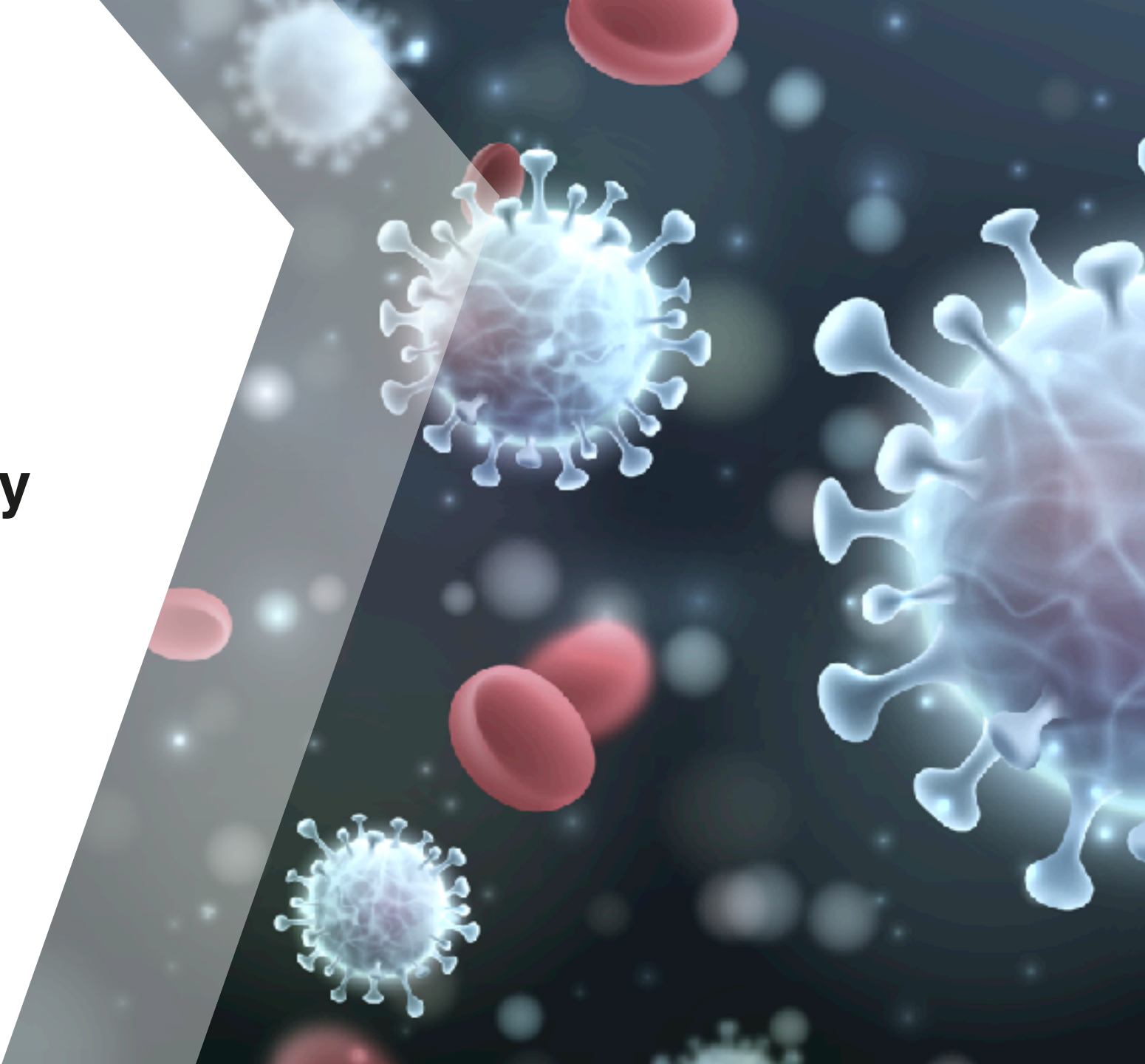


Whitebox presents

**UV-C disinfection
for everyone's safety**



Whitebox



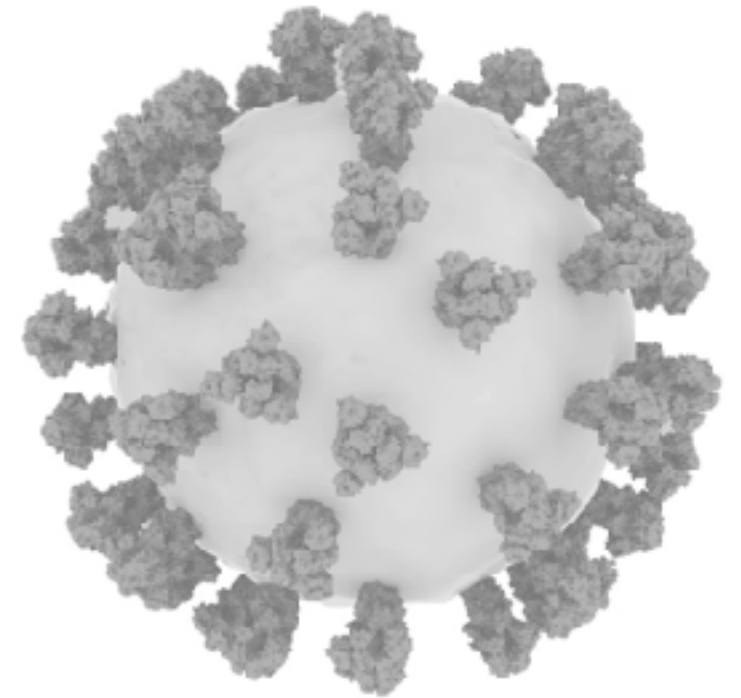
Facts: resistant bacteria

Over 25,000 people in the European union die every year as a result of infections caused by resistant bacteria.

The additional healthcare cost due to resistant bacteria is at least € 1.5 billions each year.

Direct consequences are; increased pharmaceutical costs, longer care periods, higher social costs, production loss, postponed treatment/surgery, overtime on staff, closed wards and admissions etc.

Source: Swedish social authorities, health authorities, WHO. Global action plan on antimicrobial resistance. Geneve: WHO; 2015 ECDC/EMA.



What we know?

Cleaning is not the same as disinfecting.

By cleaning, we remove germs and dirt from surfaces, but we do not kill germs.

Scientific studies shows that 50% or more hospital surfaces go uncleaned following terminal room disinfection.

Reports state that a hospital stay is often extended by almost a week per hospital-acquired infection, on top of other medical costs, including unnecessary deaths.

Today manual disinfection is at the core of all infection prevention programs.

Having enough time for effective disinfection in healthcare is expensive and really challenging.



How can UV-C LED light technology increase staff and patient safety?



But first; Principle of UVC technology

UV-C light disrupts the DNA and RNA of pathogens, eliminating their ability to replicate.

The technology

UV-C is a good for sanitation because it kills bacteria regardless of drug resistance and without chemicals

Helps us to take care of your problem effectively

UV-C have been proven highly effective against pathogens and come in a variety of forms — compared to other techniques

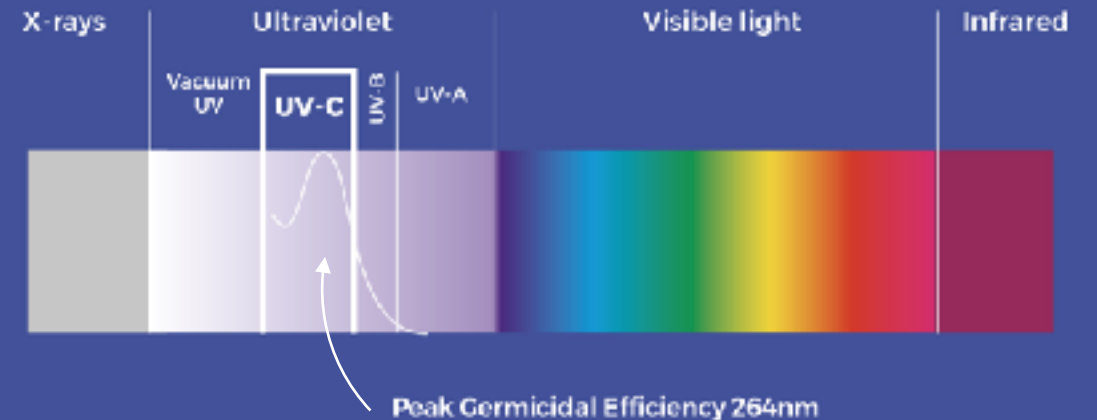
You get your problem solved where others fail

UV-C technology; how does it work?

UV light have been used for disinfection of hospitals and surgery rooms.

The technical solution is superior to alternatives, even to chemicals and alcogel solutions because of the range, effectiveness, and total disinfection.

Certain spectrum of the UV light, UV-C, can be used to sterilize, disinfect materials, air and water, among many other applications.



Benefits of using UV-C LED Light

- Disinfection 99,9999% of; virus, pathogens and bacteria.
- No chemicals are used during UV disinfecting processes.
- Safe and environmentally friendly.
- No risk of overdose breathing in chemicals.
- No toxins. Less risk of allergic reactions.
- Completely mercury free.



Whitebox

Benefits of using UV-C LED Light

- Disinfects in seconds, saves time and avoid cost.
- Fully automatic disinfection process.
- Easy to install, user friendly, environmentally safe.
- High and reliable disinfection results reduces staff sick leave.
- Proven technology, well documented scientifically and in laboratories.
- Reduces costs, long lifetime, low maintenance costs.
- Less use of chemicals, save time and reduce costs.



Case study 103

clinical trials

Enhanced terminal room disinfection and acquisition and infection caused by multidrug-resistant organisms and *Clostridium difficile* (the Benefits of Enhanced Terminal Room Disinfection study): a cluster-randomised, multicentre, crossover study.

Deverick J Anderson, MD, Luke F Chen, MBBS, Prof. David J Weber, MD, Rebekah W Moehring, MD, Sarah S Lewis, MD, Patricia F Triplett, MD, Michael Blocker, MD, Paul Becherer, MD, J Conrad Schwab.

The report highlights two problems to consider UVC disinfection at hospitals. First, hospitals are contaminated with clinically important multidrug-resistant organisms and *C difficile*. Meticillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and *Acinetobacter* spp can survive on inanimate surfaces for days, and *C difficile* can survive for months. Second, only 50% of surfaces in hospital rooms are sufficiently cleaned between patient stays.

This finding of UVC usage is important. The standard approach for room cleaning involves the use of a quaternary ammonium disinfectant. Participating hospitals used three methods for killing the pathogens: irradiating the room with UV after using a quaternary ammonium disinfectant, replacing the quaternary ammonium disinfectant with bleach, and replacing the quaternary ammonium disinfectant with bleach and irradiating the room with UV light. The researchers found that the most effective strategy was to proceed with a quaternary ammonium disinfectant, followed by UVC light.

The study implies that it may also be relevant to alternate disinfectants. For example, the researchers found that using chlorine bleach instead of quaternary ammonium together with UVC light cut transmissions of VRE by 64 percent.

Case study 104

clinical trials

Ultraviolet Lighting During Orthopaedic Surgery and the Rate of Infection.

Merrill A. Ritter, MD, Emily M. Olberding, BS, and Robert A. Malinzak, MD

The study reports from an analysis about whether Ultraviolet lighting can be an alternative to laminar airflow in the operating room that may be as effective for lowering the number of environmental bacteria and possibly lowering infection rates by killing the bacteria rather than simply reducing the number at the operative site. The purpose of the present study was to compare the infection rates following joint replacement procedures performed by one orthopaedic surgeon with and without the use of ultraviolet lighting.

5980 total joint replacements at one facility is part of the study.

The study reports the odds of infection were 3.1 times greater for procedures performed without ultraviolet lighting (and with laminar airflow) as compared with those performed with only ultraviolet lighting ($p < 0.0001$). The infection rate associated with total hip replacement decreased from 1.03% to 0.72% ($p = 0.5407$), and the infection rate associated with total knee replacement decreased from 2.20% to 0.50% ($p < 0.0001$).

Whitebox standard products

Micro box



Designed to disinfect bacteria, viruses, and microorganisms on smaller items, such as reusable face masks (N95), key cards, glasses etc. Safe and proven UV light technology. No toxic substances or alcohol-based liquids.

Weight 4 kg
W 220 mm
H 247 mm
D 306 mm

Mini box



Designed to disinfect bacteria, viruses, and microorganisms on smaller items, such as PPA's, VR-goggles etc. Safe and proven UV light technology. No toxic substances or alcohol-based liquids.

Weight 6 kg
W 326 mm
H 432 mm
D 343 mm

Large box



Designed to disinfect bacteria and viruses from hospital equipment such as wheel-chairs, crouches and hospital walkers. Automatic cleaning. Digital screen showing cleaning progress. Important protection to avoid infection caused by contact with contaminated surfaces. Utilizes a very short and efficient UV-C treatment cycle.

Weight 87 kg
IP class 20
UV led
Instant start
W 800 mm
H 1300 mm
Length 1350 mm

Air cleaner



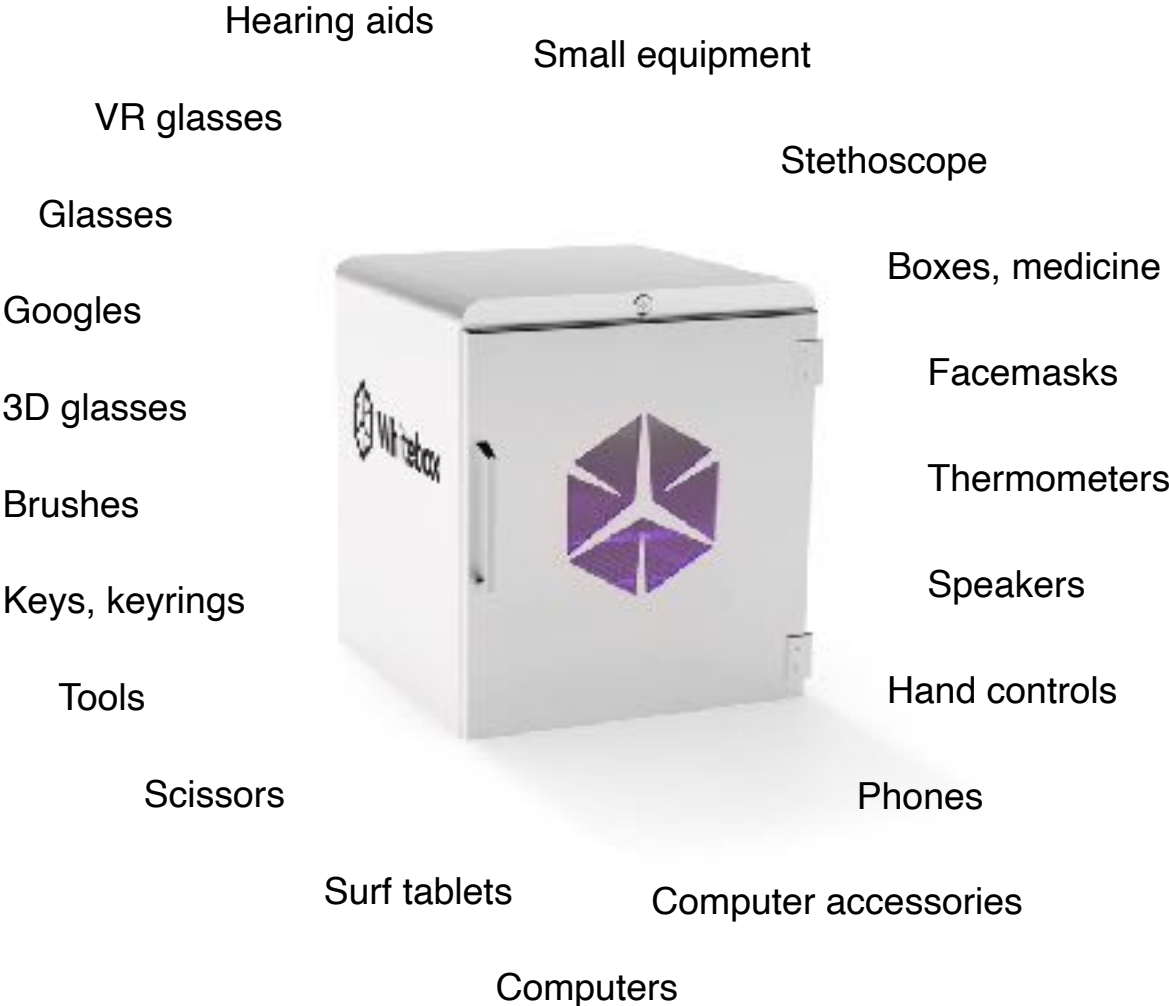
Designed to disinfect bacteria, viruses, and microorganisms. The air disinfection unit disinfects air from bacteria and viruses to protect staff and patients. Automatically cleans air. Metal casing with smooth surface finish. Available in black and white. Standard mounting accessories included.

Weight 5,6 Kg
200-240V
IP class 20
Light source UVC 254
Instant start
Capacity 70 M3/h
Noise 40 db

Whitebox UV experts offers custom and special solutions on request for hospitals and care facilities.



Items to disinfect in the Whitebox Mini



Items to disinfect in the Whitebox Large



Whitebox Air Cleaner

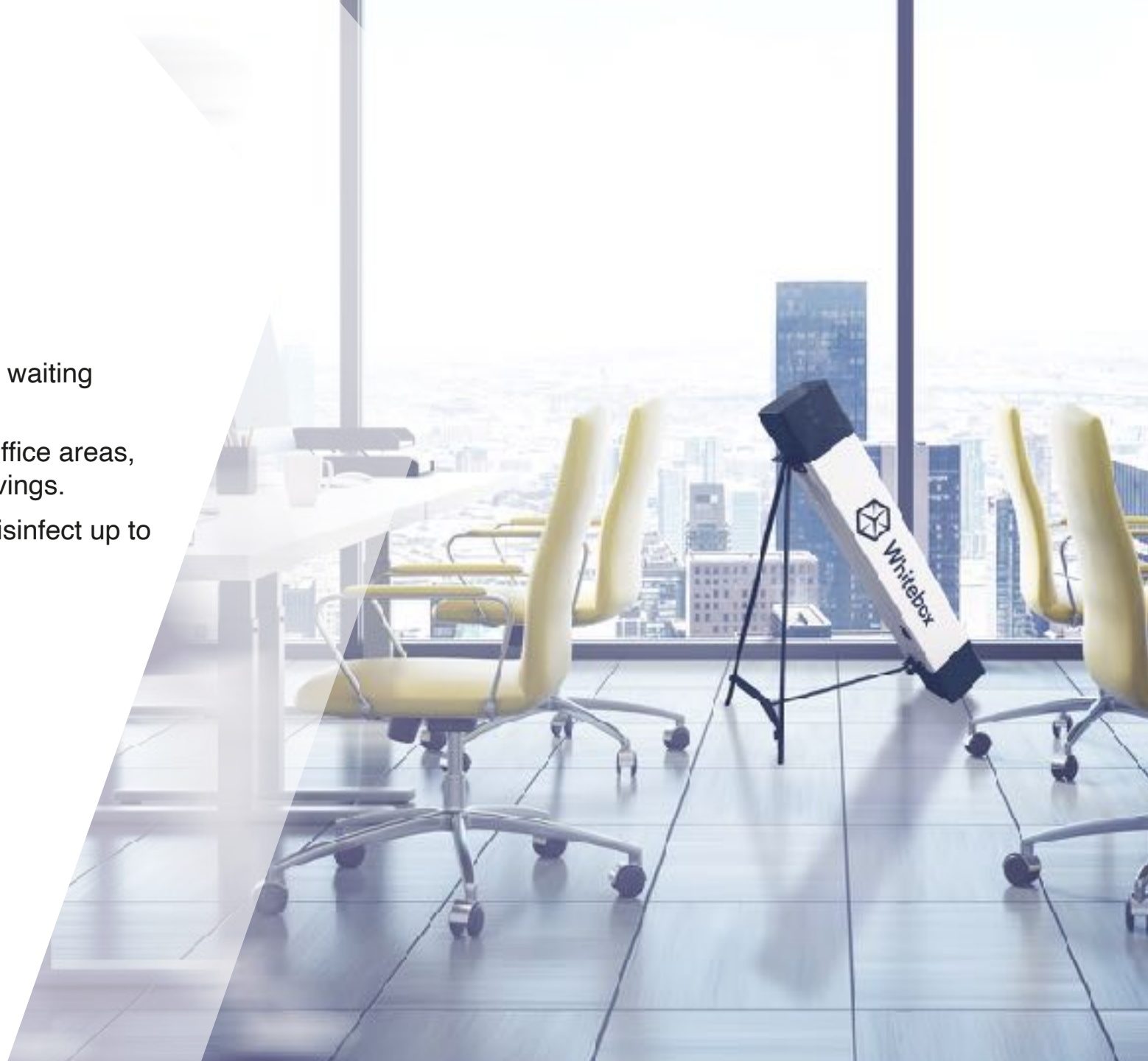
Silent disinfection of room air from bacteria, viruses and microorganisms.

The cleaning is targeting the smallest viruses, including COVID-19 that may pass mechanical filter solutions.



Whitebox Air Cleaner

- For hospitals:
 - Examination, treatment rooms, public areas, waiting rooms, patient rooms.
- For municipalities: Kindergartens, schools, office areas, public areas, elderly care facilities, special livings.
- Each air cleaner covers up to 70 Sqm and disinfect up to 99,9 % of all bacteria and virus.



Whitebox unique features

Box

Capsule the UVC light inside the box to make sure no leakage of UVC. This to secure the staff operating the box.

Easy to install

Plug and play, only need a power outlet.

Automatic

Fully automatic process of disinfection. Always consistent results, no human-factor. Remove time consuming manual disinfection to free more time for patients.

Screen

Show status of UVC disinfection process.

Environment

Only UVC light is used to disinfect which means no harmful chemicals is needed.

Dry

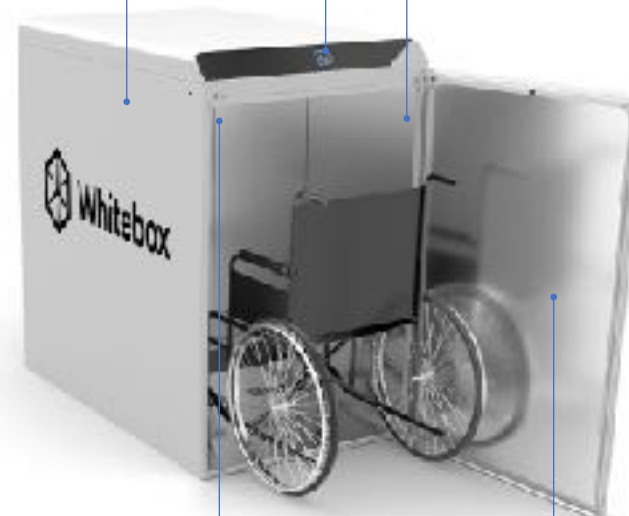
Completely dry disinfection = No danger of harming electronics inside object.

UVC LED

High quality UVC LED chip mounted on PCB with external cooler to ensure long lifetime of LED chip.

Reflector

High reflective sheet-metal in ceiling, floor and all walls, this help the UVC light that miss the object to bounce back to make sure all visible areas get treated with UVC.



Reference case Malmö

The new hospital will have 23 operating theatres with 12 screening rooms and 46 postoperative sites.

The intensive care ward will have 14 places for both adults and children

Whitebox tunnel solution will be installed and function as the lock between the decontaminated sterile area department.

The hospital will open 2024.



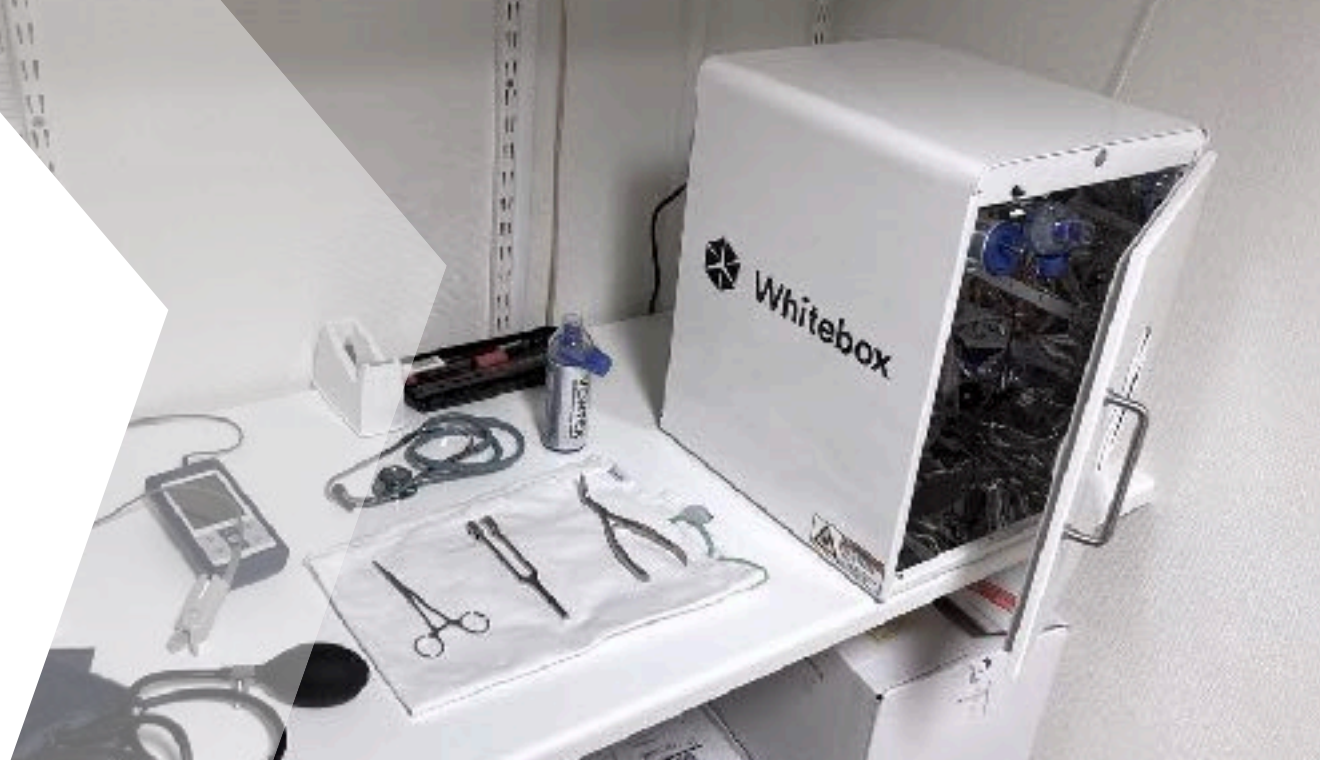
Reference case hospital

Region Vasterbottens hospital in Skelleftea chose Whitebox mini for their examination rooms.

“We use it for various equipment such as blood pressure cuffs, oxygen meters, tools, scissors etc.

We have previously only and mainly used alcohol-based cleaners and now see many benefits with the Whitebox UV solutions.

We save time and avoid costs by using less liquid products”, says nurse Johan Heed



Reference case; Whitebox nominated by NHS

Mackwell Health Whitebox solution nominated by NHS for best innovation in healthcare.

“The Mackwell Health Whitebox creates a sustainable approach to PPE, promoting a circular economy model that benefits the environment, increases the volume of quality equipment for health staff, and improves cost efficiency.

We are proud to be partnering with such a forward thinking and innovative organisation as Whitebox, delivering its solution to make a positive impact within healthcare.”

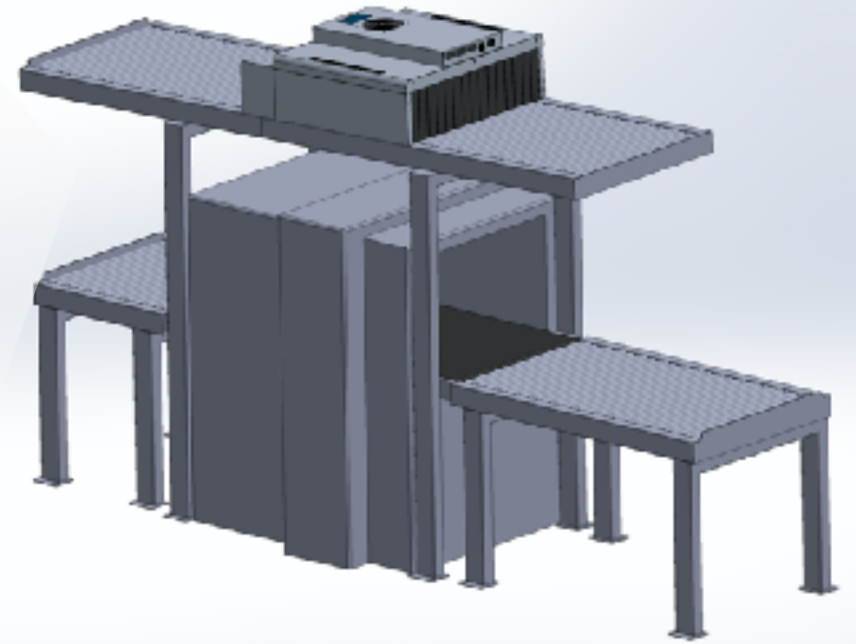


Reference Case: Forensic psychiatry in Sweden

Whitebox to install a UV disinfection security lock solution for the forensic psychiatry in Sweden.

Today, there are just over twenty forensic psychiatric care units in the country, from Öjebyn in the north to Trelleborg in the south. There are about three different size classes of clinics where the largest have about 100 patients in inpatient care.

With the Whitebox UV solutions for security controls we found an additional way to prevent virus and bacteria from spreading in our facilities.



Question for you?

Where do you see the biggest need for UV based disinfection solutions in your facilities?

What are most common products you disinfect today?

What do you consider being the best argument using UVC disinfection solutions?

