





ELHT GREEN NEWSLETTER

June 2024

Further Success

Welcome to the 7th edition of ELHT Green Newsletter.

- New posters around all theatres to increase awareness on how to improve our recycling capabilities by placing the correct substances at the correct coloured bins & sharp bins.
- Introduction of Coolsticks to Central Birth Suite to reduce our use of disposable single-use Ethyl Chloride sprays for the monitoring of central neuroxial blocks. Critical Care to come!
- Discussions ongoing on implementations of innovative technologies for the future to minimise our impact to the environment, namely volatile capture technology, Nitrous Oxide Destruction Units, etc
- Continue to encourage Procurement to follow the 7 principles on all new products
- The CERNER roll out in June 2023 has been a success and has resulted in a significant reduction in paper use
- A step closer to provide free theatre hats for all theatre staff, following the footsteps of North West Schools of Anaesthesia and O&G for their trainees

Overview:

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Reduce

NHS Cutting Desflurane for a Greener NHS

NHS organisations cut desflurane in drive for greener surgery

All desflurane and their vaporisers have now been completely removed in January 2024.

Energy Reduction- Estates and Facilities Source: ELHT Green Plan Refresh

16,402 tCO2e was emitted from buildings across our estate in 2020-21. 100% of our electricity is renewable since April 2020, resulting in a 76% decrease in emissions compared to 2019-20 (despite more electricity being consumed). All lights are now LEDs to further reduce our energy consumption.

Medclair - Nitrous Oxide "Cracking" Device

Nitrous Oxide (N2O) is 265-298 times worse than Carbon Dioxide (CO2) as a Greenhouse Gas and it is estimated that we contributed to 256kg of CO2e per delivery since 80% of Entonox (50:50 N2O:O2) never reaches the patients. So to put it into perspective, 71% of women used Entonox at some point for labour in the UK (average 8 hours per labour) - that would equate to >600 miles by car.

Entonox (N2O) is clearly harmful to our workforce from long-term exposure: direct neurotoxicity, vitamin B12 deficiency, DNA synthesis, sub/infertility Improved ventilation of our delivery rooms has reduced its impact but not completely.

Newcastle mother uses 'climatefriendly' gas machine in labour

① 10 September 2021



Climate



Kaja Gersinska gave birth to baby Rosie on Thursday

A mother is said to have been the first in the UK to use a so-called "climate-friendly" gas machine during labour.

Discussions are currently ongoing with Procurement and Medclair on this matter, so that all midwives working with labouring women would reduce their exposure to nitrous oxide and also reduce our carbon footprint for ELHT in the long-term.

SUSQI Project Report:

Reducing CO2e waste through implementing remanufactured harmonic scalpels in laparoscopic surgery and replacing disposable surgical gowns with reusable surgical gowns - presented by Dr A Shelleh at O&G Audit Meeting in April 2024

Introduction:

The abundant use of single use items has been identified as one of the major problem areas contributing to the carbon footprint in NHS theatres. The aim of this study was to analyse the reduction in carbon footprint and cost-saving with the introduction of using remanufactured Harmonic ultrasound scalpels, rather than disposable scalpels, and following the introduction of reusable, rather than disposable hospital gowns.

Aims:

To calculate the carbon savings, cost savings and evaluate clinical feedback following the introduction of remanufactured Harmonic scalpels and reusable gowns.

Methods:

Stakeholders were identified who needed to be engaged with and support gained from, including procurement, clinicians, scrub practitioners, clinical governance and theatre management.

Data was collected between July and August 2023.

- Environmental sustainability: The carbon footprint of the remanufactured
 Harmonic device and reusable gown was calculated including transport footprint
 & compared with the single use Harmonic device and disposable gown, and
 projected annually.
- Economic sustainability: Cost savings in using the remanufactured Harmonic device were compared with using the single use device, due to the wide variety in gowns used it was difficult to calculate a cost saving.
- Social sustainability: This was measured using responses from feedback forms regarding the use of re-manufactured Harmonic scalpels and reusable gowns.

Results:

During the trial, 16 remanufactured Harmonic scalpels were used. Patient outcomes were unchanged as a result of using the remanufactured device and clinician feedback was positive regarding both using the remanufactured Harmonic scalpels and reusable gowns.

The carbon footprint of the remanufactured scalpel was found to be 49.6% lower than that of using a new device, a 0:100 ratio of remanufactured scalpels was used giving a saving 31.52kg/CO2e. Using a more practical ratio of a 50:50 and 67:33 scenario, there was a projected saving of 295.75kg/CO2e or 873 miles driven for a 50:50 ratio and 394.6 kgCO2e or 1165 miles driven for a 67:33 ratio. This data accounts for each new device being remanufactured twice per life cycle.

The number of surgical gowns used annually in the study's trust theatres is 67,949; this figure was used to project carbon savings for both the reusable and disposable gown options annually. The reusable gowns offer a 70% carbon saving when compared with the disposable gown option, with a saving of 52,455.7 kgCO2e equivalent to 155,194.4 miles driven in an average car.

Regarding the economic sustainability of the harmonic Scalpel, during the trial period 0:100 ratio was used, using 16 devices and calculated a financial saving of £3993.12. And for reusable gowns, using 2019-2020 data alongside the quoted 12-month contract value, the prospective financial savings were estimated to be £23,310.28

Discussion:

Significant carbon and financial savings can be made within the operating department by switching to reusable gowns and using remanufactured devices. Engaging key stakeholders as well as clinical engagement was required for the trial to take place and will be key for the implementation of sustainability changes in the theatre setting.

References;

- 1. SUSQI PROJECT REPORT: Reducing CO2e waste through implementing remanufactured harmonic scalpels in laparoscopic surgery and replacing disposable surgical gowns with reusable surgical gowns Date of Report: 03/09/2023; L Vale et al.
 2. World Health Organisation. (2016). WHO global guidelines for the prevention of surgical site infection. Retrieved from: https://cdn.who.int/media/docs/default-source/integrated-healthservices-(ihs)/infection-prevention-and-control/ssi/ssi-outline.pdf?sfvrsn=8ecce6e1_5
- 3. National Bowel Cancer Audit. Annual Report 2019. (2020). Retrieved from https://www.nboca.org.uk/content/uploads/2020/01/NBOCA-2019-V2.0.pdf



Oral Paracetamol Pre-med QI Project – Day Cases (2024)

Dr Mehboob, Dr Ffrench-Constant, Dr Parashar, Dr Sengupta, Dr Sharma & Dr Lie 2024

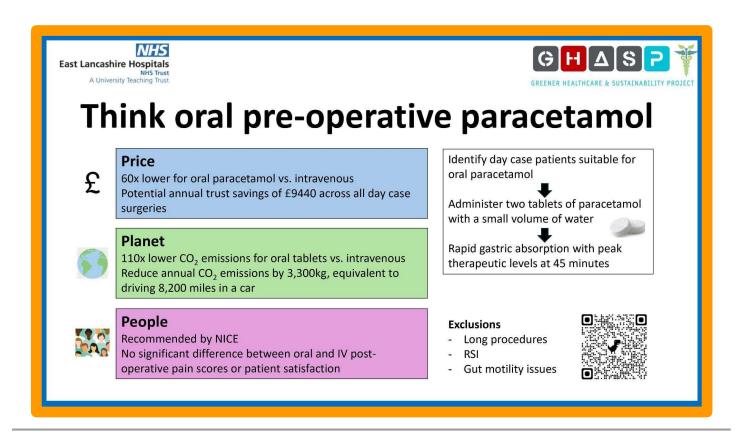
We would like to encourage everyone to consider prescribing oral paracetamol pre-med for all your day case patients. The main reasons are:

- 1. Oral Paracetamol costs on average 4p versus £1.506. In Blackburn and Burnley site, 17,645-day case surgeries happen every year. If oral paracetamol is used, about £20,000 will be saved! Similar research in the North West has suggested potential annual savings of £7,166 with 384 kg less plastic waste for a single local hospital site.
- 2. Clinically oral paracetamol is as effective as IV if given 30 minutes prior to surgery.
- 3. Environmentally sustainable, less C02 emissions and plastic waste.
- 4. Cost: 60x less expensive.
- 5. No hazards of IV.
- 6. Recommended by NICE Perioperative care guidelines (2020):

"Oral paracetamol before and after surgery, including dental surgery, irrespective of pain severity" "Do not offer IV paracetamol unless the person cannot take oral medicine"

Currently <u>72% of paediatric cases received oral Paracetamol where Paracetamol was given & only 44% of adult cases received oral Paracetamol where Paracetamol was given.</u>

New posters have been put in place in March 2024 to encourage this practice. Second part of data collection is currently ongoing.



Elective Theatre Shutdown checklist

Dr Byatt & Dr Lie 2023

This is unfortunately proven not to be possible logistically. All computers need to be remained on standby mode for regular updates overnight and the ventilation can only be turned to "Set Back" mode.

"Set Back mode" reduces energy consumption by over 50% but maintains <u>minimum</u> background conditions i.e. air-change rate, pressure differentials, temperature, humidity/dew point or a combination of any of these parameters that are determined at design stage.

All elective Theatres at BGTH are programmed to automatically go into Set Back mode from 6pm-6am Mon-Fri and all weekend.

Bring Your Own Bags initiatives

Thinner green bags have now been introduced for all day case patients with an aim to encourage patients to bring their own bags in the future.



Producing estimated emissions of 20,760kg CO2eData from North York General 2023

Intercollegiate Green Theatre Checklist

ELHT is in the process of introducing this checklist as proposed by the Royal College of Surgeons.

The green theatre checklist covers recommendations for the main aspects of the operative journey including anaesthetic choices, surgical preparation, intraoperative use of equipment and the conclusion of the case/list.

- Advice for anaesthetists includes use of local/ regional anaesthesia or TIVA and low flow anaesthesia; Use of reusable equipment such as laryngoscopes and; minimising drug waste. We need to move our practice towards: "don't open it unless you need it"
- Whilst preparing for surgery it is suggested we use reusable textiles (hats, gowns, drapes and trolley covers), reduction in water and energy consumption and, avoiding clinically unnecessary interventions such as catheterisations.

- □ For the surgery itself it is key we rationalise the need for surgical items and determine what is essential or optional. Aim to reduce items in single use surgical packs and opt for reusables or remanufactured wherever possible.
- At the end of the operation recycle or use lowest carbon appropriate waste streams, maintain and repair equipment, power off.

ELHT has started ticking many of the boxes! To name a few:

- ✓ Limiting Nitrous Oxide (cylinders only)
- ✓ Removal of desflurane (completed)
- √ Reusable hats (ongoing)
- ✓ Automatic taps (in place at BGH)

To look at the complete list please refer to:

https://www.rcsed.ac.uk/professional-support-development-resources/environmental-sustainability-and-surgery/green-theatre-checklist

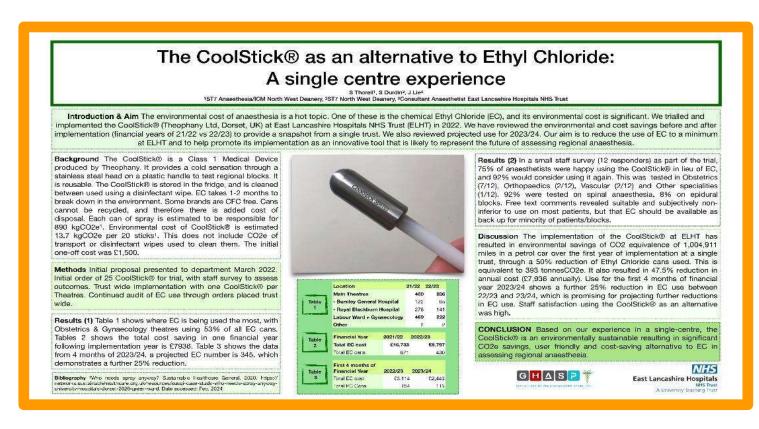
Optimisation of Surgical Trays & Procedure Packs

Ongoing discussions are taking place with the surgical division with an aim to further optimise our surgical trays & procedure packs.

Reuse

CoolStick®

The CoolStick® as an alternative to Ethyl Chloride: A single centre experience - Dr S Thorell, Dr S Durdin & Dr J Lie - Poster Presentation at RCoA Anaesthesia May 2024



Introduction:

The environmental cost of anaesthesia is a hot topic. One of these is Ethyl Chloride (EC), and its environmental cost is significant. We trialled and implemented the CoolStick® (Theophany Ltd, Dorset, UK) at East Lancashire Hospitals NHS Trust (ELHT) in 2022.

The CoolStick® is a reusable Class 1 Medical Device produced by Theophany. It provides a cold sensation through a stainless steel head on a plastic handle to test regional blocks. It is stored in the fridge and is cleaned using a disinfectant wipe. EC takes 1-2 months to break down and cans cannot be recycled. Each can of spray is estimated to be responsible for 890 kgCO2e¹. Environmental cost of CoolStick® is estimated 13.7 kg CO2equivalence (CO2e) per 20 sticks¹. This does not include CO2e of transport or disinfectant wipes used. The initial one-off cost was £1,500.

We have reviewed the environmental and cost savings before and after implementation (21/22 vs 22/23) to provide a snapshot from a single trust. We also reviewed projected use for 2023/24. Our aim is to reduce the use of EC to a minimum at ELHT and to help promote its implementation as an innovative tool that is likely to represent the future of assessing regional anaesthesia.

Methods

Initial proposal presented to department March 2022. Initial order of 25 CoolStick® for trial, with staff survey to assess outcomes. Trust wide implementation with one CoolStick® per Theatres. Continued audit of EC use through orders placed trust wide. Results Table 1 shows where EC is being used the most, with Obstetrics & Gynaecology theatres using 53% of all EC cans with the total cost saving in one financial year following implementation year is £7936.

It also shows 4 months of 2023/24, a projected EC number is 345, which demonstrates a further 25% reduction. In a small staff survey (12 responders) as part of the trial, 75% of anaesthetists were happy using the CoolStick® instead of EC, and 92% would consider using it again. This was tested in Obstetrics (7/12), Orthopaedics (2/12), Vascular (2/12) and other specialties (1/12). 92% were tested on spinal anaesthesia, 8% on epidural blocks. Free text comments revealed suitable and subjectively non-inferior to use on most patients.

Location of use of EC	21/2	22/23	Financial year	21/22	22/23	*23/2
Main Theatres	400	206	Total EC cost	£16,733	£8,79	£2,44
Labour Ward	469	222	Total EC cans	871	430	115

Table 1 shows where EC is being used in the trust, cost and number of cans used before and after implementation of the Coolstick® *first 4 months of 2023/2024 used to show projection.



Conclusion:

The implementation of the CoolStick® at ELHT has resulted in environmental savings of CO2 equivalent of 1,004,911 miles in a petrol car over the first year of implementation at a single trust, through a 50% reduction of Ethyl Chloride used. This is equivalent to 393 tonnesCO2e. It also resulted in 47.5% reduction in annual cost (£7,936 annually). Use for the first 4 months of financial year 2023/24 shows a further 25% reduction in EC use between 22/23 and 23/24, which is promising for projecting further reductions in EC use. Staff satisfaction using the CoolStick® as an alternative was high. Based on our experience in a single-centre, the CoolStick® is environmentally sustainable resulting in significant CO2e savings, user friendly and cost-saving alternative to EC in assessing regional anaesthesia.

References ¹Who needs spray anyway? Sustainable Healthcare General. 2020. <u>https://networks.sustainablehealthcare.org.uk/resources/susqi-case-study-who-needs-spray-anyway-uiversity-hospitals-darset-2020-green-ward</u>. Date accessed: 27 Feb 2024

A reminder to use the

COOLSTICKS



WHAT are they?

A reusable, sustainable, better value option to assess your local anaesthetic block

SAVINGS so far

50% reduction in Ethyl Chloride use (2021/22 vs 2022/23) = **393** tonnesCO2 equivalence

WHERE are they? In all RBH/BGH theatre FRIDGES



ENVIRONMENTAL impact **REDUCED** by

equivalence of **1,004,911** miles in a petrol car



Help us reduce our Ethyl Chloride use further, USE A **COOLSTICK** INSTEAD

Feedback and comments always welcome, please use QR code

ELHT JAN 2024

Coolsticks® are now available in all theatres as well as on Central Birth Suite. We are also aiming to introduce them to Critical Care in the coming months.

Reusable Theatre Hats!

The trust spent over £33,000 on single-use theatre hats from March 2021 to August 2022. We are encouraging staff to wear personal, reusable theatre hats to avoid waste! It also helps communication with your colleagues and patients, especially in emergency situations. Plan is to get everyone one using the 10,000 feet charity funding.



NW School of Anaesthesia and

Obstetrics managed to acquire sustainability funding to offer all trainees in the region with personalised, reusable theatre hats. We're now rolling it out twice a year for the February and August starters.

If you've seen trainees wearing navy blue theatre hats with their name on, then that's the project.

ELHT has now ordered theatre hats for 25-30 staff at both sites. Watch this space!

Reusable Gowns

Ongoing discussions are taking place with the surgical division with an aim to remove all disposable surgical gowns.

Recycle

Waste Recycling - ELHT Green Plan Refresh

Source: ELHT Green Plan Refresh 2023

Waste reduction (negation) needs to be our aim. In line with the NHS' net zero plan, we should reduce our waste by 359 tonnes by 2024/25 from our 2020/21 baseline (equating to 87 tCO2e emission reduction). The waste hierarchy of Reduce, Reuse, Recycle, Recovery (energy from waste) before disposal (landfill) must be embedded to ensure we are maintaining our waste duties of care and circular economic principles.

We collect four main waste types: general, clinical/offensive, dry mixed recycling, and waste electrical and electronic equipment (WEEE)

2,386 tonnes of waste were produced, emitting **576 tCO2e** in 2020/21. **170 tonnes of offensive waste were sent to landfill** in 2020/21, emitting **78 tCO2e (14%** of all emissions from waste).

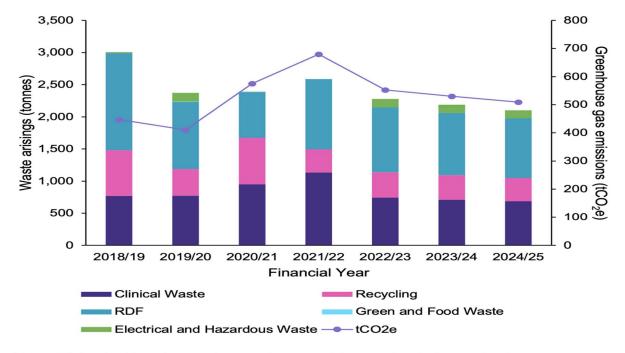


Figure 26 Stacked bar chart to show total waste arisings and emissions reduction trajectory to 2024/25



GENTLE REMINDER:

Propofol (together with its syringes and lines) has to be disposed via the purple lid bins, which incinerate to >1000C to break down the molecules, otherwise it will be returned to aquatic life by rain.

Waste Management Update June 2024:

The costs for domestic waste disposal (tonnage rate) are as follows:

General waste - £11.71 (1100 L) - £51.50 (FEL) DMR/Recycling - £6.70 (1100 L) - £39.14 (FEL) Cardboard - £6.70 (1100 L) - £39.14 (FEL) Food waste - £7.80 (per bin exchange)

SageTech Anaesthetic Gas Recapture Technology

Dr Froud & Dr Lie 2023

The SAGETech Trial on Volatile Capture in Theatre 6 was trialled in March to April 2023.

We are in the process to acquire 3-5 Sagetech machines for RBH in the coming months.

Waste Drug Bins on Critical Care

Introduction of Pharmacy Returns Unit allows for unused medicines to be recycled.



Green Champions

We now have a network of 82 "Green Champions" – ideally one or two in each department (clinical and non-clinical) to act as a role model, point of contact and a local expert who can feed back more ideas on how we can save money and help the environment.

Email Dr Lie at <u>jason.lie@elht.nhs.uk</u> to find out or be the Green Champion of your working area – your support will be very gratefully received!

Feel free to approach the Green Champions in your working area to get involved!







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