VIRTUAL WORK EXPERIENCE

Virtual work experience (VWE) for pre-medical students as a way to improve exposure to surgical careers

D Evans, J Dodd | Gloucestershire Hospitals NHS Foundation Trust

1

Q&A Session

Online session with doctors and pre-medical students

4 doctors, 100+ students

2

Virtual Work Experience

Online session with real patient, facilitated by doctor

1 doctor, 1 patient, 3-5 students

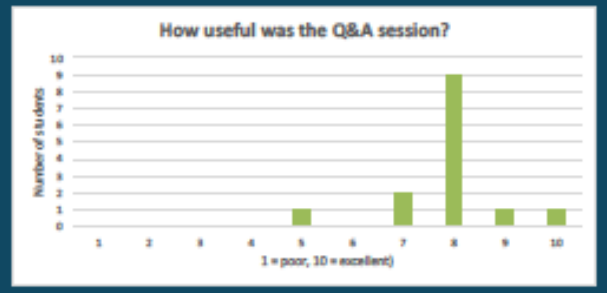
3

In-person Work Experience

Students partake in 'classic' hospital work experience

1-2 students assigned to consultant

Positive feedback:



Students then applied for VWE via standardised forms

Thematic Analysis:

Common themes included the psychological impact of the patient's journey, loss of trust in primary care and emergency services and reflective practice. Students were also given the opportunity to interview the facilitator and common themes were post-graduate career pathways and managing expectations for medical school and Foundation Training.

EDI&S SO01

THE ASPIRE INITIATIVE

A Community-Based Intervention to Champion Equality, Diversity and Inclusion in the Future Surgical Workforce

T Kanani, A Millard, F Robertson, E Issa, N Bhardwaj, D Malde, A Dennison, G Garcea, J Isherwood

Background

We describe the implementation of a strategic careers outreach initiative across state-funded secondary schools in the diverse city of Leicester, aiming to engage and support aspiring surgeons early in their journey.

Methods

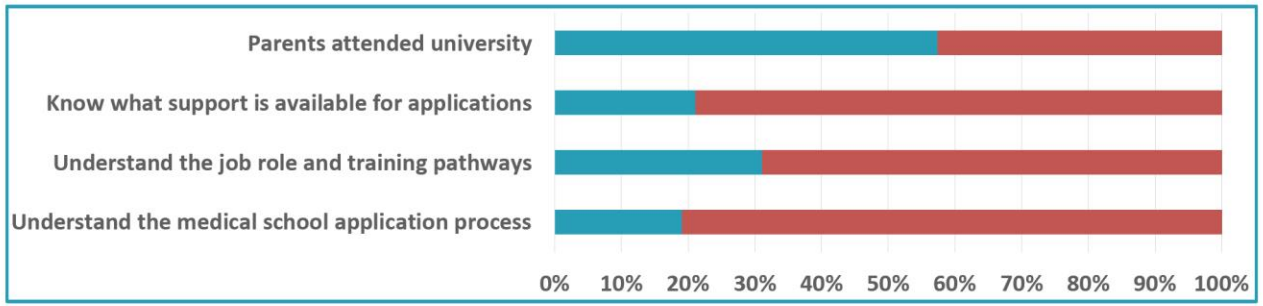
In June 2023, The Aspire Initiative was launched as a community-based intervention targeting students aged 13-17 from diverse socio-economic backgrounds. The initiative includes:

- Outreach Careers Assemblies
- Surgical Work Experience Placements
- Inspiring Video Content
- Community Open Events

Between November 2023 and March 2024, 13 assemblies were delivered at state-funded secondary schools across Leicester. Students were invited to complete surveys before and after the assembly to quantitatively assess their impact.

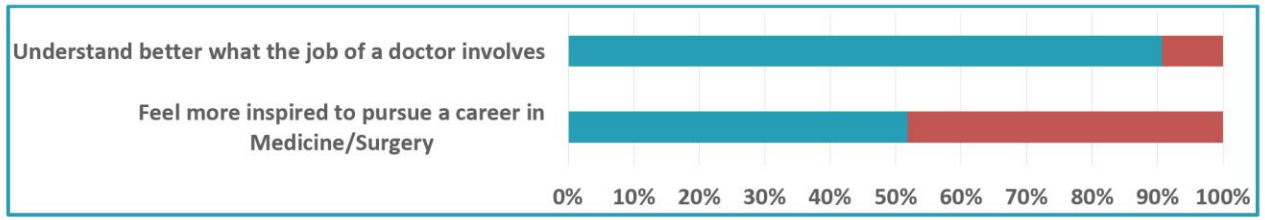
Pre-Session Survey

The pre-session survey was completed by 874 students in Years 8 to 11. Of these, 392 students aspired to pursue a career in Medicine or Surgery or were considering this.



Post-Session Survey

The post-session survey was completed by 420 students.



Conclusions

The Kennedy Report recommended that careers outreach to diverse communities should be planned for as a strategic priority. This study highlights the impact of such initiatives in state-funded secondary schools, showing how they provide students from diverse social backgrounds with crucial insights into surgical careers.

These programs help students make informed decisions and inspire them to pursue their aspirations by connecting with relatable role models. We propose that engaging with students at the secondary school level offers an ideal opportunity for surgeons to foster and sustain professional relationships with a diverse future workforce, laying foundations for continued support and mentorship.

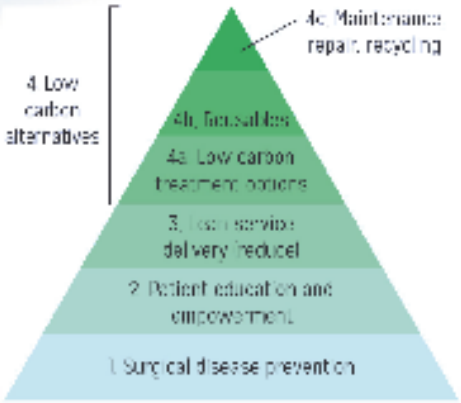
EDI&S SO02

Replacing Single-use Chloraprep with Low Carbon Cost-effective Surgical Skin Prep: A QI Project for Sustainability in Surgery

AUTHORS: Mathoorika Sivananthan; Moyenda Joseph; Lawrence Nip; Serena Sabato-Ceraldi

AUGIS

NHS Croydon Health Services NHS Trust



METHODS

Retrospective data analysis of the trust's surgical skin prep methods in 10 days

Intervention by educating the target specialties - presentation, leaflets and posters.

Pre- and post-intervention surveys for qualitative data.

Quantitative data analysis of skin prep methods used across general surgical specialties 1month pre- and post-intervention

	Chloraprep	Swabs dipped in Chlorhexidine
		
Carbon footprint	**Increased carbon footprint** - Plastic waste - Sharps disposal - Incinerated	**Reduced carbon footprint** - Reusable metal swab holder (part of set) - Orange bin disposal
Cost	**1 wand = £6.99 x 2 = £13.98 per op**	**60p per op**

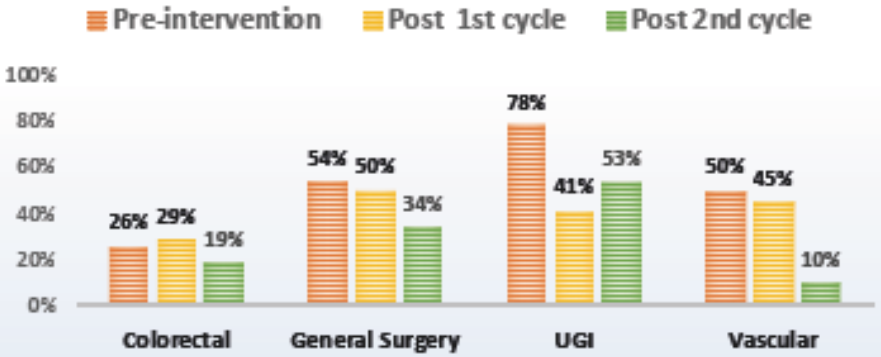


Figure 1: Graph to illustrate the percentage of cases using chloraprep in all cases completed in pre- and post intervention in each intervened specialty. 1st cycle – educating surgeons. 2nd cycle – educating surgical scrub nurses and theatre staff.

20 times cheaper → Saving £6700 per month

INTRODUCTION:

50% of all NHS hospital waste - operating theatres [1].

2/3rds of carbon contributions - single use items [2]

Individually wrapped single use plastic wands of chlorhexidine alcohol solution can be easily replaced with swabs dipped in the same strength of solution whilst reducing the carbon footprint and cost without compromising of patient care.

AIMS:

- To evaluate the surgical skin preparation methods
- To propose NICE recommended sustainable low cost alternative surgical skin preparation method and intervene through educating general surgery surgeons, scrub nurses and theatre staff.

NICE: 1st choice anti septic for surgical skin preparation is **alcohol-based solution of chlorhexidine** unless contraindicated or near mucous membranes [3]

CONCLUSIONS

This project has influenced the trust to shift to sustainable surgical skin preparation. Future projects should advocate for further bottom-up strategies and build a community to ensure sustainable changes across other specialties and trusts.

REFERENCES

[1] Guetter CR, Williams BJ, Slama E et al. Greening the operating room. Am J Surg. 2018; 216: 683–688.

[2] Rizan C, Lillywhite R, Reed M, Bhutta MF. The carbon footprint of products used in five common surgical operations: identifying contributing products and processes. Journal of the Royal Society of Medicine. 2023;116(6):199-213

[3] Excellence. NIfHaC. Evidence review for the effectiveness of skin antiseptics in the prevention of surgical site infection: Surgical site infections: prevention and treatment: Evidence review B. . Inc (NICE). NIfHaCE, editor. (NICE Guideline, No 125). Published online at: https://www.ncbi.nlm.nih.gov/books/ NBK568835/. [Last accessed Feb 2024].

EDI&S SO03

Accuracy of Outsourced Radiology Reports in Emergency Surgical Care; Do they provide a high-quality cost-effective service?

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Background

- Computed Tomography (CT) scans play a crucial role in emergency surgical care enabling proper management and prompt decision making
- This study aimed to compare abdominal CT scan reports created by inhouse radiologists to those created by outsourced radiology reporting service for patients admitted with acute surgical pathologies
- The study also looked at the impact of the reporting style (free text vs structured format) on the quality of such scan reports

Methods

- Patients who were admitted acutely under the surgical specialty and had abdominal CT scans over a period of three months from August 2023 to October 2023 were included
- Statistical analysis was conducted to compare inhouse radiology reports to outsourced ones
- Scan reports were thoroughly scrutinised to identify whether they included all relevant information needed and whether they were written in a structured or free text format.

Results

- A total of 192 abdominal CT scan reports collected
- 56.8% (109 scans) of those being conducted on male patients.
- The median patients' age was 59 years, with a range from 18 to 97 years
- In-house radiologists reported 113 scans (58.9%)
- 79 scans (41.1%) were reported by the outsourced reporting service
- The most frequent indication was appendicitis (15.6%), followed closely by abdominal pain (14.6%)
- Most reports, 149 scans (77.6%), were written in free text format rather than structured format

Inhouse VS Outsourced

Outsourced radiology service was *significantly less likely* to report on:

- The biliary system (OR: 0.396, P: 0.046)
- Spleen (OR: 0.414, P: 0.044)
- kidneys (OR: 0.354, P: 0.027)
- GIT (OR: 0.286, P: 0.026)
- Lymph nodes (OR: 0.412, P: 0.011)
- Mesentery and peritoneum (OR: 0.364, P: 0.004)
- Bones and soft tissues (OR: 0.273, P: 0.003)
- Lung bases (OR: 0.300, P: 0.009).

Structured VS Free text

The structured reports *were significantly more likely* to include comments on the following structures:

Spleen (OR: 8.064, P: 0.044),
Adrenals (OR: 8.468, P: 0.039)
Mesentery and peritoneum (OR: 1.949, P: 0.057)
Bones and soft tissues (OR: 9.295, P: 0.031)

Conclusion

- CT scans reported by outsourced radiology service were found to be significantly ***underreporting*** certain key elements
- Free style reporting format was found to ***miss some crucial aspects*** of abdominal scan reports.
- That adds further challenges to clinicians assessing and managing acute surgical patients.
- Further studies auditing different outsourced companies are recommended to ensure patients are provided with high-quality cost-effective emergency service.

EDI&S SO04

Barriers to delivering a net zero NHS

AN EVALUATION OF SUSTAINABILITY IN SURGERY ACROSS THE MIDLANDS

NHS East & West Midlands Clinical Senates

Trisha Kanani, *Tareq Al Saoudi, Angela Holden, Hayley Sharrod-Cole, Emma Orrock, John Isherwood, Ashley Dennison*

Background

This study aimed to identify key barriers to implementing sustainable practices in the surgical environment. It involved reviewing Green Plans published by Integrated Care Systems (ICSs) in the Midlands, conducting a thematic analysis of relevant literature, and surveying key stakeholders within NHS Trusts in the Midlands.

Methods

Green Plans from 11 ICSs across the Midlands were evaluated by two reviewers for the inclusion of the "key areas of focus" outlined by the NHS Green Plan Guidance.

Three computerised searches were conducted using Ovid MEDLINE and Embase to retrieve abstracts published before May 2023 on reusable surgical gowns, re-sterilisation of surgical energy devices, and operating theatre waste management.

A framework was developed for the "Supporting a Greener NHS Survey" and disseminated to key stakeholders in the Midlands.

Results

A heat map was created to assess compliance of each Green Plan with NHS England guidance.

The literature search yielded 82 abstracts and key barriers to sustainability were identified as infection control, cost implications, instrument damage, and waste management practices.

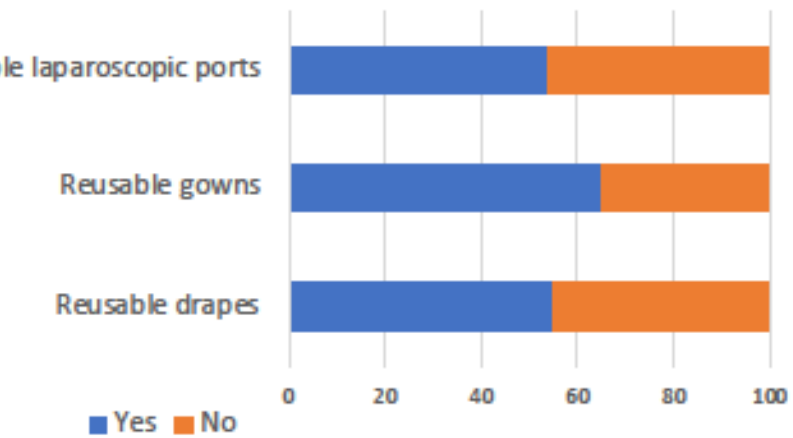
Midlands NHS Green Plans		1	2	3	4	5	6	7	8	9	10	11
Workforce and system leadership	developing workforce											
	define initiatives											
Sustainable models of care	define sustainability goals											
Digital transformation	telemedicine											
	remote care											
	paper reduction											
Travel and transport	public transport use											
	low emission vehicles											
	air transport											
	transport of goods and services											
Estates and facilities	reducing energy usage											
	heating and hot water											
	waste reduction											
	building design/refurbishments											
Medicines	reduction of waste											
	lower carbon alternatives											
Supply chain and procurement (key priority area -68% of emissions)	reduce single-use items/plastics											
	reuse of equipment											
	low carbon alternatives											
Food and nutrition	reduce food waste											
	use local sources											
	reduce use of heavily processed food											
Adaptation	mitigate risks of climate change & severe weather											

The stakeholder survey received 89 responses; Key barriers to implementing sustainable change included surgeon preference, financial constraints, and infection

Conclusions

With national, regional and local organisational impetus coupled with clinical leadership commitment to sustainability, these barriers can be overcome with multi-disciplinary involvement.

By investing in comprehensive training programmes and implementing rigorous quality control measures with input from infection prevention and control teams, clinical leaders and clinicians are best placed to help overcome these barriers and promote sustainability in the surgical environment.



EDI&S SO05

Do All Patients with Biliary Problems Need Surgery? Applying C-GALL Study Results to Long Waiters for Laparoscopic Cholecystectomy

NHS Somerset NHS Foundation Trust

Miss Ashuvini Mahendran (ST3 in General Surgery, Musgrove Park Hospital, Taunton)
Miss Marianne Hollyman (Consultant, Exeter NIHR Biomedical Research Centre)

Introduction

The recent C-GALL study[1], a multi-centre randomised trial, found no significant difference in quality of life at two years between operative and non-operative management of uncomplicated gallstone disease.

This suggests some patients may not benefit from elective laparoscopic cholecystectomy (LC), potentially leading to over-listing for surgery. By identifying patients who may no longer need surgery, we could reduce waiting lists and improve resource allocation.

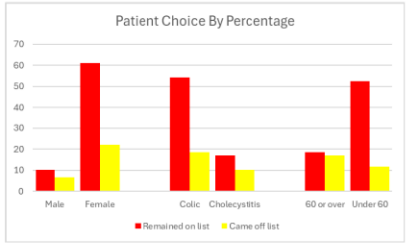
We utilised a clinical decision tool[2] which allowed us to identify data which may ascertain who is more likely to experience a pain-free state following surgery, and therefore how we can implement the C-GALL findings as clinicians.

This study aims to reassess patients with an enforced period of observation on an elective waiting list for LC, to determine if they wish to make a different decision about proceeding with surgery.

Methodology

Patients listed for an elective LC who had been waiting longer than 11 months from referral were reviewed. Patients were contacted through telephone clinics by a surgeon.

Data was collected on type of gallstone disease, history of abdominal surgery, biliary pain since last seen by a clinician, pain radiation to the back, pain reduction with simple analgesia, nausea, and heartburn[2]. Identified patients were contacted and, if exhibiting minimal or no symptoms, were offered the option to be removed from the waiting list with 12-months of patient-initiated follow-up and high priority relisting if their clinical condition worsened.



Results

We contacted 59 patients awaiting elective LC. Most were female (49, 83%), had biliary colic (43, 73%), and were under 60 years old (38, 64%).

Seventeen patients (29%) were happy to opt out due to lack of symptoms. Of these, 13 (76%) were female, 11 (65%) had biliary colic, and 7 (41%) were under 60.

Chi-squared analysis identified age as the only predictive factor, with those under 60 being less likely to opt out (p=0.038).

We will continue to monitor representation and the need for reoperation to ensure safety and the findings remain consistent overtime.

Conclusion

The study demonstrates that a significant proportion of patients awaiting elective LC can be safely managed without planned LC, potentially reducing waiting lists, cost and utilisation of healthcare resources.

We would advise considering review of long waiters to re-evaluate their clinical need for LC in order to improve sustainability within surgery. These findings support a more personalised approach to managing biliary pain, prioritising patients for surgery based on symptom severity.

References

1. Ahmed I et al. Effectiveness of conservative management versus laparoscopic cholecystectomy in the prevention of recurrent symptoms and complications in adults with uncomplicated symptomatic gallstone disease (C-GALL trial): pragmatic, multicentre randomised controlled trial. *BMJ* 2023;383:e075383.
2. Latenstein C et al. A clinical decision tool for selection of patients with symptomatic cholelithiasis for cholecystectomy based on reduction of pain and a pain-free state following surgery. *JAMASurg.* 2021;156(10):e213706.

EDI&S SO06

Future of low-cost Laparoscopic Cholecystectomy Simulation (LaChSI) Model: Integration of Segmentation based Artificial Intelligence models for realism enhancement in Simulation-based Laparoscopic Cholecystectomy training in the Lower Middle - Income Countries (LMICs)

B. Karki[1,2,3], S. Sharma[3], S. Katuwal[4], S. Satyal[3], M. Loubani[2,6]

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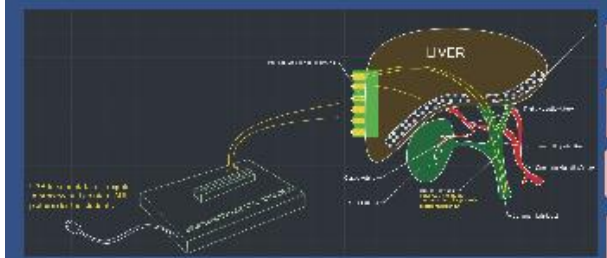
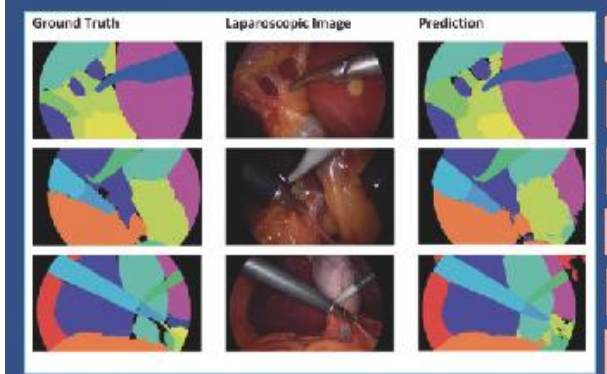
AIM

To introduce an approach of employing **segmentation-based** AI models to meticulously isolate silicon-based LaChSi model.

To assess the **effectiveness** of the AI model with a virtual environment reminiscent of authentic intra-operative intra-abdominal visuals.

METHODS





- **LaChSi** R&D
- PCB I Microcontroller
- Wires I APTS Prototype
- Model Validity
- Cost Analysis
- CBD Injury I Bile leak
- Timing I Cut Detection
- Image Segmentation
- Model Training
- LMIC Courses

Reflection from LaApSi Models

RESULTS

Prototype Testing I Full Features

Cost Effective I APTS **I AI Segmentation**

Plan for Validation in **Laparoscopic Courses** at LMICs:
Novice vs. Expert Group

Improvement in trainee ' s adaptation to surgical scenarios
Visual Transition

Simulation - based surgeries in an actual surgical environment
Disparities reduction

Conclusion

Unmet need for the transition into a high-fidelity low - cost simulation Model.

Introduction of Innovative AI-based Model

Augmentation of surgical realism within simulation-based training

Remote Proctorship Potential I Minimizes Visual discontinuities

Hub & Spoke Model

HULL SURGICAL SKILLS TRAINING CENTRE
The Suture Centre

EDI&S SO07

A NOVEL APPROACH TO ENVIRONMENTALLY SUSTAINABLE SURGICAL THEATRE BY RATIONALISING SURGICAL INSTRUMENT SET – A QUALITATIVE ANALYSIS

Mr G Singh, Miss J Warner, Mr A Fawole, Mr S Dronamraju

PURPOSE:

- To demonstrate the impact of rationalising the number of surgical instruments

RESULTS:

- 50% instruments never used
- Reduced tray instruments by 45%
- Smaller tray →less time to count, faster surgery preparation, reduction in waste → reduced cost to trust

CONCLUSION:

- Cost savings
- Carbon reduction
- Prep & count time decreased
- Reduction of slots required per machine cycle for decontamination

METHOD:

- 58 cholecystectomies included taken from Jan-March'23
- Surgical tray checklists used to record instrument usage and note those deemed redundant
- Green pilot tray used for cholecystectomy
- Qualitative questionnaire feedback collected from surgeons and theatre staff

TWIST

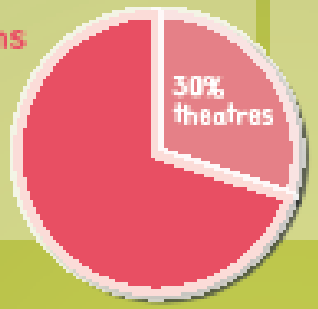
Tracking Waste in Surgical Theatres

a snapshot of waste production in a large teaching hospital

L Yao, H Anar, S Arcori, Collaborative authors. University Hospitals Plymouth NHS Trust

1. Introduction

NHS: 5.4% of greenhouse gas emissions
Operating theatres uses 3-6x energy



To evaluate the amount and cost of disposable material that was opened but unused in theatres

2. Methods

Prospective trainee-led collaborative project

2 weeks (Mon-Fri) at a tertiary teaching hospital (all surgical specialities)

Items opened but unused

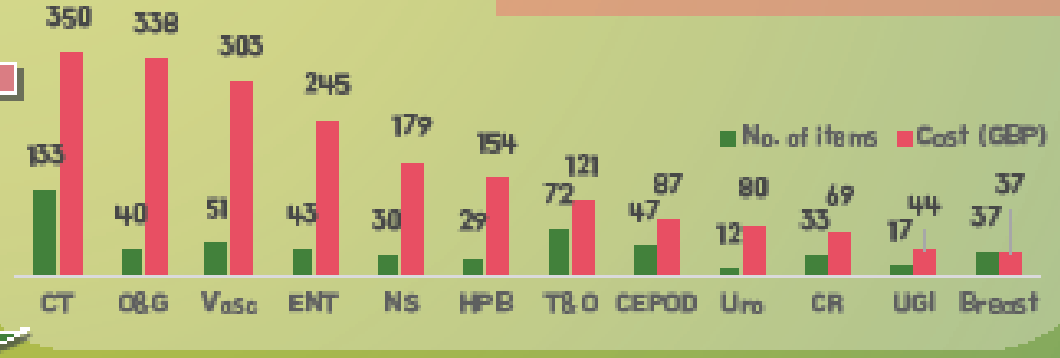
What type of items?
How many?
How much did it cost?
Staff questionnaire

3. Results

238 lists
636 procedures
544 items wasted +

= 2.3 items/GBP 8.38/list

Total = GBP 1993.56



4. Conclusion

We hope to reduce unnecessary waste production, leading to significant environmental and financial implications, by educating staff (including surgeons and the wider theatre team).

Most commonly wasted item were sutures

!! Surgeon preference
!! Lack of staff experience