



Net Zero Innovation Spotlight

Solutions for a greener NHS
March 26 12:30





WHO WE ARE

We are the Health Innovation Network and innovation partner for North West London.



We exist to support the population of North West London to live healthier, happier lives. We achieve this by testing, spreading and scaling impactful innovation.

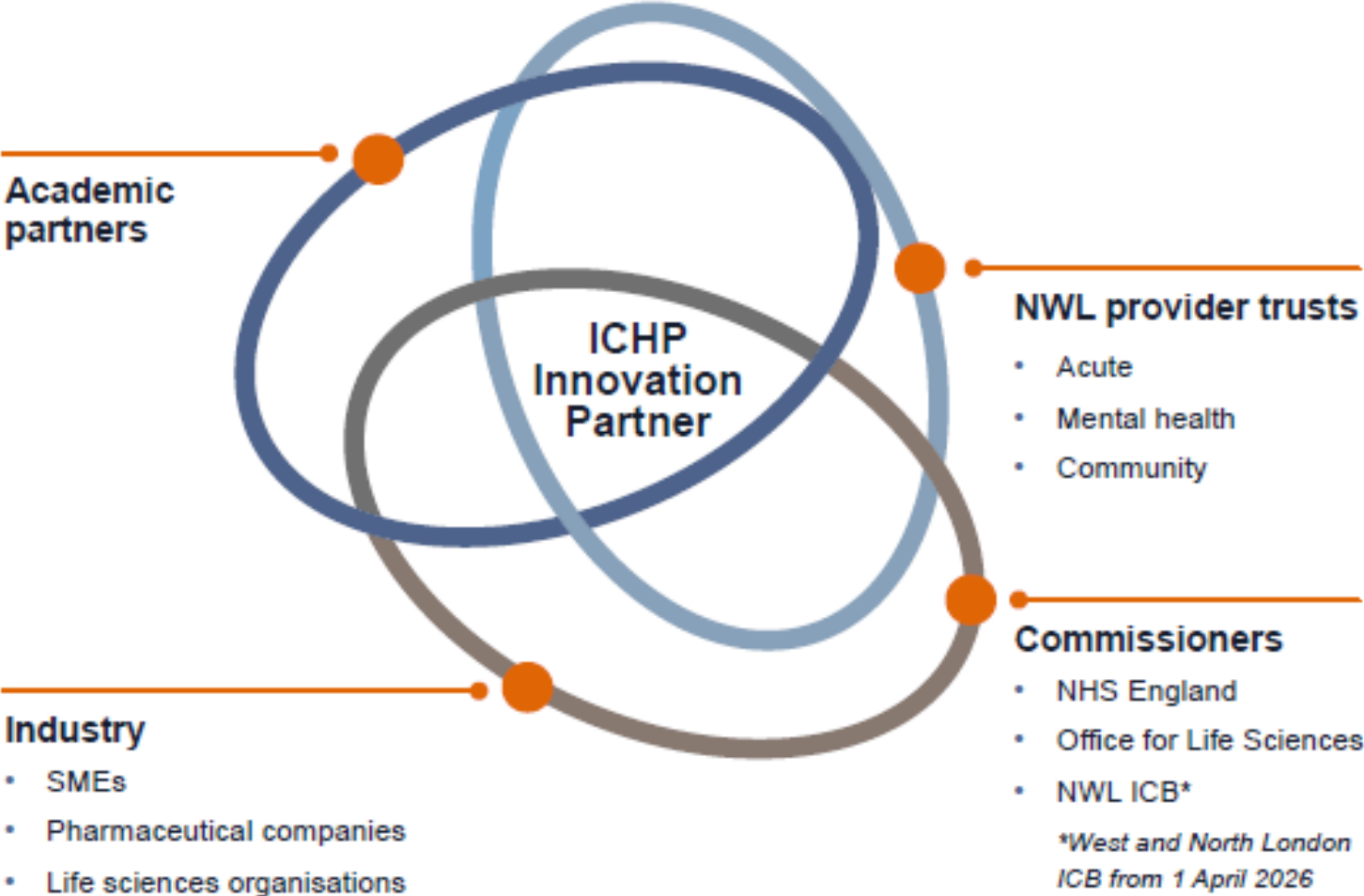


We are a membership organisation, owned by North West London's healthcare and academic organisations.



We work across sectors to address the complex health challenges facing our population.

We are the innovation partner for North West London



LabCycle



Innovate
UK



West of England
Academic Health
Science Network



Royal Academy
of Engineering



UNIVERSITY OF
BATH



The AHSN Network England
NHS Innovation Accelerator

LabCycle

Pioneering the circular economy for contaminated
plastic waste in the healthcare & research sectors



labcycle.org



Colinfrancis@labcycle.org



[labcycleltd](#)

The Problem



Single use plastic waste from healthcare & research



5.5M

Tonnes of single use plastic produced annually worldwide

90%

Of waste is hazardous with only one market solution: Incineration

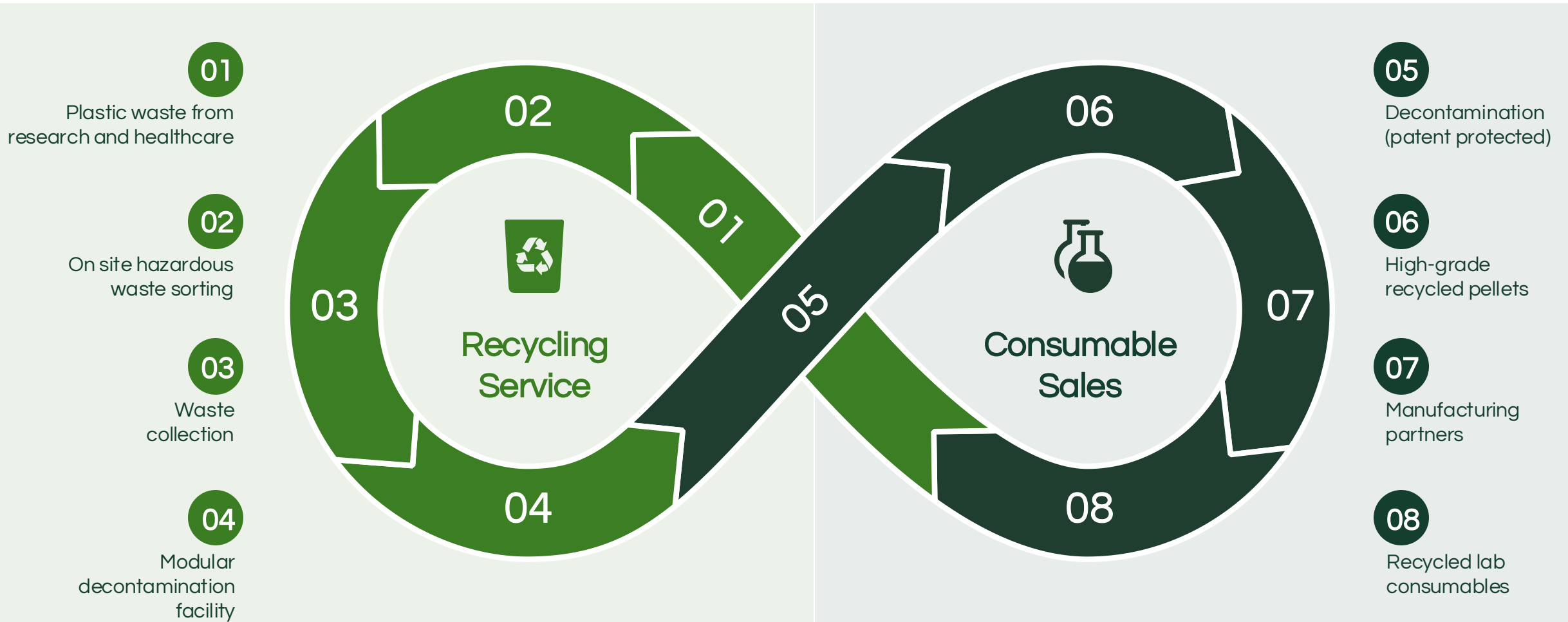
NETZERO

Increasing pressures to deal with the waste more sustainably



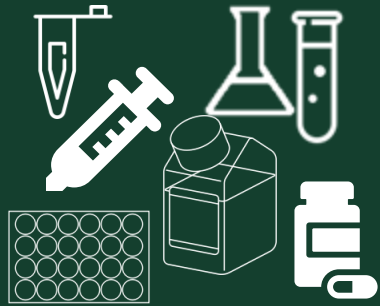
The Solution

LabCycle's Circular Model





Life Cycle Analysis



Resource saving

Decontamination process with >98% material recovery rate



Energy saving

>70% reduction in energy consumption compared to autoclaving



Water saving

75% reduction in water consumption compared to autoclaving

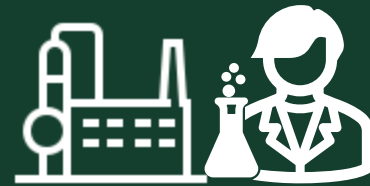


Carbon saving

90% reduction in CO₂ emission compared with incineration

Case study

University of Bath



8 labs
>50 participants



<1% error rate in
waste segregation



1.5 tonne of
consumables (June
2023 – June 2025)



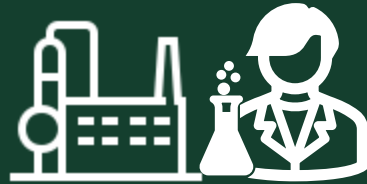
>4.5 tonne
CO₂ Saving



4.5 petrol cars
driving 7,600
miles for a year

Case study

NHS Blood and Transplant Bristol



3 facilities
20 participants



<1% error rate in
waste segregation



>93%
satisfaction rate



212 kg of
consumables
(April – July 2023)

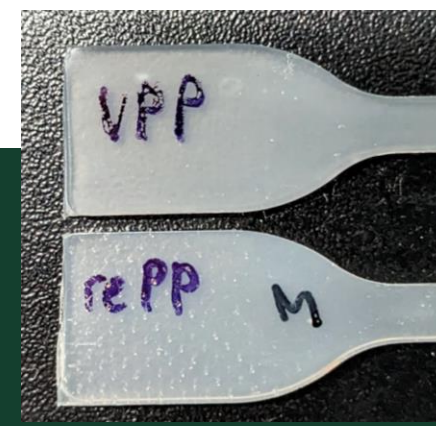


638 kg
CO₂ Saving



Transferrable
operation
protocol

Recycled Polymer Characterisation



Recycled PS

Recycled PP



Recycled PC

Recycled PET



ISO 527



High-grade
recycled polymers



Products made of recycled plastics



Dosage cups made of
100% recycled PS



Petri dishes made of
100% recycled PS



Test tubes made of 100%
recycled PP & HDPE



Pot made of 100%
recycled coloured HDPE




Case study

St Peter's Hospital ITU & Somerset NHS Histology Department




Somerset
NHS Foundation Trust

 30+ participants

 857 kg
(12 months)


 ~2571 kg CO₂
saving/year

 <1% error
in sorting




**Ashford and
St. Peter's Hospitals**
NHS Foundation Trust

 20+ participants

 262 kg
(9 months)

 ~1048 kg CO₂
saving/year

 <1% error
in sorting



Innovate
UK



West of England
Academic Health
Science Network



Universities of Bath, Bristol,
Exeter, Southampton & Surrey



Royal Academy
of Engineering



UNIVERSITY OF
BATH



The AHSN Network England
NHS Innovation Accelerator

Thank you

Please contact us if you have any further questions.



 labcycle.org

 helenliang@labcycle.org

  [**labcycle**td](https://www.linkedin.com/company/labcycle/)

SleepAngel

SleepAngel



What is the problem?

The majority of pillows used in healthcare are budget-grade polyester, designed for low cost rather than durability. They act as reservoirs for pathogens, including MRSA and *C. difficile* and make great homes for allergens, bacteria, mites and more.

This type of pillow cannot effectively be cleaned and can therefore almost be classed as **Single Use** leading to vast amounts of waste going to landfill or incineration.

More expensive waterproof, wipe clean pillows are a great step up (in terms of infection prevention) and are in use across the NHS.

The standard description for these is: “ Waterproof, wipe-clean, fire-retardant polyester hollowfibre pillows with a sealed polyurethane cover.”

A nurse’s description for these is: “They are like a plasticky balloon, designed for durability not comfort and they go to landfill when they’re done”

These, ‘traditional’ pillows often need pillowslips which must be laundered, a level of stock must be held for quick replacements etc etc. It’s just a constant throughput of polyester to landfill.

A reasonable estimate of how many pillows the NHS bought in 2025 is 500,000 – 1M



Traditional pillows are polyester with a short lifespan.
Their low cost is false economy.

What is the Solution?

SleepAngel®

SleepAngel® pillows are not new to the NHS. In fact, they are in use in 5 trusts. We are now rolling out adoption across the NHS.

In contrast to the standard NHS tariff pillows, SleepAngel® is sealed by ultrasonic welding and incorporates Pneumapure® Barrier Filter technology which allows the pillow to vent without allowing ingress or egress of pathogens, liquid droplets or insects (such as mites and bedbugs) while remaining breathable and comfortable for patients.

Certified as Class I Medical Devices in the EU and USA (FDA)

On NHS Supply Chain Textiles and Associated Products Framework from April 2026 but available now via e-Direct ordering from info@robsonbrowninternational.com

Adopting SleepAngel Pillows will:

- Improve Patient Safety
- Save the NHS £Millions in Direct Purchasing Costs
- Drastically reduce HAIs and save the NHS £Millions in the associated costs of HAIs
- Reduce Bed Days, Staff Absence Days and Laundry Costs
- Hugely positively impact Sustainability
- Save Lives



SleepAngel. The effect on Sustainability

For very little effort, adopting SleepAngel pillows would have a major impact on sustainability for several reasons.

1. Sustainable Materials: Manufacturer Gabriel Scientific worked with global leaders in sustainability; Primaloft Inc, and Fiberpartner ApS to develop an optimum filler for the pillows.

- The result is, standard fibre pillow filling has been completely replaced with the first-ever, in products of this kind, biodegradable*, 100% recycled synthetic staple fibre, reducing up to 70% of CO₂ emissions. The source product is predominantly plastic bottles.
- In the formal testing process, the fibres reach near complete biodegradation* in under two years. Standard polyester remains almost entirely intact in this timescale. Independent testing has also shown that the soil left behind from the degradation process contains no plastic and is perfectly suitable for plant growth.

2. Lifespan: SleepAngel pillows last longer than traditional pillows – a lot longer. In fact there are SleepAngel pillows in a NHS trust in Cumbria that are 13 years old.

3. Volume: One or two pillows per bed.

4. Laundry: SleepAngel pillows require no laundry, simply wipe clean and replace on the bed even if they have been in contact with contamination. Pillowslips are optional.

5. Infection Prevention: In NHS trials, HCAs in wards with SleepAngel pillows reduced by 50% in year 1 and a further 50% in year 2. The benefits of this are colossal.



PrimaLoft, Inc., an advanced material technology company based in New York, is the world leader in research and innovative development of high-performance comfort solutions insulations and fabrics.

Fiberpartner ApS is a Danish, leading global supplier with more than 160 years of experience in textiles and a strong technical and commercial expertise in staple fibres as a raw material.

Gabriel Scientific medical technology company that designs and manufactures innovative healthcare and bedding products focusing on improving patient safety, hygiene, and sustainability.

In year 1 HCAI's in wards where SleepAngel pillows were adopted reduced by 50% and a further 50% in year 2.

Professor Art T. Tucker of St Bartholomew's Hospital carried out trials of SleepAngel pillows versus traditionally used pillows.

The investigation found that many standard pillows showed structural damage, contaminated stitching seams, and in some cases heavy microbial growth inside the pillow core within just weeks of use.

Compression of these pillows was shown to create clear pathways for air — and potentially contaminants — to be expelled back into the patient's breathing zone via stitching holes and vents.

In contrast, none of the SleepAngel pillows tested showed any internal contamination during the evaluation period

Title: "Evaluation of the SleepAngel® pillow for the prevention of HCAI in the clinical environment."

Conclusion: "SleepAngel® should be viewed as an infection control medical device offering significant improvement over the current pillow provision within the NHS tariff"

Number of Beds	1000		
	1 Year Data	5 Year Data	10 Year Data
Reduction of HAIs	4523	31659	63319
Cost Saving relating to HAIs (@£3237 per HAI)	£14,640,228	£102,481,594	£212,283,303
Direct Purchasing Cost Saving	£73,800	£521,800	£1,081,800
Number of Pillows Less Used	15800	79800	159800
Bed Days Saved	38503	269523	558297
Staff Absence Saved	432	3025	6267
Lives Saved	155	1082	2241

Summary

- Cost £44 each (traditional pillows range from £3 to £35) BUT – lifespan is potentially 10 years+ versus circa 12 weeks so in fact a huge cost saving.
 - Available on a lease arrangement at <£6 per quarter if no capital budget available
 - Need around 50% less pillows than traditional, so less storage
 - No laundry, no pillowslips = less effort on the ward
 - HUGE potential savings related to HCAs and ward decontamination costs
 - No cotton, no polyester
 - Compostable, utilises plastic waste, no landfill or incineration charge.
-
- Many more products to follow including; positioners, mattresses, blankets, baby range, maternity range.



SleepAngel.



SleepAngel®

Please help us with the adoption of SleepAngel across the NHS.

Pam Robson, Joint CEO and Founder,
Robson Brown International Ltd

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T: 0191 4356181



**ROBSON BROWN
INTERNATIONAL**

EMSOL

Air Quality Innovation - Proven by the NHS



**Monitoring pollution
is not enough.**

**EMSOL is the first
to transform air
quality breaches
into real, actionable
solutions**



New initiative - Air Quality (NHS)



Video integration to Air Quality

CAUSE of POLLUTION SPIKES

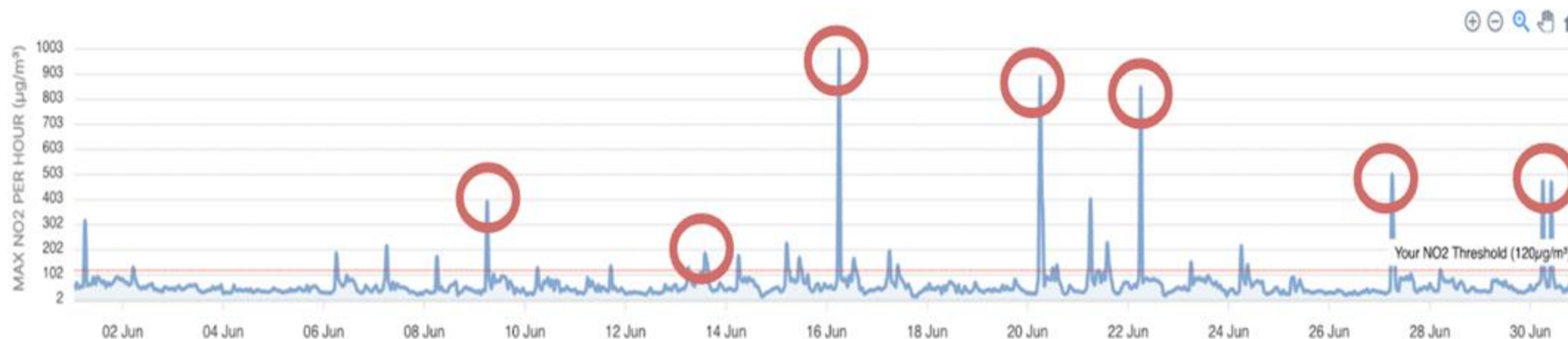


Site based Emissions - Tracking Against Targets



NO₂ **32**
events

Nitrogen Dioxide (NO₂) is a gas. The combination of NO₂ and nitrogen monoxide (NO) is known as NO_x. According to 2015 Defra study, 80% of NO_x gasses come from transport, and one third of that from diesel cars. Much of the remaining 20% comes from gas combustion from boilers. Readings this month were between **14.54µg/m³** and **1003.3µg/m³**.



CATEGORY 1: Site activity			CATEGORY 2: Supply Chain activity		CATEGORY 3: Human & Other activity		
22	15	10	12	23	26	11	8
Generators purging	Extractor Vents	Unloading activities	Vehicles Manoeuvring	Vehicles Idling	Smoking	Sweeping/Power Washing	3rd Party Sites/Road pollution

Driving Emission Reduction in the NHS

* HIGHEST PM2.5

* TOP 10 PM2.5

09:29 PM25_DIFF (74)



Site based Deployment - Per Zone



From £375 to
£579 per
month per zone

Zones: Entrance, Car Park, Loading & Ambulance Bays



Supply
Chain
Licences -
Loading
Bays

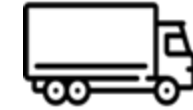




Implementation of a **demand smoothing** and **supply chain optimisation** action



972kg
of CO2
saved pa.



30%
reduction in
delivery
days

Case Study: Hampshire Hospitals

- Video evidence identified idling vehicles at the Hampshire site as the primary source of pollution. Armed with visual proof, the Trust implemented targeted changes to driver behaviour. With delivery days reduced by 82% & projected CO2 reduction of 972kg per annum.



"We've got the recording that says this activity caused this spike and it's above the background level. So we're able to isolate a particular cause of a pollution spike. And that is it's gold dust for talking to people about changing behaviour."

Andrew Whincup, Travel Manager, Hampshire Hospitals NHS

Testimonials



“It's a really good thing. It helps us deliver our green plan. It really demonstrates for a relatively modest amount of money, if you do the right things, you can make a difference.” -

**Becky Jones - Sustainability Lead
Mid & South Essex NHS**



Freddie Talberg
(CEO)

freddie@emsol.io

“This technology is a great way to prove our commitment to improving air quality... we couldn't find any other organisation that provided both pollution monitoring and the video evidence.” -

**Gillian Brown - Head of Sustainability
Hampshire Hospitals NHS**



James Coates (NHS Lead Acct
Manager)

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www.emsol.io

Veraco HyGe

HyGe[®]

Smart Dispenser

Create plastic-free surface
wipes on demand. No more
plastic packs or canisters.



HyGe[®]



About Veraco

Who we are

Veraco is a UKRI grant funded innovation company working on sustainable technology solutions to challenges in healthcare.

Smart surfaces: Developing antimicrobial surfaces in oncology wards to reduce cross contamination in immunocompromised patients. This

technology currently involved in clinical trials in Imperial College Healthcare NHS Trust as well as the middle east.

Chitosan-loaded packaging: Creating a natural antimicrobial packaging environment that extends the shelf life of fresh fruit reducing food waste.

National rollouts: for the likes of Wincanton & Deutsche Bank.

LMIC programs: Veraco is in the process of starting projects up in Pakistan & Ghana looking into the effect of innovative antimicrobial technology on AMR in LMIC.

Decarbonising healthcare: With the launch of the HyGe smart dispenser Veraco is leading the way in the sustainable wet wipe market.

Our partner organisations:



Testimonials



"It's a game-changer for our practice. The dual-function feature is incredibly convenient, allowing us to quickly and easily access both dry paper towels or create a perfectly saturated wipe when we need them. This not only improves efficiency but also reduces our environmental impact by eliminating single-use plastic wipes. Our staff and patients alike are super impressed. A massive thank you to the team at Veraco - they have been great with us from the start!"

Buckingham Gate Orthodontics

Lanah Hector, Practice Manager



"Veraco's Wipe Dispenser is a must-have for any dental practice. It's efficient, sustainable, and has saved us thousands. Everyone loves it! Highly recommend!and patients alike are super impressed. A massive thank you to the team at Veraco - they have been great with us from the start!"

Kentish Smiles Clinic

Dr Madhavi Sadalkar, Practice Owner



"The Veraco team have been excellent with us! They provided support throughout the entire process, from the initial demonstration to onboarding. I highly recommend Veraco and the HyGe Smart Dispenser to any dental practice looking to enhance sustainability and efficiency."

Cornerstone Dental Practice

Dr. Priyanain Arora, Principal Dentist



"Veraco dispensers helping us make a huge reduction in our carbon footprint, they're saving us a lot of money every single month. From the moment we were first put in touch with Charles at Veraco, to the innumerable questions we've asked before ordering and since fitting the units, we've had a first class service and could not recommend these dispensers more highly."

Smiles in tandem

Dr Karl Walker-Finch





The Problem

Single Use Plastic Waste

1 Dental Practice

75,000 x **2g**

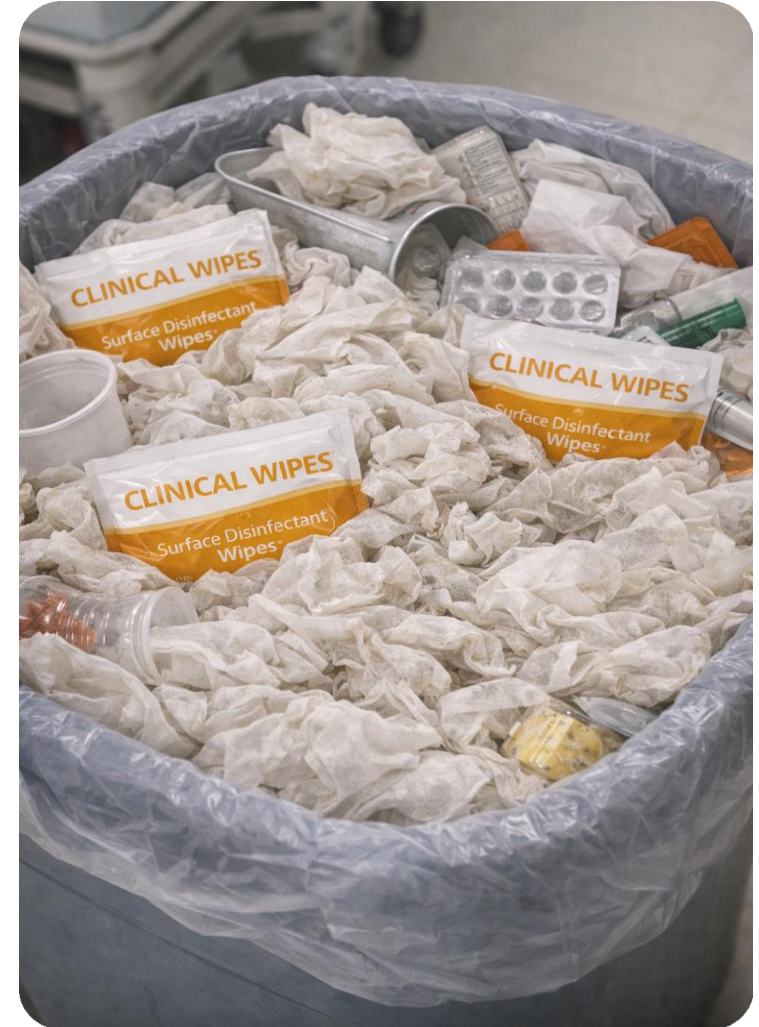
Wipes per year
per practice

Dry weight
of 1 wipe

150kg + **375**

of single use plastic wipes

Plastic wipe packet per year - Based on
200 wipes per pack



Product Overview

How HyGe Works

- 665 wipes per roll
 - Disinfectant tank capacity: 665 wipes
 - Touch-free operation to support infection control
 - 2-in-1: wet and dry wipe option
 - Delivers a precise, consistent dose of disinfectant per wipe
-

hyge.co.uk



HyGe®



Environmental Impact

Environmental Impact

Reducing Waste

In a recent study with dental professionals it was shown that on average 29% of wipes are wasted.

With an average size single dental practice using over 75,000 wipes a year, this equates to a huge amount of plastic wipes and resources going to waste.

The main causes were:

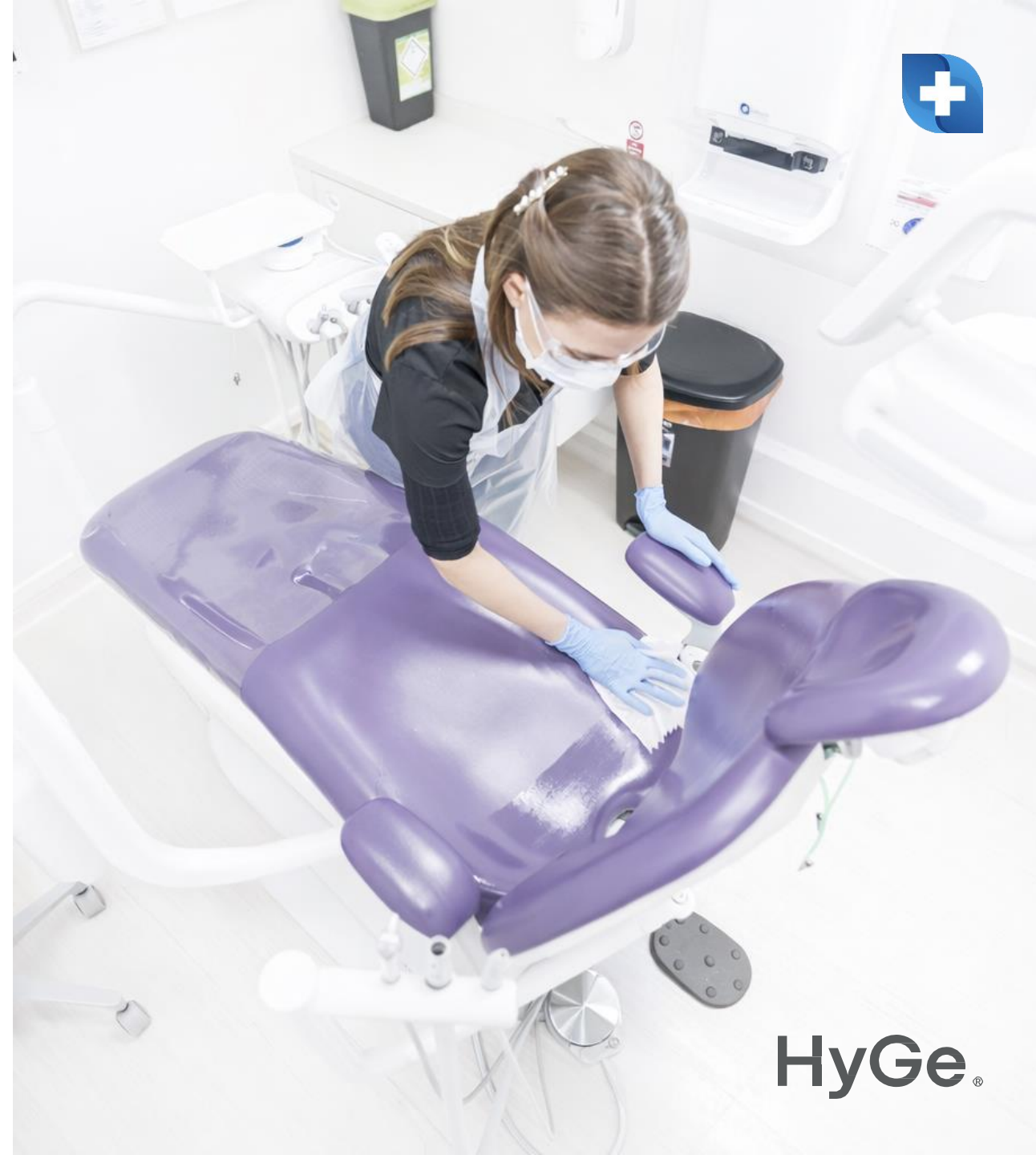
- ✓ The top wipes drying out
- ✓ The whole packet drying out
- ✓ Multiple wipes coming out at once

Disposal Volumes: Plant-based vs. Plastic Wipes

Plant-based wipes occupy approximately one-fifth of the volume of plastic wipes when disposed of in rigid containers.

2. Approximately **5x** the number of plant based wipes can be disposed of than the market lead plastic wipes in offensive waste (tiger) bags.

hyge.co.uk



HyGe®



Environmental Impact - LCA

LCA - Paper v Plastic

A recent LCA study found that Veraco's paper clinical wipes emit less carbon than single-use plastic wipes.

The Results

84%

Reduction in carbon emissions from Veraco paper wipes compared to industry standard plastic wipes.

The smart dispenser carbon break even point is 424 wipes, equivalent to

1 Week

of use by the average dental practice.


UCLPartners
Health Innovation

Better Futures

hyge.co.uk



53.06

Kg Co2 eq Savings per 1000 uses [compared Veraco wipe dispenser wipes with Single use plastic wipes]

HyGe®

Next steps

Large presence in the dental market:

Rationale: identified as the highest use of wipes per room in healthcare.

We are now looking to expand into other areas of healthcare, including:

- . GP Surgeries
 - . Dialysis units
 - . Phlebotomy clinics
 - . Oncology day units
-
- . All Outpatient areas

hyge.co.uk



Thank you for listening

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VERACO[®]
Innovation in Healthcare

HyGe[®]

Veraco Ltd. LM08.102, Leather market, 11/13 Weston Street, London, SE1 3ER

Net Zero Healthcare Impact

EMPOWERING HOSPITAL'S RESILIENT AND SUSTAINABLE FUTURE

Net Zero Innovation Spotlight: Solutions for a greener NHS

March 26, 2026



NZHI

Net Zero Healthcare Impact

Climate change is harming UK and Europeans' health



Vector-borne
disease spread

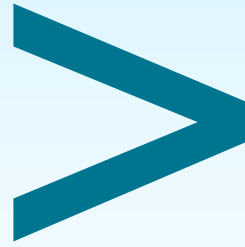


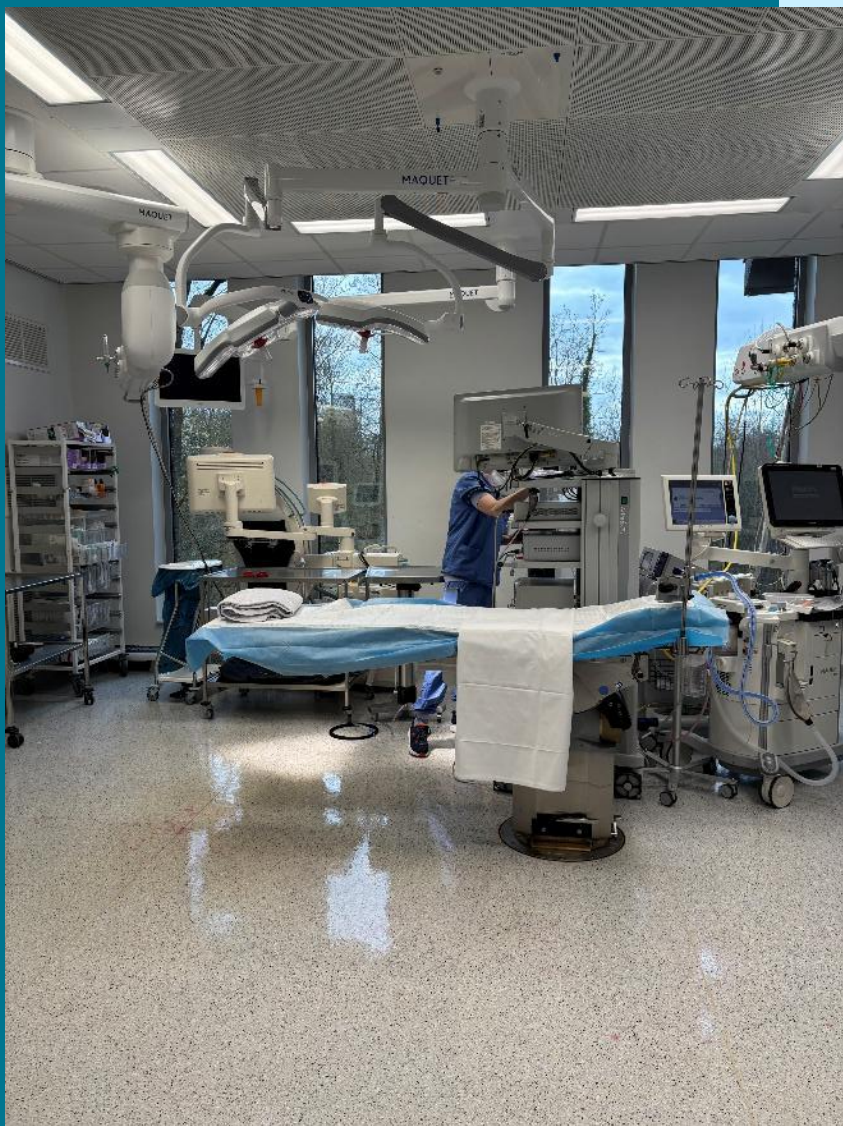
Heat-related mortality
and morbidity



Natural disasters

Healthcare emits more CO₂ than aviation





NZHI

Net Zero Healthcare Impact

*Your ambitious
hospital partner on
the path to Net Zero*

Trusted by:



Trusted by



The team



Dr. Brecht De Tavernier

*Founder NZHI
Head of Emergency Medicine at ZAS
Vincentius & Augustinus, member of the
ZAS Medical Council*

*ED-physician with additional master's
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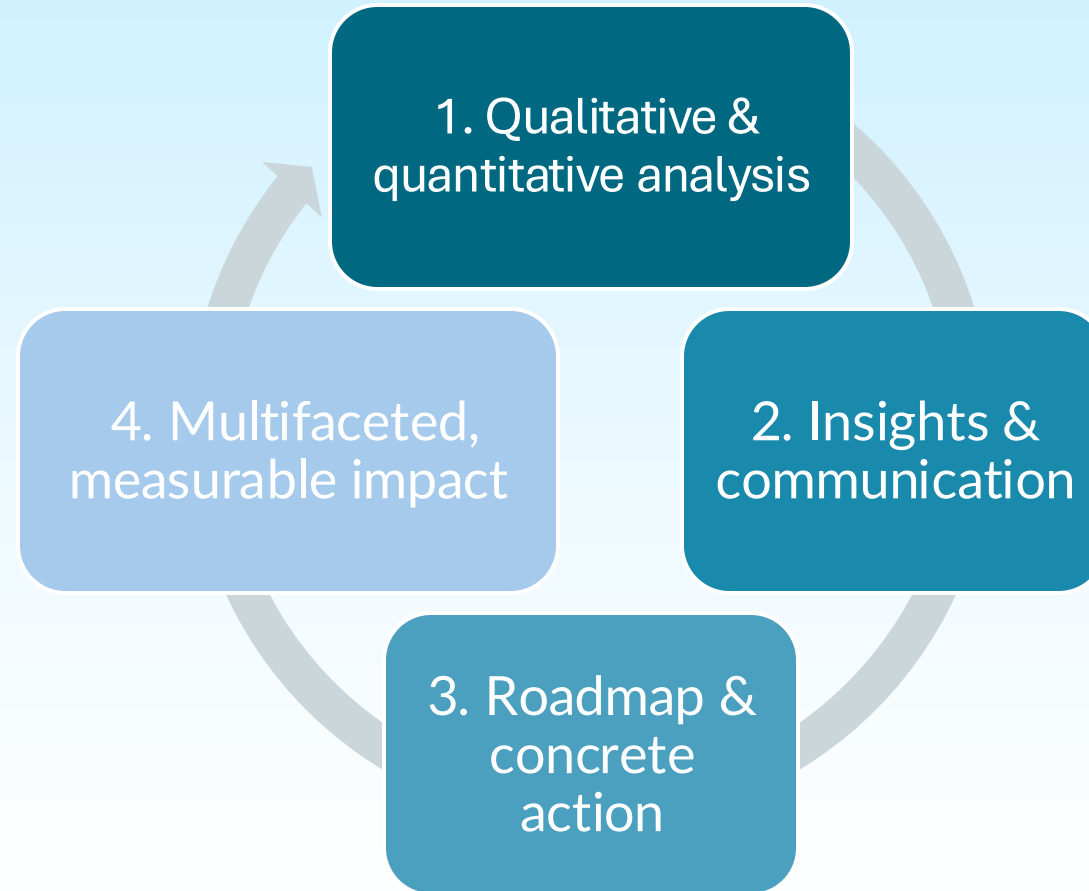
Joris Baeten

*Co-founder NZHI & freelance
consultant*

*Entrepreneur with a passion for
sustainability. Expert in communication
and stakeholder engagement.*

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Our approach



From data to insight

1. Map your entire hospital across 10 domains: gather data on procurement, consumption, and waste
2. Calculate environmental impact down to the product level using scientific, evidence-based data
3. Engage with frontline clinicians to gain deeper insight into real-world processes



From data to insight

Respiratory research

BMJ Open Respiratory Research

Environmental impact of inhalers for respiratory diseases: decreasing the carbon footprint while preserving patient-tailored treatment

Sara Panigone,¹ Federica Sandri,¹ Rossella Ferri,² Andrea Volpato,² Elena Nudo,³ Gabriele Nicolini³

Environmental Impact of Flexible Cystoscopy: A Comparative Analysis Between Carbon Footprint of Isiris® Single-Use Cystoscope and Reusable Flexible Cystoscope and a Systematic Review of Literature

Victoria Jahrreiss, MD,¹⁻³ Pierre Sarrot,⁴ Niall F. Davis, FRCS,⁵ and Bhaskar Somani, FEBU, DM, FRCS^{2,3}

Carbon footprint of tonsillectomy

Joseph Cannon^{a,*}, Hiteshkumar Tailor^{a,b}, Catriona Douglas^{a,b}

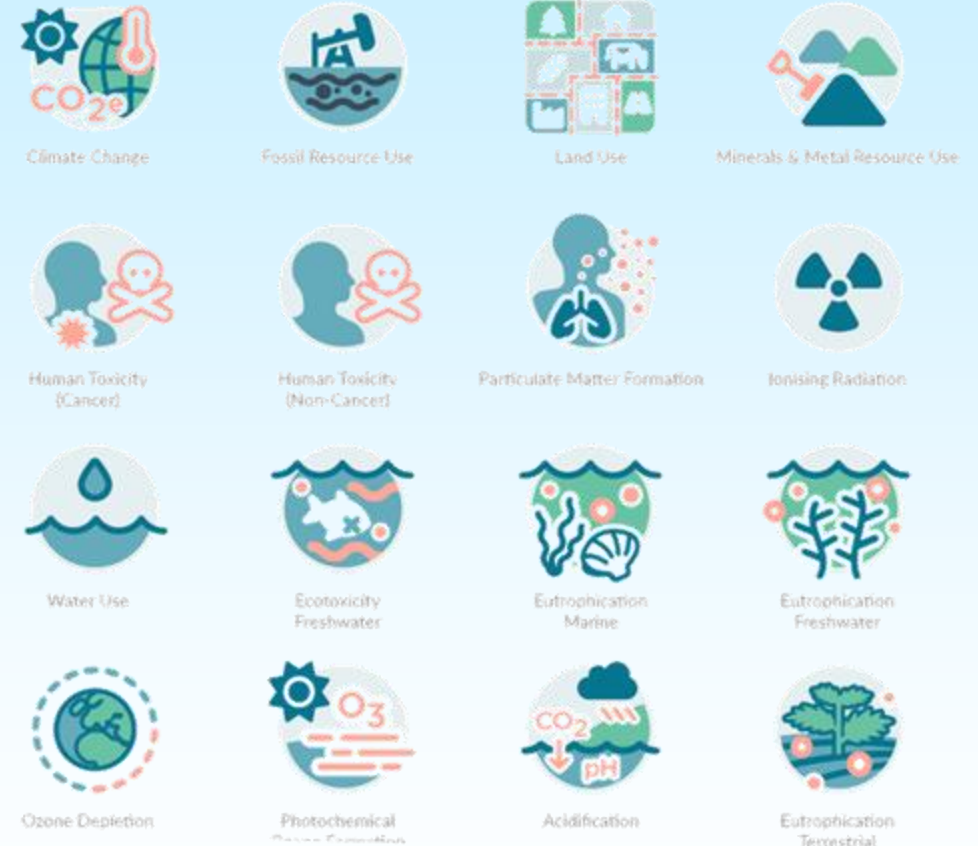
^a University of Glasgow Medical School, Wolfson Medical School Building, University Ave, Glasgow, Scotland
^b Department of Otolaryngology – Head and Neck Surgery, Queen Elizabeth University Hospital, Glasgow, Scotland

Non-sterile examination gloves and sterile surgical gloves: which are more sustainable?

H. Jamal^{a,*}, A. Lyne^a, P. Ashley^a, B. Duane^b

^a Department of Paediatric Dentistry, Eastman Dental Institute, University College London, London, UK
^b Trinity College Dublin, Department of Child and Public Dental Health, Dublin, Ireland

Database of 400 scientific studies and LCAs shared with the hospital

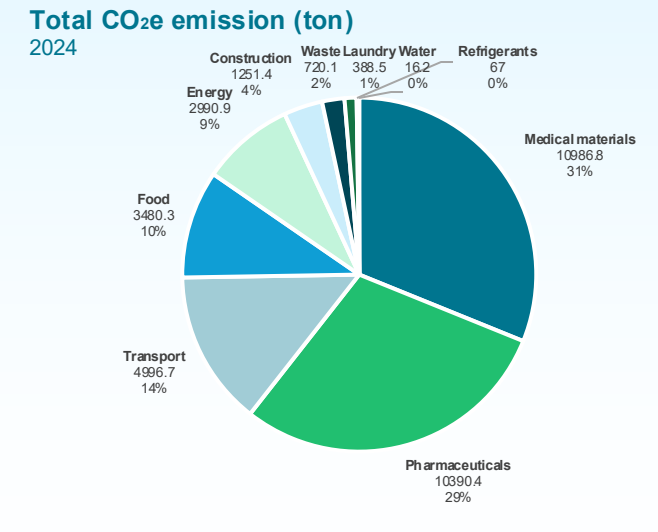
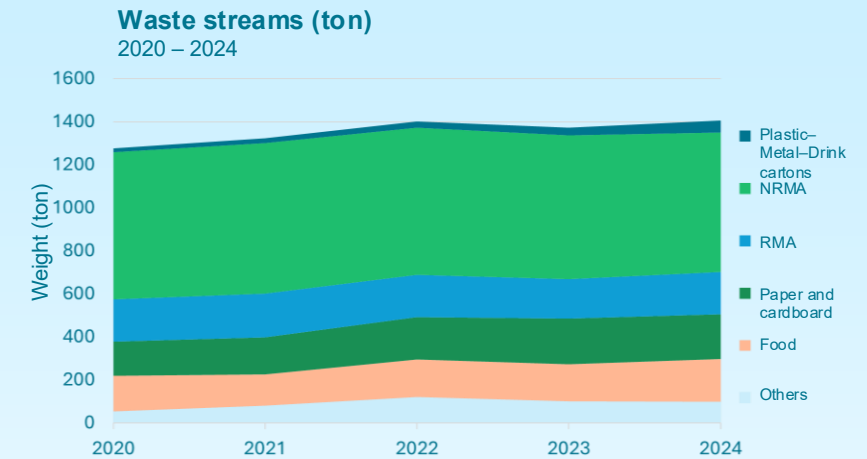
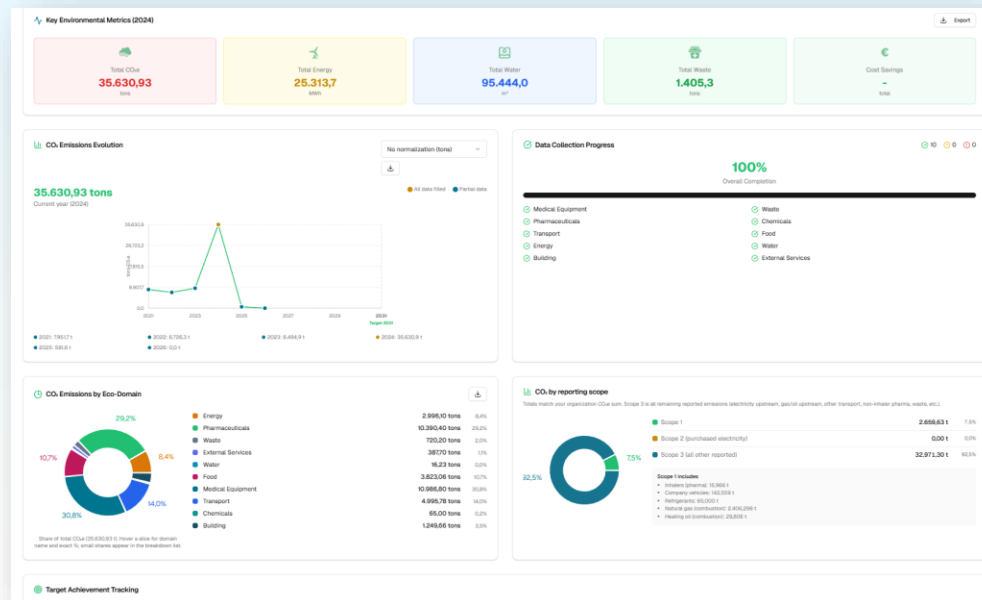


LCA-impact categories

From data to insight

Your teams gain insight into their sustainability data through:

- A VSME-aligned sustainability report
- Communication and workshops
- Access to HOSPILLAR

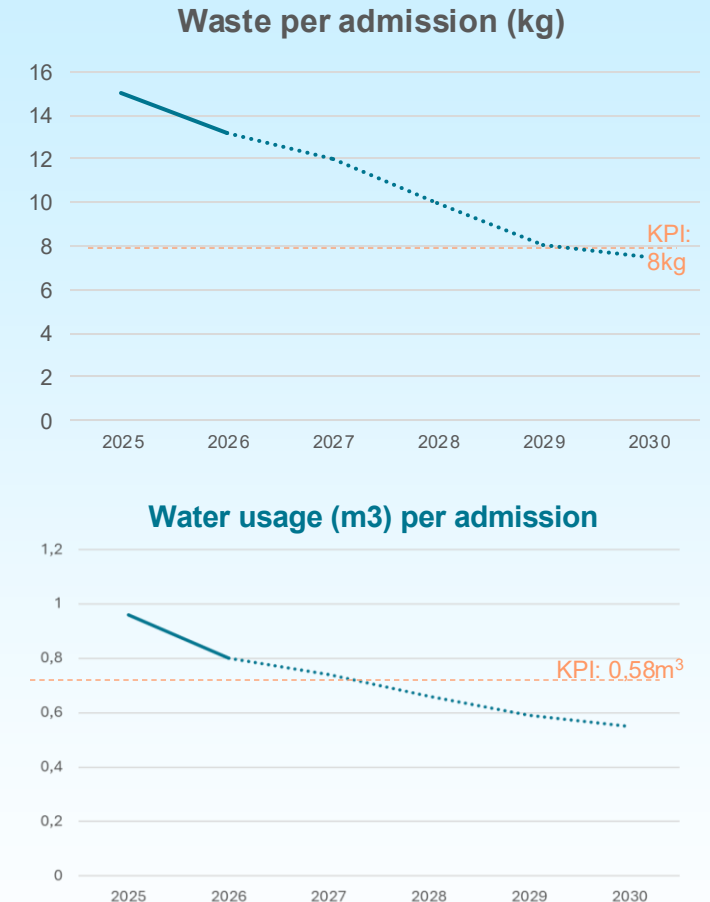


From insight to impact

Collaborative creation of a **roadmap** in workshops

To define high-impact **economic** and **ecological KPI's**, we integrate:

- Insights and priorities
- Benchmarks and best practices
- Science-based targets



Return on Investment



Economic

Cost savings through:

- lower single-use expenses
- reduced medication loss
- less food waste
- lower energy and ETS2-costs



HR

Stronger workforce through:

- more attractive employer image
- greater engagement and job satisfaction
- improved retention



Strategic

More resilient organization through:

- supply security
- early detection of reputation risks
- data-integration and harmonisation

• regulatory compliance

Ecologic



Our offering



FOREST

- Full scoping and baseline assessment (Ecological or full ESG)
- Sustainability report
- Access to the digital dashboard
- Data collection and entry for all activities and locations, on-campus
- Quantitative and qualitative analyses
- Roadmap with strategic advice
- Follow-up of concrete actions and KPIs
- Repeated measurements



TREE

- Access to the digital dashboard
- Digital kick-off workshop
- Technical support
- 25 - 60 hours/year of methodological expert support for quantitative and qualitative analysis, off-campus



BRANCH

Tailored advice & projects, such as:

- Scoping of specific domains
- Sustainability workshops
- Roll-out of sustainable procurement policy
- Policy advisory
- Development and advisory for sustainability strategy

Turn intent into impact

Contact us

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Maarten Van Laere [**hospital sustainability lead**] maarten.vanlaere@nzhi.eu



NZHI
Net Zero Healthcare Impact

TONIC Grip Socks

TOWNIC

NHS Net Zero Innovator Spotlight
Hospital Grip Sock Innovation

TONIC
is the first
sustainable
patient wear
company.



There is a Net Zero challenge hiding in plain sight that is largely ignored.



Every single patient wears them. And they are currently **incinerated** or go into **landfill** after use.



The problem...

Hospital Socks.

TONIC **can solve this.**



**Single-use plastic
is how society
turns convenience
into contamination.**



**The size of
the problem.**



THE PROBLEM

703,360
tonnes
of Total Lifecycle
CO₂e is discarded
annually by the NHS.

IN THE PRODUCTION AND
DISPOSAL OF **PATIENT GOWNS**
& **HOSPITAL SOCKS.**

SOURCE: NHS SDU LIFECYCLE ANALYSIS OF CONSUMABLES 2018

TONIC



The same emissions from 350,000 cars.



1M+

**PAIRS OF HOSPITAL
SOCKS ARE
LANDFILLED OR
INCINERATED
EVERY MONTH
BY NHS ENGLAND**



Current Hospital Sock Issues

Tube-style design swivels on the foot

Falls Risk

Itchy Polyester

Sweaty & uncomfotable

Poor rest



Single use plastic

Incinerated or landfill

Microplastics shed when washed

Melts in hospital laundry

Polyester Sock £0.80 - £1.00

**Current socks
are significant
modifiable
risk factor for
inpatient falls.**

**TUBULAR, SINGLE-SIZE DESIGN
SLIPS DURING MOBILIZATION AND
TRANSFERS.**



Falls cost incurred by current socks

225,000+

inpatient falls per year
England

National Audit of Inpatient Falls 2023

£2,600

cost to NHS per
patient who falls

NHS Improvement / NICE

£585M

annual inpatient
falls cost to NHS

BMJ Open Quality 2023

**Current socks
cause irritation
and discomfort
to hypersensitive
skin.**

**ESPECIALLY POST SURGERY
AND DURING CHEMOTHERAPY.**



CURRENT SOCKS MADE FROM NON BREATHABLE POLYESTER.

**The hidden time cost of
the wrong sock.**

£152,000

**per hospital per year
potentially in lost nursing
hours. ***

**Estimated 43,800 hours lost
per hospital per year.**



**The hospital grip
sock hasn't
changed in
decades.**

Until Now.



TONIC £1.32 VS CURRENT SOCKS £1.00 | BASED ON MINIMUM QUANTITY

**A new
standard for
patients
and the
planet.**



TONIC Grip Socks solution

Heeled & Sized

Aides Falls prevention

Sustainable cotton

OEKO-TEX® Dyes

Hypo-allergenic



**Comfortable/
Breathable**

**Reusable patient
takes home**

Grip stays on sole

**Supports rest and
recovery**

TONIC Grip Sock £1.32

**Because patients take
the socks home
the net zero gain is
transformative.**

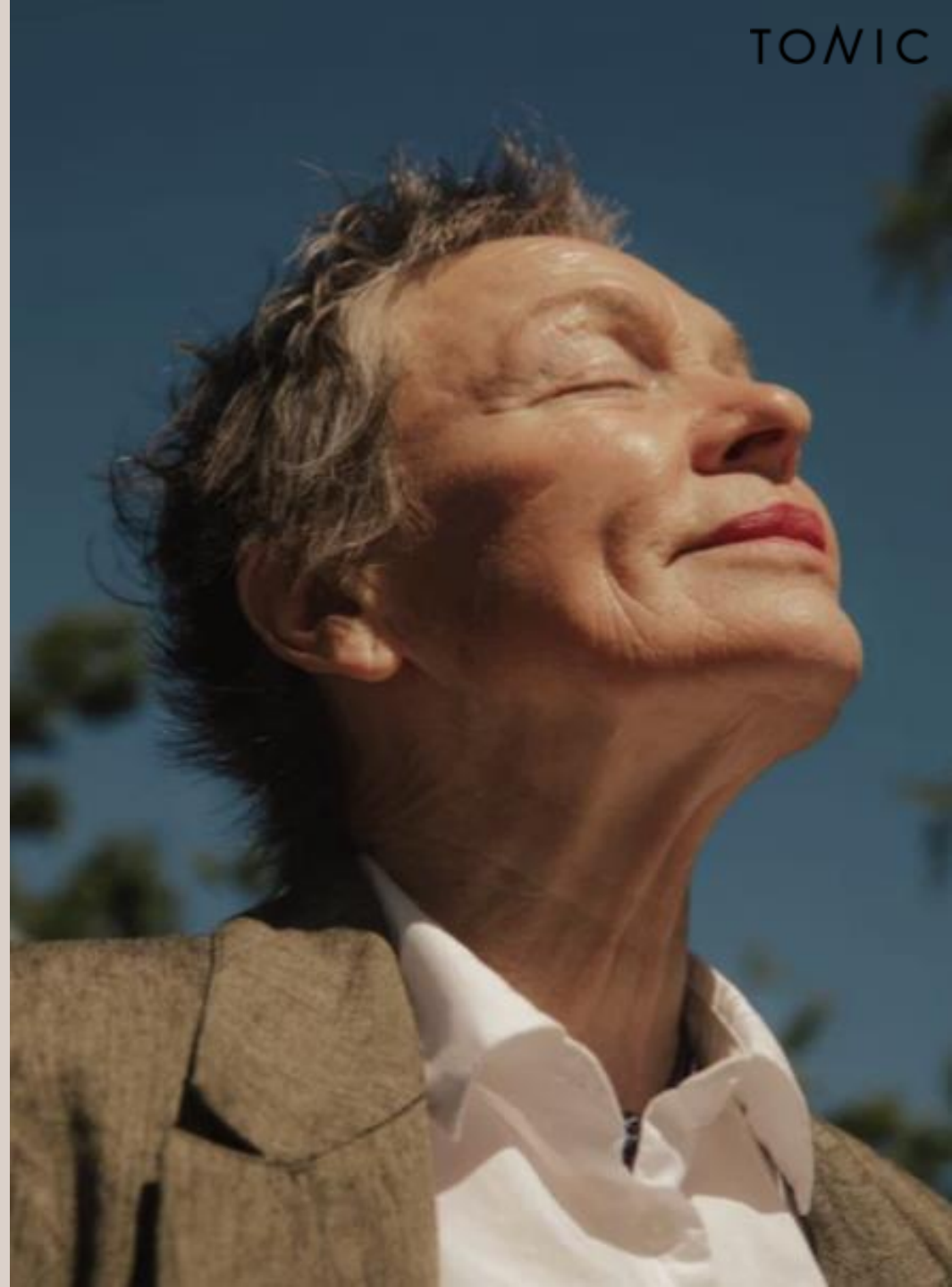
**The socks have
another life outside
of the hospital.**

And aid recovery.



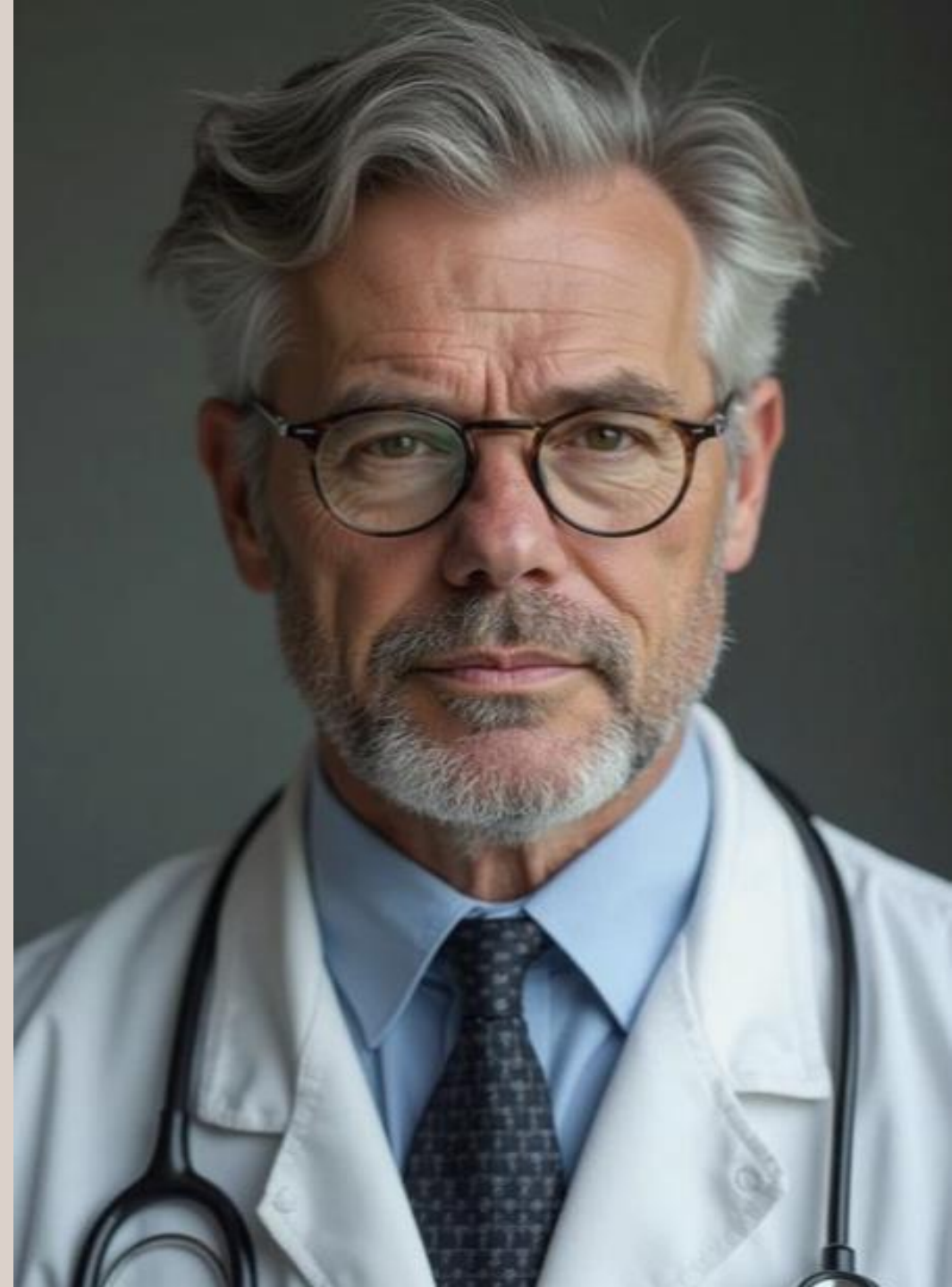
“ TONIC
*socks are designed
for comfort - at a
time when you
need that most* ”

**Patient Quote,
Guy's & St Thomas'**



**“ TONIC
fewer falls mean freer
wards, and patients
recovering at
home faster ”**

**Consultant Surgeon,
Imperial College**



**A TONIC sock is a
32p increase in
spend per patient.**

**Less than a urine dipstick.
Less than a blood tube.**



**Low tech.
High impact.
Same process.**

**Transformational
outcome.**



How does TONIC help the NHS achieve its Net Zero ambitions?

	Design for Life Roadmap	
	Net Zero Supplier Roadmap	
	Waste Hierarchy at Source	
	PPN 06/21 · 10% Social Value Weighting	

Our Ask

We are now seeking partners to run structured pilots and evaluation measurement of the following themes. To generate a robust evidence base.

- 01** Falls incidence
- 02** Patient experience
- 03** Nursing time
- 04** Waste reduction



**One easy swap.
One big step
towards NetZero.**



SOPHIE@TONIC.LONDON

TONIC



Innovate UK

NIHR | HealthTech Research Centre Network



cpi



Guy's and St Thomas' Specialist Care

Barts Health
NHS Trust

Homerton Healthcare
NHS Foundation Trust

Mackwell Health



Leading the Future of UV-C Disinfection in Healthcare

Pioneering infection prevention through precision UV-C engineering



Our Vision and Expertise

Who We Are

Mackwell Health is a UK-based innovator specialising in infection prevention.

We combine decades of technical expertise with a deep commitment to protecting healthcare workers and patients.

Operating from our purpose-built R&D and and manufacturing facility in **Aldridge, West West Midlands**, we design, test, and produce produce cutting-edge UV-C disinfection disinfection solutions.

Our Mission

Pioneer UV-C disinfection technology

Safeguarding patient health

Advancing sustainability: Supporting the the NHS Net Zero goals and Design for Life for Life policy.



Design for life- NHS roadmap- Vision: Fully Re-Usable MedTech

Vision: Fully Re-Usable MedTech

“By 2045 the UK will have transitioned away from all avoidable single-use MedTech products towards a functioning circular system, safely transforming the sector to deliver enhanced resilience, increased economic growth, better value for patients and the NHS, and minimised environmental impacts”.

Initiatives

- Leadership and alignment
- Behavioural change
- Commercial incentivization
- Regulation and standards
- Physical and digital infrastructure
- Transformative innovation





UV-C Technology: Proven Science, Powerful Impact



Nobel Prize Origins

UV-C technology has roots in Nobel Prize-winning research from 1903, with proven ability to disable microbes on surfaces, in air, and in liquids via disruption of DNA and RNA in micro-organisms.



Validated Efficacy

Demonstrated effectiveness against all classes of pathogens through rigorous testing to the BS8628:2022 standard.

Carried out at 3rd party UKAS accredited laboratories



Innovating with LED

We use the latest solid-state LED technology to generate the UV-C, operating at the optimal 265nm wavelength and providing light from all directions, avoiding shadows.

WHITEBOX-HD2

BS8628:2022 compliant High-Level Disinfection in 5 minutes



Application Focus: Operating Theatres

Microbox-HD2 and Minibox-HD2



Re-Usable Video Laryngoscope Blades

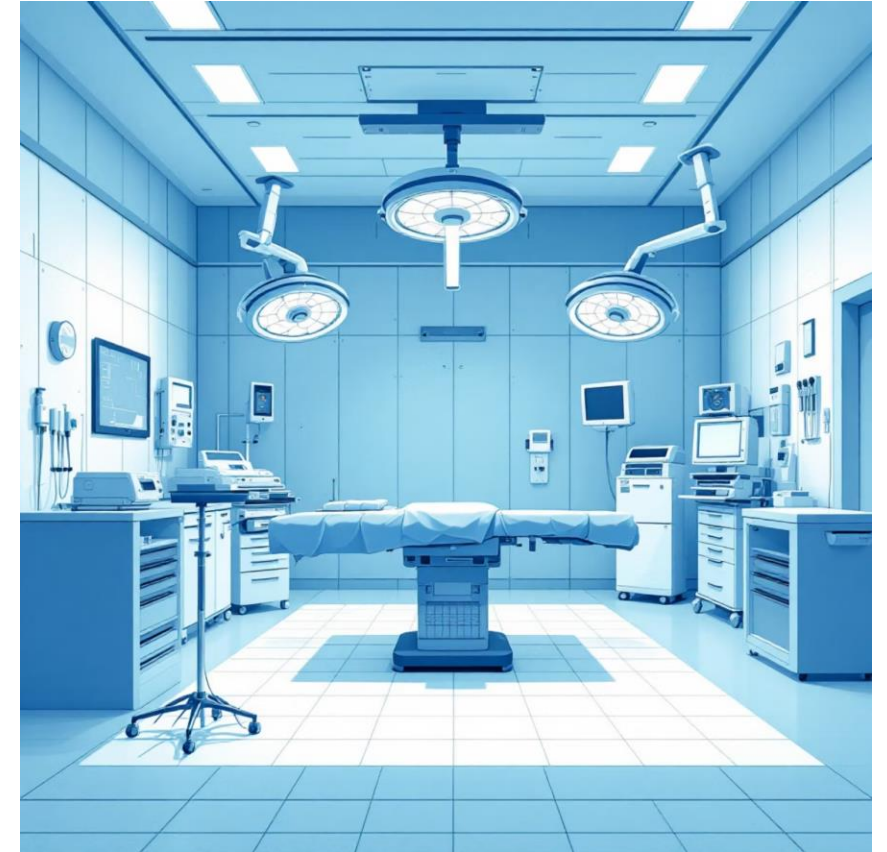
Recommended as default practice due to enhanced patient safety

Re-usable versions would save 4000 Tonnes vs single-use nationally



Re-Usable Anaesthetic Masks

900 Tonnes national saving opportunity



NHS
The Newcastle upon Tyne Hospitals
NHS Foundation Trust

NHS
Manchester University
NHS Foundation Trust

NHS
Northampton
General Hospital
NHS Trust

NHS
Chelsea and Westminster Hospital
NHS Foundation Trust

Application Focus: ENT Semi-Critical Device Disinfection

Minibox-HD2 & Tallbox-HD2



Flexible Nasal Endoscopes

Evidence: 5.8 log reduction of *geobacillus stearothermophilus*

>1500 cycles now completed

Zero leak test failures

Zero image degradation

No occurrences of HCAI transmission

No degradation in LED UVC dose

£5.50 per cycle saved vs 3-stage wipes

Automated and therefore compliant with ISO 17664-2

Estimated 500 Tonnes saving nationally compared with 3-stage wipes

Rigid Sinuscopes

Evidence: 6.1 log reduction of *mycobacterium terrae*

Application Focus: Community Health



NHS
Mersey Care
NHS Foundation Trust



NHS
Northamptonshire Healthcare
NHS Foundation Trust

Podiatry Clinics (nippers, scalpel handles)

1500 re-usable nippers replace >400,000 sets over 8 years

160 Tonnes CO2 saving across 40 clinics per annum

£45000 per year saved compared with spend on single-use

High quality nippers preferred by podiatrists

Addresses known occupational health issues such as RSI

Replicate across more Community Trusts – eg CLCH uses >150,000 sets per year

Sexual Health Clinics (stainless steel speculums)

Study commencing in Northamptonshire

Metal speculums replace plastic single-use versions which are prone to breakage

Patients report strong preference for re-usable version

“The Ask”: Prepare for Scalability

How to scale at speed across

- Theatres – especially Anaesthesia
- ENT including Outpatients and extending services to community
- Community Health Clinics



The Future of Infection Prevention with Mackwell Health



Continuing Innovation

Advancing UV-C technology to address emerging healthcare challenges, antimicrobial resistance, and future pandemic preparedness with next-generation solutions.



Global Expansion

Extending application areas and digital integration to deliver safer, smarter, and more sustainable healthcare environments worldwide.



Join Our Mission

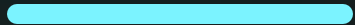
Partner with us in redefining infection prevention for healthcare. Together we're making safety a choice, not a chance.

Safety by choice, not by chance.

Air Purity

Path to Net Zero

Healthy indoor environments for a Greener NHS

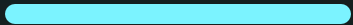


AirPurity: What do we do?

Modernise existing buildings without relying only on major infrastructure change in Ventilation

Transform spaces for patients and staff into safe healthy efficient spaces

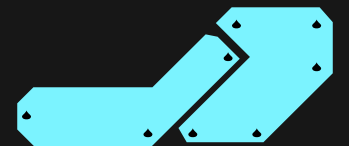
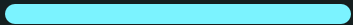
A healthier indoor environment is part of a greener, fitter future NHS



Track Record

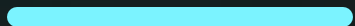
Implemented across multiple NHS sites in roll out phases

Active world's leading research in 4 new areas within Healthcare, Defence and Veterinary



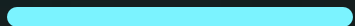
NHS buildings must work better for people and performance

Indoor environmental control is an **overlooked opportunity**



Why this matters?

Poor indoor environments can contribute to **sickness**, operation **disruption** and **inefficiency**



Evidence from real-world UK deployments

↓ 30%+

Building energy
cost reduction

↓ 100%

Reduction in
Agency staff

↓ 100%

Prevention of ward
closures

↓ 89%

Reduction in patient
infections

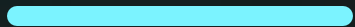
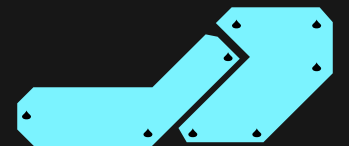
↓ 31%

Reduction in
staff sickness



How do we achieve this?

Patented world's first technology that correlates all energy with health through environmental control



AERSENTINEL

THE ONLY SENSOR SYSTEM THAT SEES AIR LIKE A VITAL SIGN.



REAL-TIME networked communication.

TRACKS:

- ✓ Velocity
- ✓ Concentration
- ✓ Directions

COLLECTS air quality, thermodynamics, humidity and, bioaerosols markers

MAP the air in the space with precision and clarity to interpret the risks.

AEROTITAN

We treat every space as a patient!

Stabilising air = Saves on heating and cooling, reduces Ventilation burden, increase healthier efficient spaces!



Focus is always first on existing infrastructure



Assessing environmental stability options to support longer life of assets and supplement where needed

Pilots Available!

We believe seeing is believing

Greener NHS: healthier, more efficient buildings

Fit for the Future: practical modernisation of care environments

Digital transformation: measurable building insight and smarter decision-making

Transformational change in patient, staff safety, ventilation and operations



Please feel free to come along to our: **The Air & Environment Series**

First Date **14th April 12:15-12:45pm on Zoom**

Subject: **How can air quality affect staff sickness?**



DARRENSLOOF@AIRPURITYUK.COM



Thank you

Contact

innovators@imperialcollegehealthpartners.com

