

BARTS HEALTH  
GREEN WARD COMPETITION  
CASE STUDIES AND IMPACT REPORT 2019



CENTRE *for*  
SUSTAINABLE  
HEALTHCARE  
inspire • empower • transform

# GREEN TEAM COMPETITION: BARTS HEALTH

POTENTIAL YEARLY SAVINGS FROM GREEN  
WARD COMPETITION PROJECTS



£186,401



6,113 kgCO<sub>2</sub>e

CENTRE FOR SUSTAINABLE HEALTHCARE

CARBON SAVINGS EQUIVALENT TO



3057 newly planted  
trees absorb in 1 year <sup>1</sup>



24,463km car travel <sup>2</sup>  
(17.4x Land's End - John O'Groats)

CENTRE FOR SUSTAINABLE HEALTHCARE

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Climate change is having far reaching consequences for planetary health, including within the United Kingdom, and is accepted as one of the greatest threats to the health of global populations in the future (Lancet, 2009). Whilst healthcare systems have a key part to play in maintaining the health of populations in the face of the threat of climate change, the delivery of healthcare is also itself contributing to climate change. The NHS is the largest public sector contributor of carbon emissions; when taken together with social care and public health, these services contribute over one third of total public sector emissions (Defra research ENV12 – UK Carbon footprint, 2012).

In addition to climate change, the integrity of our environment, on which we depend, is threatened by pollution (air pollution, plastics, chemical pollution), water scarcity, soil degradation, deforestation and loss of biodiversity. The NHS also contributes to this impoverishment of the environment.

Given the constitutional commitment of the NHS to improve the health and wellbeing of the populations it serves, there is a clear duty of NHS organisations to reduce carbon emissions and contribute to improving environmental integrity. The Climate Change Act 2008 requires a reduction in emissions of 80% by 2050 based on a 1990 baseline, supported by reductions of 34% by 2020 and 50% by 2025. An ambitious aspiration for the health and care system is to achieve a 34% reduction in carbon dioxide equivalent emissions by 2020, in line with the national targets (NHS, Public Health and Social Care Carbon Footprint 2012).

Carbon reduction policies to date for the NHS have largely focussed on reducing building energy use, travel and procurement of goods and services. The greatest proportion (59%) of the carbon footprint is derived from procurement of which the highest contributors are medicine use and medical equipment (Reducing the Use of Natural Resources in Health and Social Care, Sustainable Development Unit, 2018). How do we reduce the carbon footprint due to procurement of these goods? Part of the answer will be decisions taken centrally. However, clinicians are using these resources in their daily practice and operating and designing systems that drive staff behaviour, so effecting how these resources are used. This intimate knowledge of the use of clinical resources, along with their clinical knowledge, means that the perspective of clinicians is vital when making the carefully nuanced decisions on how to maintain or improve clinical care whilst reducing environmental, social and financial cost. Clinical staff carrying out their daily work in a way that is environmentally sustainable has the potential to make a significant contribution to reaching the carbon reduction targets for the NHS and social care.

The Centre for Sustainable Healthcare (CSH) offers clinical staff in healthcare organizations the opportunity to examine their workplace culture and systems and run projects to improve the sustainability, quality & efficiency of the care that they deliver. Projects are devised with the aim of changing daily work practices to reduce the carbon footprint; increase the health & wellbeing of patients, staff & the community and make cost savings (the 'triple bottom line' definition of 'value' in healthcare). Running the competition in a Trust also builds a community of clinical staff who are empowered, enthused and equipped to further improve their services in the future and share best practice, guided by the concepts of the triple bottom line and sustainable healthcare.

Lindsey Jarratt, Sustainability Programme Co-ordinator at Barts Health, commissioned CSH to give clinical teams at Barts the opportunity to enter the competition and so contribute to sustainable clinical practice in the Trust. The Green Ward Competition launched in November 2018. Selected teams were booked into workshops run by Dr Olivia Bush, an experienced physician with a special interest in sustainability, working for the Centre for Sustainable Healthcare (CSH).



The workshops started with Dr Bush explaining the links between health of populations and health of the environment and the urgent need for clinical teams to act. In the second half of the workshops, teams were given time and space to think about how their service was run, consider areas where services could be improved and devise projects for assessing the system and testing out their innovative ideas that it was hoped would enhance the value of the services, in all aspects of the 'triple bottom line'.

Projects were run over 8-12 weeks, supported by Dr Bush and Lindsey Jarratt. In June 2019, as part of the competition judging, members of the senior leadership team visited the teams in their clinical areas to view the project posters and speak to the teams directly about their projects. Teams were selected for a prize or commendation. The winning team was presented with £500 to re-invest in a sustainability project in their department.

Case studies of all the entries are included in this report with details of carbon savings, financial savings and water conservation.

## COMPETITION ENTRIES

### 1. DELIVERING SUSTAINABLE EYE CARE THROUGH GREEN-TINTED GLASSES – EYE TREATMENT CENTRE (ETC) TEAM

TEAM MEMBERS: Taurai Matare (Senior Nurse), Miss Sudeshna Patra (Consultant Eye Surgeon & Network Director), Paweena Kane, Vera Kwateng-Asumang, Rosa Hernandez, Brenda Jones (Theatre Nurses), Lucy Sattar (Technician), Dr Mishank Jain, Dr Andrew Williams (Consultant Anaesthetist) and Dr Gomathy Kandasamy (Consultant Anaesthetist)

**\*\*WINNERS\*\***



*'The Green Ward Competition has opened my eyes to how devastating plastic is to the environment. Since the project started, I have also changed my lifestyle and removed most of the plastic in my home. I am so conscious about what I use and how I dispose of plastic.'*

**Taurai Matare, Senior Nurse,  
Eye Treatment Centre**

Taurai, Vera, Paweena, Brenda, Lucy & Rosa (left to right)

**The Eye Treatment Centre (ETC) team carried out** 4 sustainable healthcare initiatives as part of the competition:

1. Keeping Patients Awake and Safe for Cataract Surgery: To (a) reduce unnecessary general anaesthesia (GA) (b) minimise the use of intravenous (IV) sedation.
2. Saying No to Plastic: Abolish the use of all polystyrene/plastic cups, plates and cutlery in the department.
3. Patient Flow Facilitator: Minimise interruptions to frontline staff to improve patient flow.
4. Unwrapped Creations: Using clean theatre equipment wraps for creating decorations, bunting etc to reduce waste & generate income.

#### **Project 1: Keeping Patients Awake and Safe for Cataract Surgery**

##### **Background:**

- Approximately 85% eye surgery cases are carried out under local anaesthetic (LA) alone, the remainder are carried out using intravenous (IV) sedation or a general anaesthetic (GA).
- Most weeks a small number of cases were being converted from GA to IV sedation or LA alone.
- The late conversion led to waste of resources, a negative environmental impact, and poorer patient experience due to unnecessary visits to hospital for investigations and pre-op assessment, un-addressed patient anxiety, delayed listing for surgery and the effects/risks of GA.
- Late conversion may be the tip of the iceberg; there may be more inappropriate GA listings that are not converted.
- Causes of the inappropriate listings included:
  - misconceptions amongst surgeons of the indications for GA.
  - lack of knowledge amongst surgeons of techniques that anaesthetists could use to make surgery possible under local anaesthetic.
  - surgeons not considering the risks of GA in a frail, elderly population.
  - the consent process in clinic, including how options were presented and lack of exploration of patient concerns/anxieties.

### Approach:

- The project was run over 6 weeks.
- To avoid the unnecessary use of GA or IV sedation, all clinical staff were encouraged to ask 'Why GA' at 3 crucial stages in the patient's cataract surgery pathway: 1) before proceeding with a general anaesthetic (GA) or intravenous (IV) sedation, 2) during informed consent, 3) at pre-assessment & during re-consent on the day of surgery.
- The clinicians were asked to improve the quality of engagement with the patient during consent conversations & to spend some time discussing all anaesthetic options and their relative risks with the patient.
- The Trust cataract surgery patient information leaflet was updated to include guidance about anaesthesia
- Teaching sessions were scheduled to increase the understanding of anaesthetic risks in patients undergoing eye surgery.

### Outcome measures used:

- number of conversions from GA to LA (with or without sedation) on the day of surgery.
- Relative financial cost procedure with GA or LA (with or without sedation). This included cost of additional equipment used during a GA or IV sedation compared to LA, cost of disposal of single use equipment, reduced need for anaesthetic staff, avoiding additional investigations & pre-assessment visits and improved flow through theatres.
- Relative carbon footprint of procedure under GA and LA (with or without sedation).

### Results:

Over 6 weeks, 9 cases were converted at a late stage from GA to LA (with or without sedation). The approach outlined above was implemented.

<b>Environmental benefit</b>	Potential to save <b>1910 kgCO<sub>2</sub>e</b> annually due to reduced use of equipment and anaesthetic gases. When the changes made are sustained and patients are not unnecessarily listed for a GA then there will be a further saving of at least 1 hospital visit for pre-operative assessment/further investigations. This would be a further saving of 1,794 kgCO <sub>2</sub> e every year.
<b>Social sustainability; benefit to patients, staff and community</b>	Patients: potential (not measured) to improve waiting times as more patients will be able to be added to each list, fewer disruptive visits to hospital for pre-operative assessments, able to leave hospital earlier as no time needed in recovery after GA. Staff: different members of MDT (nurses, anaesthetists, surgeons) working together to reduce GA (improved team working and understanding of each other's roles and concerns about patient care), more thoughtful approach to practice encouraged in team.
<b>Financial benefit</b>	For each case converted £24 of extra equipment and the sessional cost for the anaesthetist (£500/session) was saved. This is a total of <b>£4,716 over 6 weeks</b> , equating to <b>£40,872 over 1 year</b> .  Once the new patient information leaflets, education, use of the 3 'whys' and improved consent conversations have effect and patients are not inappropriately being listed for a GA in the first place then there is the potential for the following further savings due to; 2 more cases could be added to a list (loss of tariff of 2 x £700 when a GA case is listed), and there would be a saving at least 1 additional pre-op investigation/assessment (£150). So, each case under GA costs an additional £2,074. If these patients were not listed for GA inappropriately then the saving would be £18,666 over 6 weeks, <b>£161,772 over 1 year</b> .
<b>Clinical outcomes</b>	Reduction in patients exposed to risk of GA, potential to improve waiting times, improved information offered to patients in leaflet form, which may reduce anxiety.

### Project 2: Saying 'no' to plastic

#### Goal:

To achieve zero use of plastic cups, plates & cutlery, reduce costs & the carbon footprint and change staff attitudes and behaviour towards the use of single use plastics.

**Background:**

There was a high use of plastic and polystyrene cups and plastic spoons by both staff and patients in the ETC. This had been commented on by several members of staff, but no action had been taken to change the practice.

**Approach/intervention:**

Plastic and polystyrene cups were removed from the department, staff were encouraged to use reusable items (a supply of reusable cups were bought by the ETC sister for staff to buy) and non-plasticised paper cups were ordered in for patients. In addition, pharmaceutical representatives were requested to bring paper plates, cups and cutlery when sponsoring lunch.

**Results & discussion:**

**Pre-project** they used **16,500 polystyrene and plastic cups per month**, data taken from purchase orders (average Jan-Feb). By the **end of the project** they had switched to paper cups and were using fewer disposable cups overall, only **2,250 paper cups (86% reduction) per month for patient's hot drinks** (use for cold water not considered) and staff were using reusable cups (we did not take in to account washing of reusable cups as it was not clear where this washing would happen, in the hospital or at home).

<b>Environmental benefit</b>	Save 58 kgCO <sub>2</sub> e per month, anticipated saving in one year 697 kgCO <sub>2</sub> e
<b>Social sustainability; benefit to patients, staff and community</b>	For those staff and patients concerned about the environment this project improved their ability to live in accordance with their values when at work/ in hospital as well as at home. Living in accordance with values improves wellbeing.
<b>Financial benefit</b>	Potential to save <b>£160 per month, £1,926 per year</b>
<b>Clinical outcomes</b>	Not applicable.

Steps taken to ensure lasting change: the order was changed so that this change in procurement would continue.

**Project 3: Unwrapped Creations**

**Goal:** To reuse and reduce waste & develop a circular economy.

**Background:**

The ETC staff used clean theatre wraps to make party decorations for their department and the Green Ward Competition Awards Ceremony. This initiative was an opportunity to showcase the creativity and hidden talents of the staff.

The weekly weight of clean theatre equipment wraps was 30 kilos of recyclable waste disposed of as RDF (refuse derived fuel). The team used a small proportion of this to make their creations.

<b>Environmental benefit</b>	Not quantified; this project involves reusing a small amount of plastic waste.
<b>Social sustainability; benefit to patients, staff and community</b>	Recognising and valuing the artistic skills of several members of the team. Helped foster a positive team spirit, a sense of pride and wellbeing amongst the staff working on the project and create an atmosphere of celebration at the awards ceremony, which was a gift to all those attending. Some of the creations were for patient use; small bags and 'superhero capes' were made for the children to help to make their visit to the hospital more enjoyable.
<b>Financial benefit</b>	Not quantified.
<b>Clinical outcomes</b>	Not applicable.

#### Project 4: Introducing a Patient Flow Facilitator (PFF)

**Goal:** To reduce interruptions to frontline staff during outpatient clinics, respond to queries, improve clinic flow increase patient satisfaction and reduce staff frustration.

**Background:** The ETC is a busy eye centre & around 350 patients per day attend the department. The frontline nursing staff are faced with constant interruptions to their workflow and deal with a range of enquires from patients, doctors & visitors to the department. The idea was that a member of the team be nominated as a single point of contact for all tasks which would qualify as an 'interruption' to frontline staff. This had been trialled and piloted successfully but could not be sustained without funding and no data had been collected to support a case to fund a facilitator on a regular basis.

#### Approach:

The team of PFF's during the 4-week initiative consisted of 5 Ophthalmic Technicians (band 3). They wore hi-vis jackets so they could be easily identified. One PFF was allocated to each 4-hour session (morning or afternoon).

The PFF's each maintained an activity log for all tasks or 'interruptions' & recorded the start time of the AM & PM clinic.

Outcome measures: the type of task or 'interruption', the frequency with which it was performed & the mean time taken for each task, start of the AM & PM clinics and patient feedback.

**Results:** The PFF logged 455 'interruptions' during the 4-week pilot with a daily mean of 40.5 'interruptions'. The mean time spent on each task was 5.6 minutes totalling of 226.8 mins or ~4 hours per day. The PFF's work allowed frontline staff to complete their tasks efficiently and are likely to improve patient safety (there is an extensive literature on the detrimental effect of interruptions on efficiency and patient safety). The work of the PFF also maintained prompt clinic start times and flow.

<b>Environmental benefit</b>	No direct impact.
<b>Social sustainability; benefit to patients, staff and community</b>	Potential to reduce the frustration, stress of nursing staff and increase staff job satisfaction. The technicians reported enjoying their new role as a PFF.
<b>Financial benefit</b>	Time spent dealing with interruptions equated to 40 hours per week, 1 wte. It is cheaper by at least <b>£10,000</b> over 1 year to employ a band 2/3 healthcare support worker to prevent interruptions rather than band 6/7 nurses dealing with queries.
<b>Clinical outcomes</b>	Potential to improve patient safety.

## 2. REDUCING DISCHARGE TIME FOR PATIENTS ADMITTED TO THE ACUTE ASSESSMENT UNIT (AAU) – AAU TEAM

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**TEAM MEMBERS:** Clark Richardson (AAU Manager), Karen Bryan (AAU Matron).

**\*\*HIGHLY COMMENDED\*\***



**Goal:** To reduce discharge time for patients admitted to AAU

**Background:** significant delays are caused to discharge by information, including blood results, not being available at the time of the morning 'board round' or ward round where discharge decisions are made.

**Approach:** a form was devised that could be completed by a doctor for each patient to signify the conditions that needed to be met to allow a safe discharge. This would then allow a nurse to discharge the patient on if these conditions were met.

**Results:** The form was agreed with senior clinicians. The buy-in was especially strong from doctors-in-training as they carry out much of the work around discharge; they recognised the benefits of the system in streamlining the discharge process and dealing with the 'bottle-neck' of waiting for a doctor to review a patient before discharge could occur.

Over 1 week, 14 forms were completed and 7 of these identified patients for whom earlier discharge could be achieved, 4-12 hours earlier than usual.

The project hit a barrier in further implementation as for the project to be operationalised the nurses needed to be trained up to allow them to discharge patients independently. This was not furthered during the time scale of the competition as the matron was on leave for 4 weeks. However, the team are now furthering this project and expect to see cumulative benefits.

<b>Environmental benefit</b>	A hospital bed is carbon intense due to facilities, travel, food, linen, consumables and tests. This project could result in better use of between 2299 and 6,898 kgCO <sub>2</sub> e annually.
<b>Social sustainability; benefit to patients, staff and community</b>	Reducing hospital stay generally makes an admission less disruptive to patients, spreading responsibility for discharge amongst the team is empowering for nursing staff and takes the burden off the doctors-in-training so potentially improving the working experience for staff.
<b>Financial benefit</b>	Improving the staff experience can improve engagement and reduce sick days (great costs to the NHS), reducing hospital stay may help prevent complications due to hospital admission that can be costly.  Earlier discharge meant that time in the hospital bed equating to the cost of between <b>£21 and 63,000 annually</b> was not wasted (variation due to uncertainty around number of hours saved). This is a saving in terms of the time being better used rather than being wasted due to unnecessary delays. The money will not be saved in real terms as the bed will likely be filled with a new patient; therefore this figure has not been included in the total of savings made. The cost of a bed day used was £346 ( <a href="https://improvement.nhs.uk/documents/1972/1_-_Reference_costs_201718.pdf">https://improvement.nhs.uk/documents/1972/1_-_Reference_costs_201718.pdf</a> )
<b>Clinical outcomes</b>	Preventing complications of admission including nosocomial infection and deconditioning in the elderly.

### 3. IMPROVING ACCESS TO ELECTRONIC NOTES IN THE COMMUNITY – COMMUNITY NEURO TEAM

**TEAM MEMBERS:** Holly Corlett (Specialist Clinical Psychologist), Lily Smythe (Speech & Language Therapist), Mairead Espinoza (Occupational Therapist).

**\*\*HIGHLY COMMENDED\*\***



Holly, Lily & Mairead (left to right)

**Goal:** To improve access to electronic notes in the community setting.

**Background:** The team identified that one of the main areas of waste was due to returning to their office at Mile End hospital to write up notes.

**Current system:** After the introduction of the EMIS electronic notes system handwritten notes taken on community visits need to be scanned on to the EMIS electronic notes system and extra information typed into the electronic system, duplicating the effort of making hand-written notes. Extra journeys back to the department at the end of the day only to write up notes take up staff time that could be spent more productively and have environmental, social (to staff) and financial costs. The time lost to travel was especially important as they are a team member short currently and so are under pressure to work even more efficiently.

**Alternatives:** Many other Trusts, including the neighbouring East London Foundation Trust, provide community staff with the capability (both devices and docking units installed at hubs in the community), to add notes to the electronic notes system when working in the community. **The team wished to assess how such technology might make their practice more sustainable.**

**Approach:** the team gathered **baseline data** of the **wasted travel** (cost, mode of transport, distance) from journeys of 3 of the 15.8 full-time equivalent staff made back to the department over 1 week just to add notes to EMIS ('unnecessary journeys') and **staff time wasted** due to travel and duplicate work required to complete

notes. The team reported that the pattern of work of the 3 team members (Speech and Language Therapist, Physiotherapist and Psychologist) was generalisable to the other team members.

The aim was to **compare** this data with data collected **after the introduction of an iPad** or work laptop. Since (despite best efforts) it was not possible to obtain a device to test this change within the timescale of the competition the impact of the change was **calculated** based upon the potential impact of saved journeys and reduction in duplication of administration, taking into account the cost of introducing iPads for the team (capital investment and running cost) for use on community visits.

#### Results:

The results represent potential savings for the whole team of 15.8FTE staff over 1 year (236 working days) calculated from the data for 3 team members over 1 week. The potential benefits include:

<b>Environmental benefit</b>	A forecast <b>annual carbon saving of 235 kgCO<sub>2</sub>e</b> , including saved travel and paper. Travel made the greatest contribution to saving carbon with a potential average saving of <b>1,316km</b> .
<b>Social sustainability; benefit to patients, staff and community</b>	Benefits to staff include an increased likelihood of staff going home on time, reduction in low value work (travel and data entry) and frustrating work (meaningless duplication) for the team. All of these have a potential to increase job satisfaction and staff wellbeing.
<b>Financial benefit</b>	A forecast annual saving of <b>£ 1,228 in travel costs and use of resources</b> , even after capital investment and running costs of iPads considered (assuming an iPad will last for 5 years). A further annual saving of <b>£8118</b> was forecast due to <b>savings in staff time</b> related to unnecessary travel and duplication of documentation. This amounts to a <b>total annual saving of £9,346</b> .
<b>Clinical outcomes</b>	Saving time could allow more patient reviews to take place and reduce wait times. More timely availability of notes to other healthcare professionals will help to contribute to safer care and greater accuracy of notes; during the project it was noted that there was sometimes a delay of 1-2 days before paper notes were entered into the electronic system.

#### Next Steps:

The Chief Medical Officer was so impressed with the project and saw the need in providing iPads for the team that he has promised to work to facilitate this.

There are many community teams in Barts Trust who would potentially benefit from this technology and so this project has **HIGH potential for spread and impact throughout the Trust**.

#### 4. ELIMINATE DUPLICATE LETTERS SENT TO GP SURGERIES – ENDOSCOPY TEAM

**TEAM MEMBERS:** EMMA ROTHWELL & MEMBERS OF THE ADMIN TEAM



Emma Rothwell (far right) with Head of Endoscopy Nurses, Wendy Kentish (centre) and Clinical Director, Louise Langmead (far left).

#### Goal:

To stop sending paper copies of endoscopy reports to GP surgeries in Tower Hamlets, in addition to electronic copies.

#### Background:

At the start of the competition **all** endoscopy reports were being printed and mailed to GPs, despite reports for patients with a GP in Tower Hamlets also being sent electronically. This duplication was identified as an area of waste in the department.

#### Approach:

As a baseline, the reception team logged the amount of time spent posting out all the paper reports that were printed each day over a 9-day period. Data was collected on the number of local reports for Tower Hamlets GPs and the number for GPs located outside the Tower Hamlets area (that still needed to be sent by post). Once this data had been collected, the nursing team were asked to stop printing all local reports. Data collection was then repeated.

#### Results:

Of a total of 340 reports generated, **153 local** reports were printed and posted unnecessarily **over 9 days**, an **average of 17/day**. **After** the change was introduced **zero** local reports were printed unnecessarily; this demonstrated that the introduction of the new system was successful.

<b>Environmental benefit</b>	Saved <b>1477 kgCO<sub>2</sub>e per year</b> , mostly due to the reduction in delivering reports to GP surgeries.
<b>Social sustainability; benefit to patients, staff and community</b>	<b>Reduction in low value work</b> (printing, enveloping reports) for team <b>and</b> reduction in the <b>frustration</b> of purposeless duplication of work. The manager reported that it built the team's <b>confidence in ability</b> to and <b>benefit of making changes</b> in working practices.
<b>Financial benefit</b>	<b>Saving £ 3,357</b> per year in resources, mostly due to savings in postal costs. Financial savings due to more efficient use of staff time are not included in this figure so savings are potentially greater.
<b>Clinical outcomes</b>	Not applicable.

## 5. INTRODUCING EARLY MOBILISATION FOLLOWING ELECTIVE JOINT REPLACEMENT SURGERY (ENHANCED RECOVERY PATHWAY) - ORTHOPAEDIC PHYSIOTHERAPY TEAM ON CHESTNUT WARD

TEAM MEMBERS: Joshi Vishwanath, Bertie Letimier (Nurse specialist), Beatrice Brown & Caroline Odeyemi (Ward Sisters) Sister, Kalu Alaezi & Nathalie Glover (Advanced Rehab Support Workers), Julia Smith (Senior Occupational Therapist), Dr. Suyogi Jigajinni (Consultant anaesthetist).

**Goal:** increasing the speed of patient recovery after elective hip or knee surgery.

**Background:** rehabilitation is a key aspect of care in the post-surgical period on Chestnut Ward. There is a broad remit across the whole multi-disciplinary team to provide a service that supports a rapid recovery after elective surgery.

**Approach:** The change introduced was mobilising patients from 4 hours post-operatively (day zero), instead of waiting for 24 hours.

Vishwanath Joshi redesigned the mobilisation protocols, in consultation with the wider MDT, identified the need for extra training for nursing staff to allow early mobilisation to be carried on out-of-hours and then successfully delivered this training. He also wrote and delivered an education session on sustainable healthcare. A member of the therapy team and the clinical nurse specialist updated the information leaflet that patients are given pre-operatively to make sure that they understood to expect staff to help them to mobilise 4 hours after surgery.

### Results:

Over 1 week, 5 patients underwent elective surgery. 3 of these patients of these 5 patients arrived within core working hours and the physiotherapy team mobilised all 3 patients within 4 hours after the surgery (i.e. standing and weight bearing). Two patients arrived after 18:00 when the physiotherapy team were no longer on duty. One of these patients declined to mobilise and sit out in chair. The second patient was not mobilised by nursing staff due to low nursing staffing levels.

As the numbers are so small it is difficult to draw sound conclusions; it appears however that the physio team were working well on this new initiative and that patient factors (such as expectations, pain management) and staffing levels may need to be addressed so that the early mobilisation can be carried on out-of-hours.

The next steps that the physio team are going to take are to conduct more training sessions with the nursing team, improve patient engagement by approaching the patient pre-op on the day of surgery and liaising with a member of the senior nursing team on the ward regarding how to achieve early mobilisation out-of-hours.

Data on time to discharge for the 5 patients was not collected. Data on time to discharge needs to be collected from before the introduction of early mobilisation (data for 1-3 months before the change was introduced rather than from a previous audit in 2015, which was too historic) along with information on how soon after surgery mobilisation was carried out. This should be compared with current data.

<b>Environmental benefit</b>	Potential to reduce bed days could have a positive environmental impact as a hospital stay is carbon intensive due to building and staff factors.
<b>Social sustainability; benefit to patients, staff and community</b>	A potential reduction in hospital stays and earlier return to activities of daily living reduces disruption to patient & relatives, earlier return to social roles and helps maintain mental health.
<b>Financial benefit</b>	Bed days may allow more patients to be operated on, increasing number of operations that can be claimed for
<b>Clinical outcomes</b>	Potential to improve clinical outcomes, including joint mobility and reduce DVT incidence.

**TEAM MEMBERS:** John Rae, Rasheda Choudhury, Faiza Khan, Paul Eze-John



The team carried out 2 projects:

**Project 1: Introduction of telephone clinic for patients recently initiated on non-invasive ventilation (NIV):**

**Goals:** a) To reduce ineffective/low value clinic appointments b) To reduce inappropriately supply of extra equipment.

**Background:** After NIV initiation patients have a follow-up appointment after 1 week, leave with a plan and are then next seen at 3 months. When they return to clinic at 3 months many patients are not using treatment effectively, have stopped therapy, have not called to alert the team if they have been unable to operate equipment or if the equipment is not working. Sometimes patients ring to request replacement equipment, and this is sent out without checking if it is needed; often it is not required and so there is unnecessary duplication of supply. Furthermore, often patients forget to bring their machine with them to clinic, so troubleshooting cannot be carried out at that clinic appointment.

**Approach:** The team wished to try telephone support, early after initiation of NIV, to see if problems could be resolved remotely to improve treatment adherence and tackle problems proactively.

It was hoped that the introduction of telephone follow up would decrease the number of clinic appointments required (with reduced admission and social costs of time of school and work), increase the value of clinic visits (reducing wasted journeys), improve patients'/parent's confidence and engagement (if they feel supported and have the right information so that treatment does not 'fail'), reduce postage and waste of duplicate equipment and improve clinical outcomes if patients are able to start and maintain NIV use earlier.

**Results:**

The start of the work was delayed as there were administrative processes to negotiate in order to ensure that the department was paid for the telephone appointments in the same way as a clinic appointment.

The team did start the project whilst waiting for approval and found that the patients appreciated the calls and the team were convinced of benefit. The team reported that data on the outcomes of the calls had been collected but they did not enter the data as part of their case study.

<b>Environmental benefit</b>	Potential reduction in patient journeys to the hospital for outpatients, and reduction in wasted journeys for low value appointments.
<b>Social sustainability; benefit to patients, staff and community</b>	Potential to reduce clinic appointments thereby reducing the social costs of time off school and work for children and their parents.
<b>Financial benefit</b>	Potential to reduce the cost of equipment inappropriately sent out to parents of patients.
<b>Clinical outcomes</b>	Potential to reduce admission rates through increased adherence to treatment.

## Project 2: Reviewing single-use equipment in the department

**Goal:** The aims of the project were to reduce waste from the department from the use of disposable bands used for sleep studies and oxygen probes.

**Background:** patients attending the department for sleep studies have monitoring equipment attached, including bands that circle the chest and abdomen to assess respiratory effort and oxygen probes. Both items of equipment are disposable and generate waste. The team wondered if replacing disposable with reusable equipment would be more sustainable.

**Approach:** investigating the relative cost of reusable and disposable oxygen probes and chest bands.

### Results:

On carrying out research there were no reusable oxygen probes in the department that were designed to stay on a patient's finger for longer than a few minutes (though they are manufactured) and so the team did not progress the project.

Regarding chest bands, 1 patient attending per night, 5 days a week using 1 pair of disposable bands (£2 per pair). The equipment is used once and disposed of in the clinical waste stream, even though the contact is just with the patient's skin.

The capital cost of a single pair of reusable bands was £300; 2 or 3 sets of bands in 4 sizes are required to keep the service running (as bands need washing and take 24 hours to air dry). A stock of disposables is still required for patients with MRSA.

It would take 7 years to pay off the capital cost of buying a full set of reusable bands and the environmental cost of manufacture compared to the use of reusable bands (and the longevity of the reusable bands remains an unknown). The disposable bands are incinerated in the clinical waste so the environmental impact would be due to incineration, not landfill.

It would be interesting to see if there were any less expensive reusable bands on the market.

## 7. OTHER IDEAS INSPIRED BY PARTICIPATION IN THE COMPETITION

Further ideas were inspired by the competition and recorded to be taken forward in the relevant departments. Ideas included:

### Physio Team

- Recovering and reusing rehabilitation equipment issued to patients on discharge.

## AWARDS

The awards were a great success. The judges, members of the senior leadership team at Barts and CSH, visited teams in their clinical areas or listened to a presentation of their work. All participants then got together to join an excited audience in the Medical Education Centre to receive their certificates and prize. The audience included members of clinical staff, the Chief Executive, Alan Gurney, Director of Improvement, Chris Gordon and members of the Quality Improvement team at Whipps Cross, Head of Nursing, Zebina Ratansi, Head of Estates, Rob Speight and members of the Estates Department as well as Claire Davis from Communications.

After prize giving all were invited to relax over a delicious, healthy sustainable tea!

### WINNERS: Eye Treatment Centre with their prize cheque and an example of their 'Unwrapped Creations'



### HIGHLY COMMENDED: Neurological Rehabilitation Team & AAU Team



## Potential annual savings

The following table provides detail on the **annual** savings available to the Trust from the 2019 Green Ward Competition projects when projects are fully implemented and embedded. **These carbon and cost savings will increase if the projects are scaled up across clinical areas throughout the Trust.**

Project	Financial (savings if current projects continued)	Carbon	Social	Clinical Outcomes
<b>Pilot of patient flow facilitator – Eye Treatment Centre</b>	£10,000	Not quantified	Staff satisfaction & wellbeing.	Likely improved patient safety.
<b>Keeping Patients Awake – Eye Treatment Centre</b>	£40,872 - £161,772	Total 1,910 – 3,704 kgCO <sub>2</sub> e	Improved information for patients; patients who are better informed are more <b>empowered</b> to act as partners in their care. <b>Less disruptive</b> for patients as a potential for fewer hospital visits, potential for reduction in waiting times.	Anticipated <b>improved flow</b> through theatres, <b>reduced clinical risk</b> for elderly patients with multiple comorbidities and reduced side-effects.
<b>Quantifying wasted journeys due to lack of adequate digital support – community Neuro</b>	£ 1,228 plus cost of staff time saved £8118 due to unnecessary travel & admin. <b>Total £9,346</b>	235 kgCO <sub>2</sub> e	Staff satisfaction	Potential for more contemporaneous notes that are available more promptly that may lead to improved patients safety.
<b>Reducing duplication in dissemination of reports -Endoscopy Admin Team</b>	£ 3,357 plus cost of staff time	1,477 kgCO <sub>2</sub> e	Staff satisfaction	None

Switching from plastic & polystyrene drinking cups to reusable and paper cups – Eye Treatment Centre	£ 1,926	6,97 kgCO <sub>2</sub> e	Staff (and potentially patient) <b>satisfaction</b> through allowing staff to live out their values at work.	None
Reducing Time to Discharge for Patients Admitted to AAU – AAU Team	£21-63,000 annually	2,299-8,996 kgCO <sub>2</sub> e	Anticipated improved <b>patient experience</b> and <b>reduction of stress on staff</b> .	Anticipated improved <b>flow</b> through AAU.
Unwrapped Creations – Eye Treatment Centre	Not quantified	Not quantified	<b>Staff satisfaction, team working</b>	
Trial of reusable chest bands for sleep studies – paediatric respiratory physiology	Not implemented	Not implemented	No	No change
Early Mobilisation after Orthopaedic Surgery – Orthopaedic Physiotherapy	Incomplete data	Incomplete data	Anticipated less disruption to lifestyle (in literature) through shorter hospital stay and more rapid return to usual roles/capability.	Potential for a more rapid recovery post-operatively.
<b>Total Savings</b>	<b>£65,501- £186,401</b> (excluding AAU project as not yet implemented)	<b>4,319 – 6,113 kgCO<sub>2</sub>e</b>		

## NEXT STEPS

Having run these pilot projects we encourage the **teams to build** on this initial phase, for the **Trust to spread** suitable projects to other areas (CSH can be commissioned to facilitate this) and for teams to **continue** to look at their work through a '**Sustainability Lens**'; CSH encourages you to carry out further sustainability projects in the future.

## ACKNOWLEDGEMENTS

CSH would like to thank **the teams** for all their enthusiasm, work & creativity in devising and completing their projects and to **Rob Speight**, Estates and **Lindsey Jarratt**, Sustainability Programme Co-ordinator, for partnering with us.

**Dakshina Bhantoo** stepped in to offer much-needed organisation support a few days after starting her post at Barts Health and has done a great job. Without her the judging would not have happened. Thank you, Shina.

Thank you to the **judges**, **Alistair Chesser**, Barts Health Chief Medical Officer, **Liam Hogg**, Barts Health/Skanska Head of Estates and **Rachel Stancliffe**, Director of the Centre for Sustainable Healthcare.

Thank you to our colleague at CSH, **Stefi Barna**, who organised filming of the event.

**We look forward to working with Barts Health and Skanska in the future.**



*'Thank you...for all the work and enthusiasm you brought to making our inaugural Green Ward Competition such a great success. It was clear that your programme had really engaged with the teams involved and delivered more than our initial expectations which is testament to the programme you run. It was so well received and has generated a lot of interest and excitement to develop further staff engagement in the future. We are very keen to build on this success.'*

*Rob Speight, Head of Estates and Sustainability, Barts Health*