Health industry
Saving lives

Indoor paint : Commercial phase



THE PROBLEM:

Reducing Hospital Associated Infections



MULTIBILLION FINANCIAL COST:

- direct patient cost
- prolonged hospital stays



NOK 2 Bn



\$40 Bn



€7 Bn



MORTALITY RATE



1 000
deaths



99 000
deaths



700 000
deaths globally

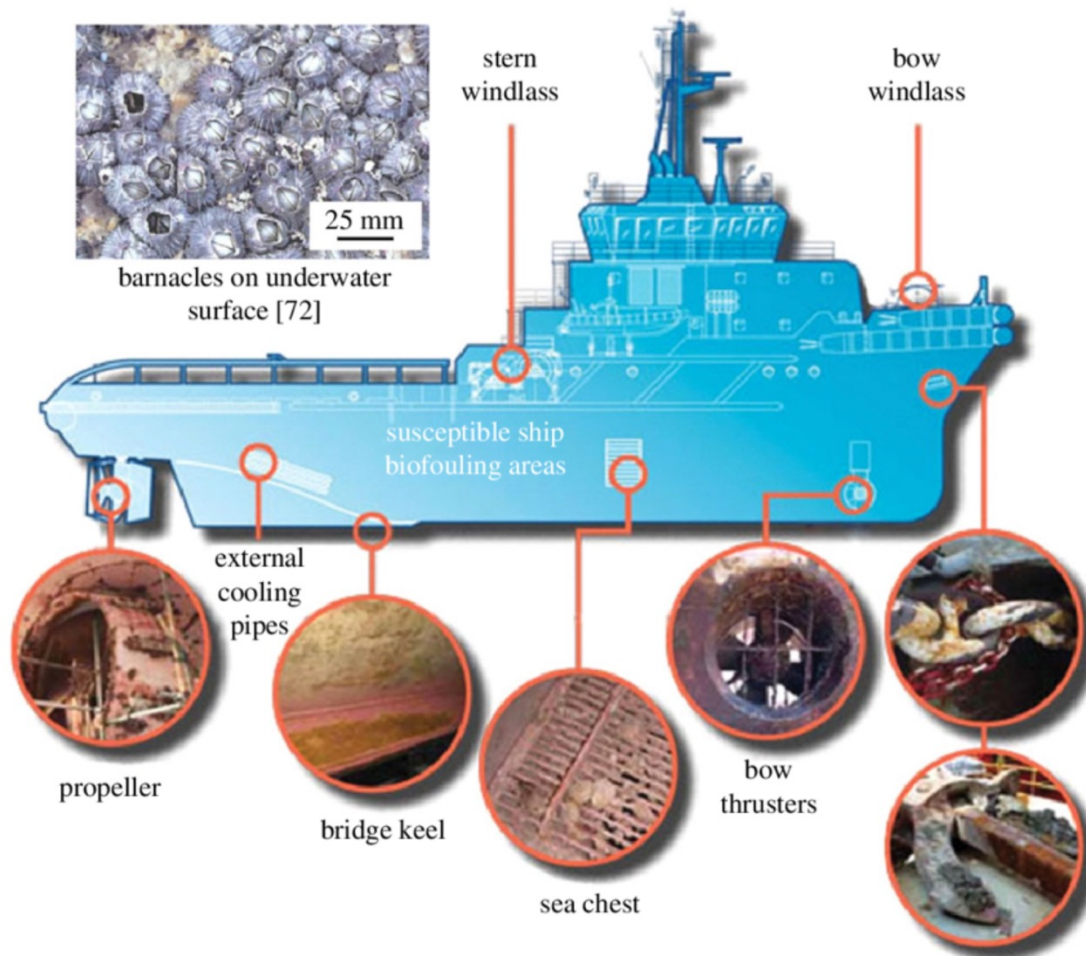


OVERUSE OF ANTIBIOTICS:

- 25% of all antibiotic prescriptions in Norway are attributed to HAI



25% antibiotics are
prescribed for HAI



Marine biofouling examples. Areas susceptible to biofouling on a typical ship (middle) and the common hard-shelled barnacle (*Tetraclitella purpurascens*) (top left). Adapted from Mermaid Marine Australia, Ltd; photographs courtesy of Ashley Coutts, Cawthron Institute, John Polglaze, URS Australia and Helix ESG. (Online version in colour.)

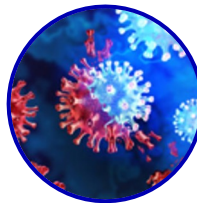
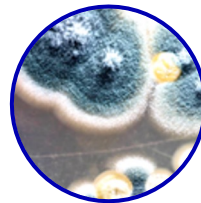
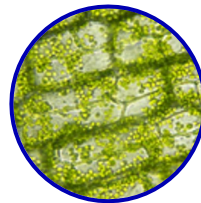


Business Area 2: Maritime : *Reducing pollution, biofouling and CO2*

Plastic boats and metal hulls :
Testing phase

THE SOLUTION: **Q-field** – A coating revolution

Global patent on pigment that keeps surface **STERILE.
Non toxic! No poison! A molecular electric fence.**



Labtested in Valencia microbiology lab in 2021/2022.
Proven results on algae, fungi, bacteria, Covid19, mold.



- Real life tested since 2020 in the County Hospital of Targoviste, Romania, EU.
- Significant reduction in hospital-sourced infections and reduced antibiotic usage.

Q-FIELD: Simple Mold test

Spectrum Blue site Stavanger.

Prepared 4 rectangular samples, material MDF, ca. 10x20cm. Painted with stripes of:

- plain wall paint, "Butinox UNIPROFF AKRYL 07"
- The same paint + 4.5% Q-field by dry weight

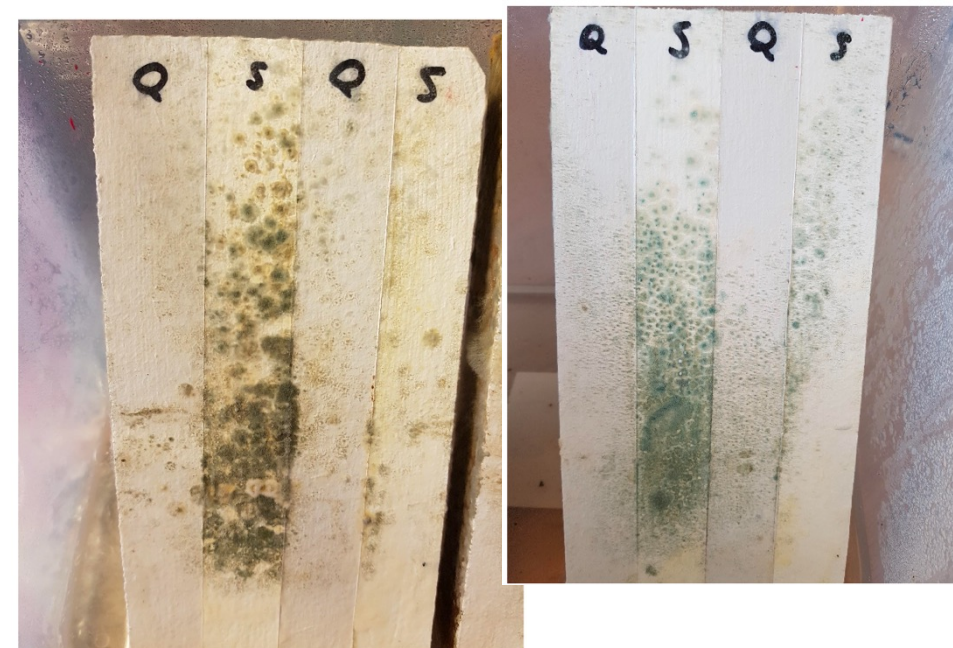
S is the standard paint, Q is with Q-field



The samples were inoculated with wild mold spores, then went into two sealed transparent containers with high humidity. One of the containers was kept in the dark (< 5 lux); the other one exposed to (Stavanger) sun (500-100.000 lux for 4 hours a day).

Results after 14 days:

- Satisfactory mold growth on all samples;
- Samples kept in the dark were colonized by different mold species than those exposed to sunlight;
- Q-field surfaces have some mold, but visibly less than the control surfaces;
- Q-field mold inhibition is quantitatively similar for the samples exposed to sunlight and for the samples kept in the dark.



Q-FIELD: Antimicrobial Labtests

Valencia lab : painted pieces with 4,5% Q-field.

Tested:

COVID 19 (virus)
NORO Virus

Pseudomonas aeruginosa (bacteria)
Escherichia coli (bacteria)
Staphylococcus aureus (bacteria)
Enterococcus hirae (bacteria)

Enterococcus faecium

Klebsiella pneumoniae

Salmonella enterica

Streptococcus pyogenes

Candida albicans (Yeast)

Aspergillus niger (fungi)
Penicillium pinophilum (fungi)

Legionella

Result:

Eliminated
Eliminated

Bactericidal effect
Bactericidal effect
Bactericidal effect
Bactericidal effect

Bactericidal effect

Bactericidal effect

Bactericidal effect

Bactericidal effect

Yeasticidal effect

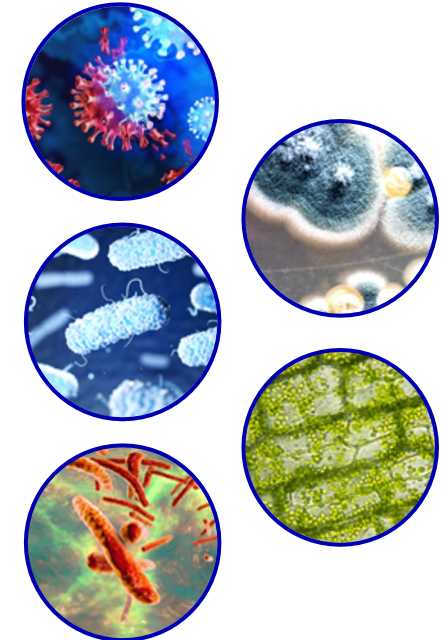
Fungicidal effect, but more tests
needed to be ISO compliant

Being tested



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Q-FIELD:

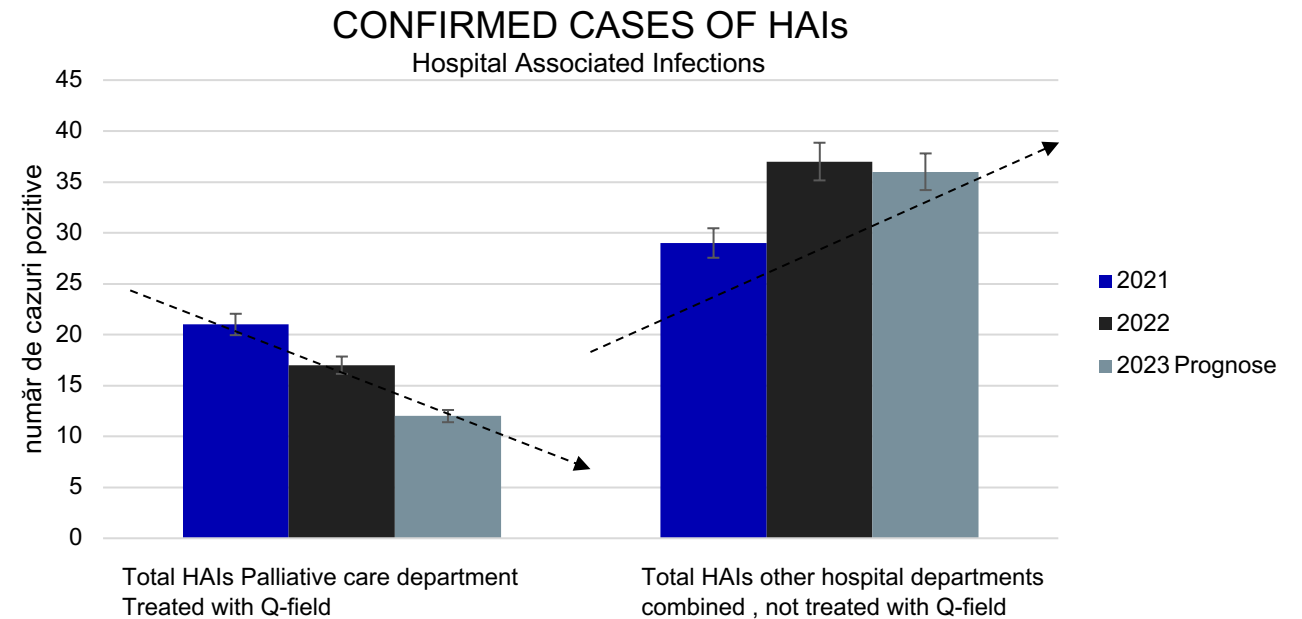
Antimicrobial Indoor Solution

The Q-field compound in the field test is coated on walls and ceilings, but in the future also on doorknobs, beds, doors, gear, tables, chairs.



Field test in Targoviste County Hospital, Romania.
2021-2023 (ongoing)

It is observed that, although at the level of the hospital there was an increasing trend in the number of cases confirmed by IAAM, at the level of the Palliative Care Department the number of cases associated with this department was decreasing.

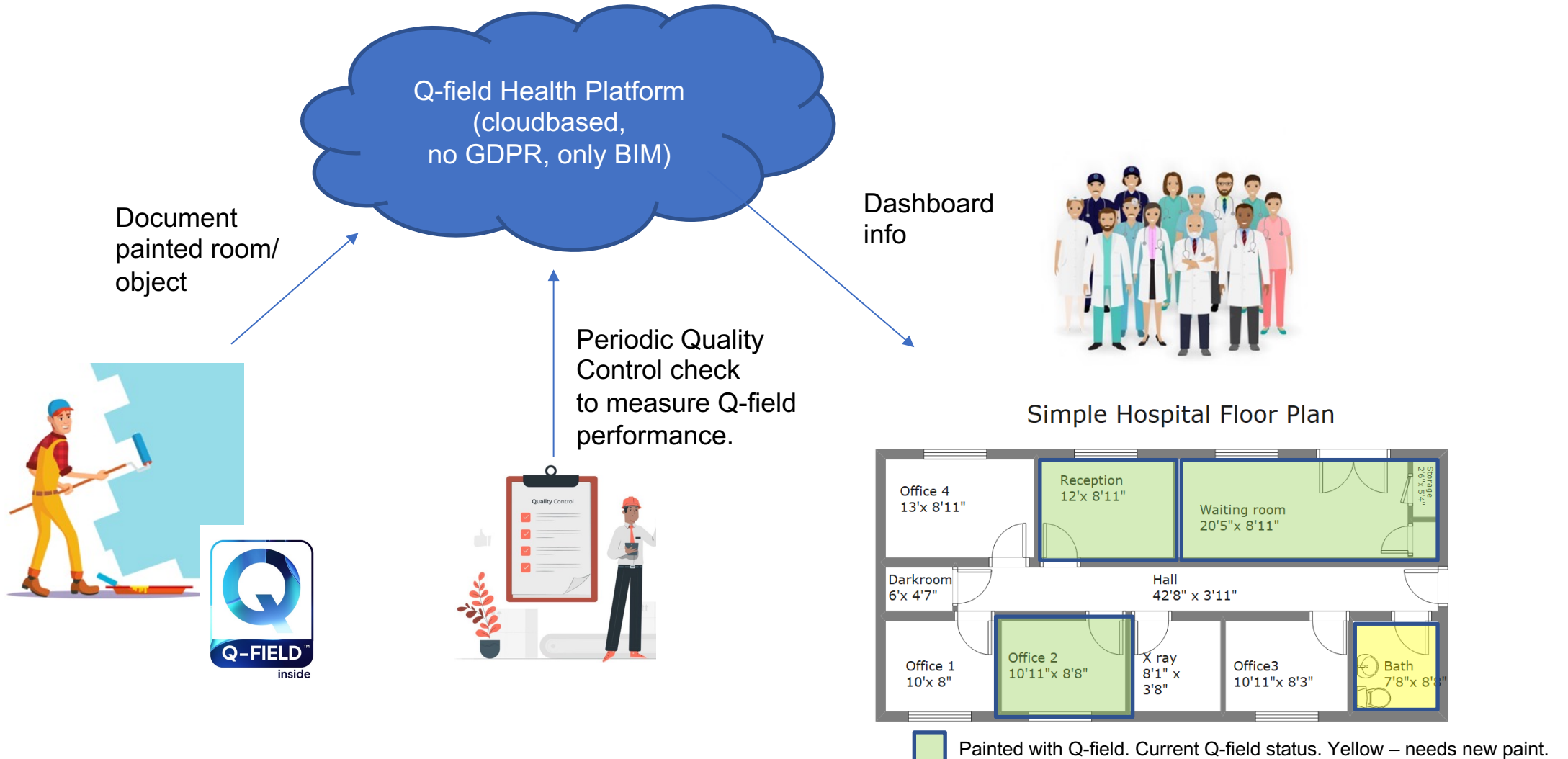


Over 20% reduction 2021 to 2022

Over 20% increase 2021 to 2022

Making safe spaces in buildings

Spectrum Blue Health Ecosystem



Life in Space? Yes.

Crewmen on the International Space Station are not alone. A microbial survey of surfaces within the orbital outpost found dozens of different bacteria and fungi species, including harmful pathogens such as *Staphylococcus aureus* – known to cause skin and respiratory infections as well as food poisoning.

These microbial populations could even make spacecraft sick, not just astronauts. Bacteria and fungi produce 'biofilms' – akin to the plaque on your teeth – that can in turn tarnish and eat away at metal and glass as well as plastic and rubber.

This problem proved acute in the latter days of the ISS's predecessor, the Mir space station, where microbial colonies were observed growing on parts of spacesuits, cable insulation and even the seals of windows.



— Fungal growth on ISS



Global market :



Painting indoors

Hospitals, medical facilities, labs, sanitary rooms, kitchens, food production

Saving lives, reducing hospital infections, reducing antibiotics, reducing epidemic.

Other High Potential Markets:



Boats: Integrated in plastic/gelcoat

Reducing growth/biofouling.



Marine paint for ships

Reducing growth/biofouling. Saving fuel consumption.



Coated HVAC systems and indoor furniture / walls / silicone / textiles

Reducing mold and bacterias in buildings





Spectrum Blue Core Team



Brage W. Johansen

CEO

Equinor Hydrogen, Zaptec, Desert Control, Heimdall Power. Several board positions.



Cezar Rujan

Chief Technology Officer

Heimdall Power, BearingPoint, PropTech Startups



Sjur Paulsen

Chief Communication Officer

Geelmuyden Kiese, DoubleThink, Desert Control, Various Startups



Razvan Bucuresteanu

Chief Science Officer & Inventor of Q-Field

Ex-Nuclear Technician, PhD in Q-Field (2023), BSc in Chemistry, MSc in Chemistry, MSc in Applied Biology and Immunology, Faculty of Medicine



Markus A. Karlsen

Chief Commercial Officer

SLB – Schlumberger Sales, Technology & Contracts, Intrapoint Digital, HMK Real Estate, MSc Management Controls, MSc in Mechanical



Ionita Monica-Nicoleta

Coatings Chemist

Ongoing PhD in Active Photocatalysts in TiO₂ Based Paints, BSc Chemistry, MSc Chemistry of Drugs & Cosmetics



**SPECTRUM
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founded in 2022

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