

Reducing the clinical, financial and environmental impacts of surgical site infection

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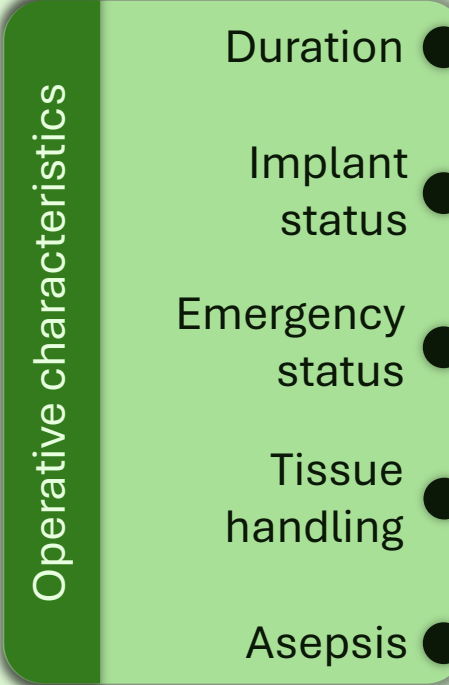
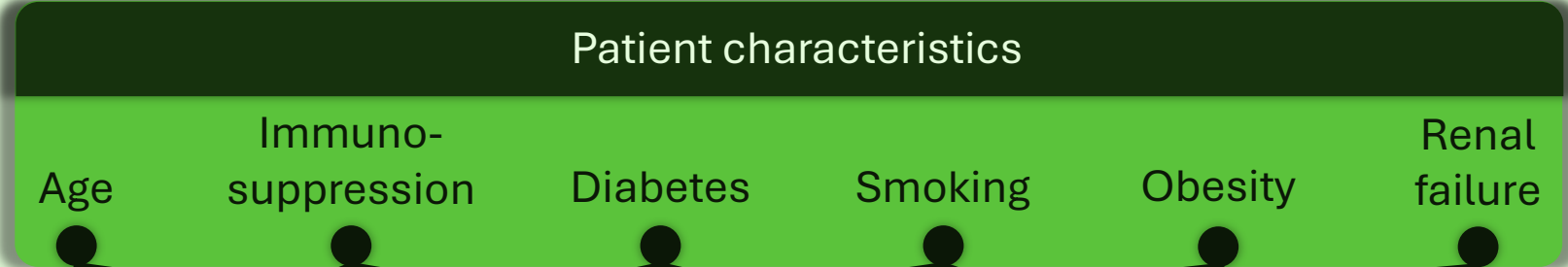
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Surgical site infection

Infection at or
deep to operative
incision within 30
days, or up to 90
with an implant

”

Risk Factors



SSI Impact

Cost

£3,776-£8,348
per episode¹⁻³

Patient Outcomes

Inpatient stay: extended by +9.7-11.6 days^{1,3-4}
Quality of Life: EQ-5D 11% reduction at 30 days⁵
Mortality: 2-11x increase⁶
Greatest for organ/space SSI⁷

Antimicrobial resistance

More antibiotics⁸
Multidrug resistant pathogens⁹
More complexity: +complications and +reoperation⁹

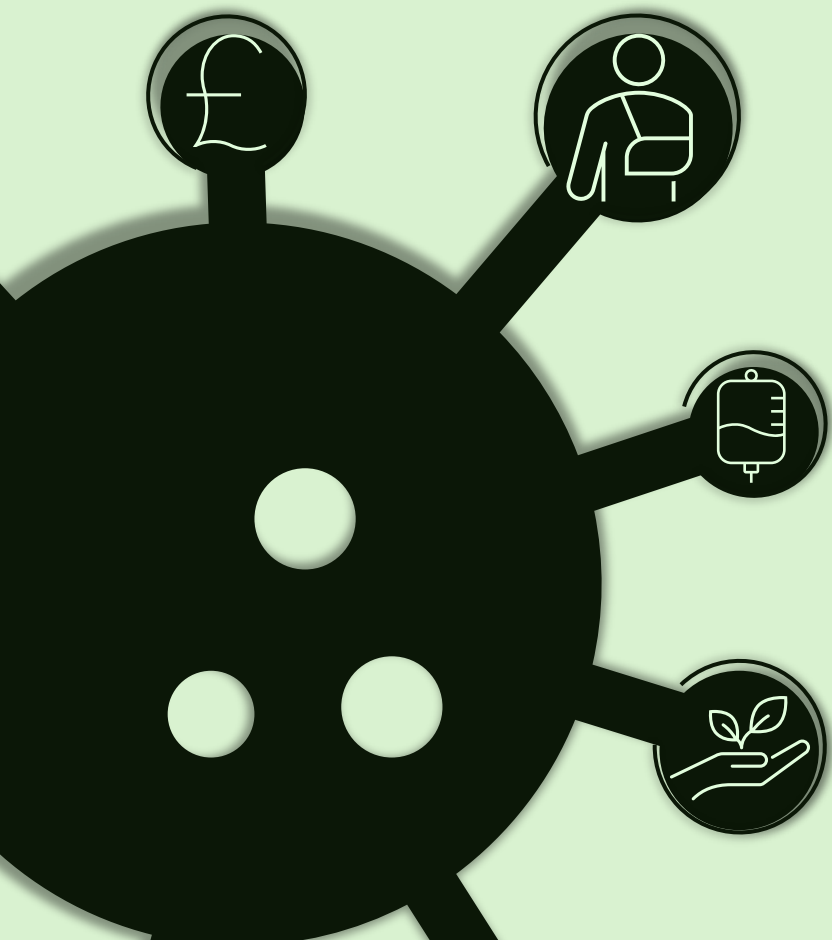
Environmental burden

Bed days, procedures, surveillance, wound care

References

1. Totty JP, et al. IWJ, 2020.
2. Lathan R, et al. BJS Open, 2025.
3. Jenks PJ, et al. J Hosp Inf, 2025.
4. Ai C, et al. Infect Control Hosp Epidemiol, 2025.
5. Badia JM, J Hosp Inf, 2017.

6. CDC NHSN SSI event, 2026.
7. Elangovan S, et al. Antimicrob Resist Infect Control, 2025
8. Burgand G, et al. BJS, 2023.
9. Foschi D, et al. Updates Surg. 2022.



Diagnosis

Timeline

Over **60%**
SSI are detected post-discharge ¹⁻²

Usually within

4-6 weeks

of surgery

Follow-up

References

1. Anderson BM. Prevention and Control of Infections in Hospital, 2018
2. McLean KA, et al. NPJ DM, 2023. .

Classification – CDC¹



Superficial

Superficial incisional

1. Infection within 30 days of surgery
2. **And** involves skin and subcutaneous tissue
3. **And** the patient has at least one:
 - Purulent discharge
 - Organisms in culture
 - One of pain, tenderness, swelling, redness, heat or deliberate incision opened
 - Diagnosis of SSI by healthcare worker



Deep

Deep incisional

1. Infection within 30 days of surgery or 90 days if implant in place
2. **And** involves deep soft tissue layers
3. **And** the patient has at least one:
 - Purulent discharge
 - Spontaneous dehiscence or deliberate opening and fever, pain or tenderness
 - Abscess or other evidence of deep infection
 - Diagnosis of SSI by healthcare worker



Organ/Space

Organ/Space

1. Infection within 30 days of surgery or 90 days if implant in place
2. **And** involves organ/space
3. **And** the patient has at least one:
 - Purulent discharge from drain in the organ/space
 - Organisms isolated from aseptic culture
 - Abscess or other evidence of organ/space infection on direct examination, re-operation, radiological or histopathological examination.

References

1. CDC NHSN SSI event, 2026.

Classification – CDC¹



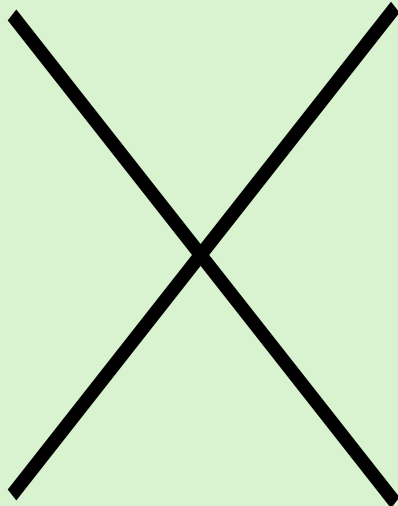
Superficial



Deep



Organ/Space

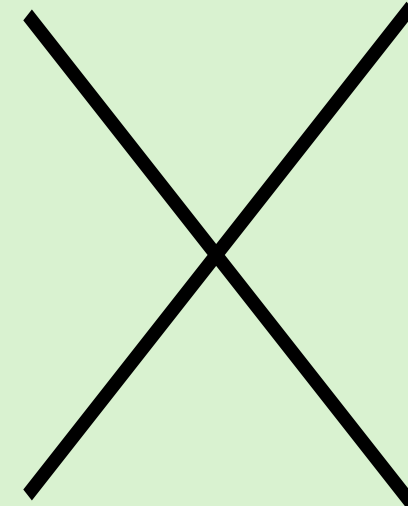


Quality of Life²

Mean difference
EQ-5DTM utility over 12
months (2 studies):

-0.10

95% CI -0.14 to 0.06
 $I^2 = 0\%$



References

1. CDC NHSN SSI event, 2026.
2. McFarland AM, et al. BJS, 2023.

Classification – CDC¹



Superficial

15 days
Median length
of stay



Deep

3701 patients'
elective
colorectal
surgery³



Organ/Space

60.4%
reoperation

20.8%
Percutaneous
drainage

24 days
Median length
of stay

References

1. CDC NHSN SSI event, 2026.
2. McFarland AM, et al. *BJS*, 2023.
3. Gomila A, et al. *Journal of Infection*, 2017.



FIT FOR THE FUTURE

10 Year Health Plan
for England





Environmental cost of surgical site
infection by severity after lower limb
vascular surgery

Methodology

Boundary Setting

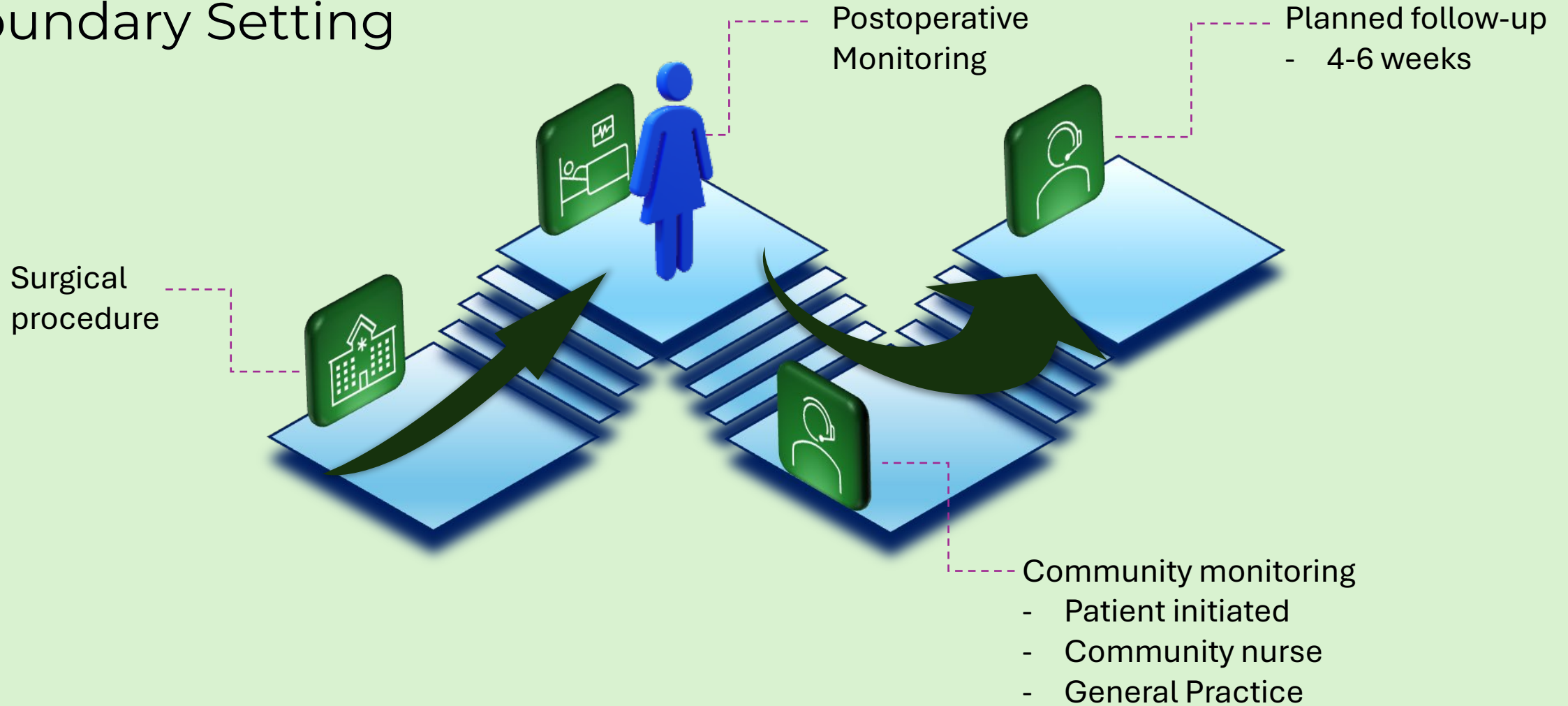


Table of Characteristics

	No SSI		SSI	
	N=77	%	N=22	%
Male	60	77.9	13	59.1
Female	17	22.1	9	40.9
BMI (SD)	25	4.1	28	6.4
Non-smoker	10	13.0	2	9.1
Ex-smoker	42	54.5	10	45.5
Current smoker	25	32.5	10	45.5
Diabetes	60	77.9	13	59.1
Previous CVA/TIA	17	22.1	9	40.9
Hypertension	25	4.1	28	6.4
IHD	10	13.0	2	9.1
COPD	42	54.5	10	45.5
CKD	25	32.5	10	45.5

	No SSI		SSI	
	N=77	%	N=22	%
CFEA	13	16.9	6	27.3
Fem-pop	37	48.1	6	27.3
Fem-distal	11	14.3	6	27.3
Fem-fem	1	1.3	2	9.1
Aorto-bifem	10	13.0	1	4.5
MLLA	4	5.2	0	0.0
Embolectomy	0	0.0	1	4.5
SFJ Ligation	1	1.3	0	0.0
Redo procedure	4	5.2	1	4.5
Emergency	1	1.3	1	4.5
Prosthetic	26	33.8	3	13.6

BMI; body mass index, SD; standard deviation, CVA; cerebrovascular accident, TIA; transient ischaemic attack, IHD; ischaemic heart disease, COPD; chronic obstructive pulmonary disease,

CKD; chronic kidney disease, CFEA; common femoral endarterectomy, MLLA; major lower limb amputation, SFJ; saphenofemoral junction

Findings: SSI



Groin Wound Infection after Vascular Exposure Study¹
International multicentre prospective observational study of 1039 patients.

Superficial



54%

Deep + organ/Space

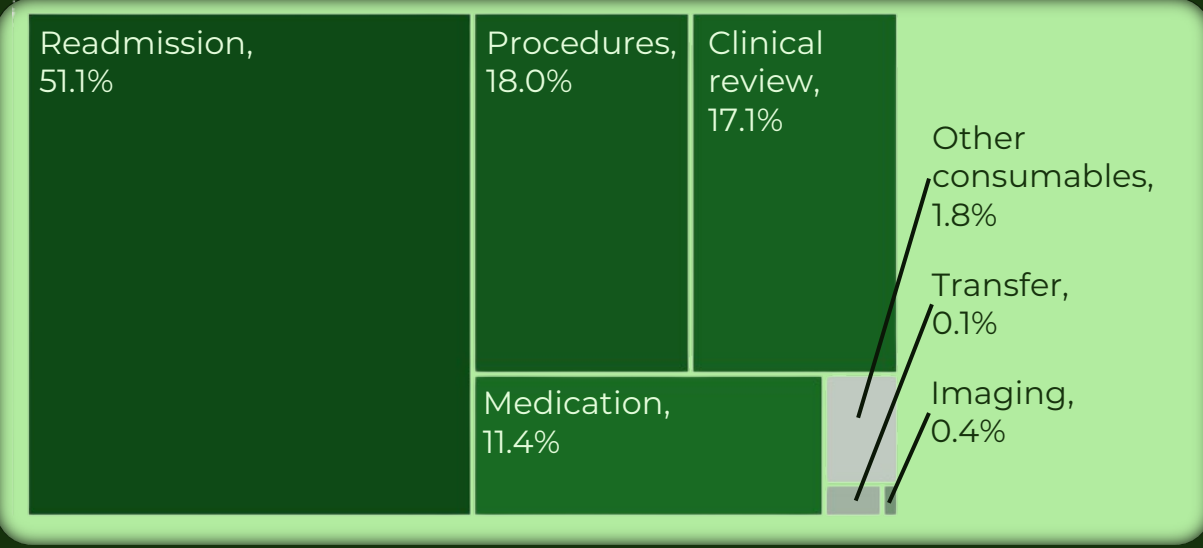
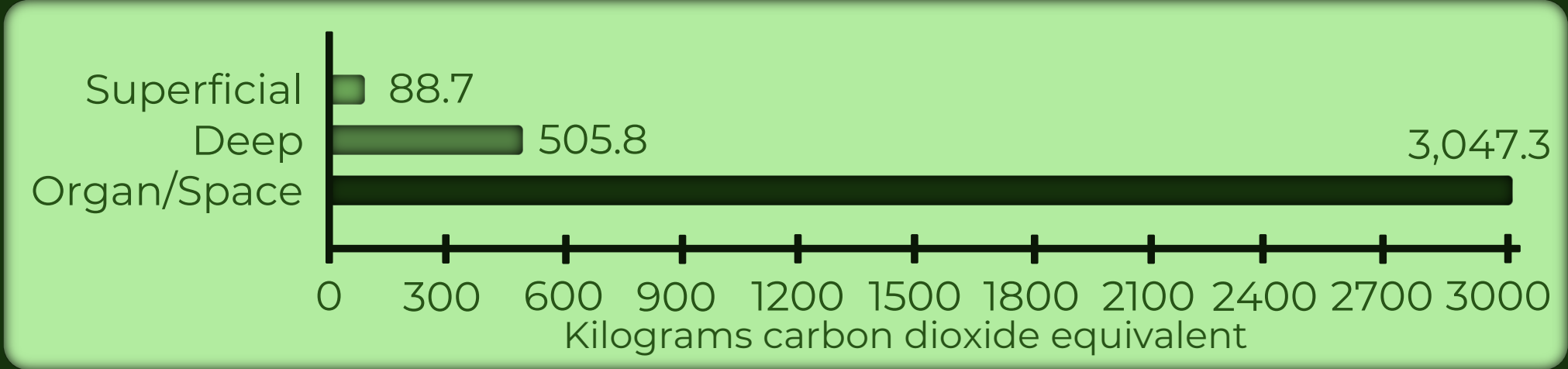


46%

References

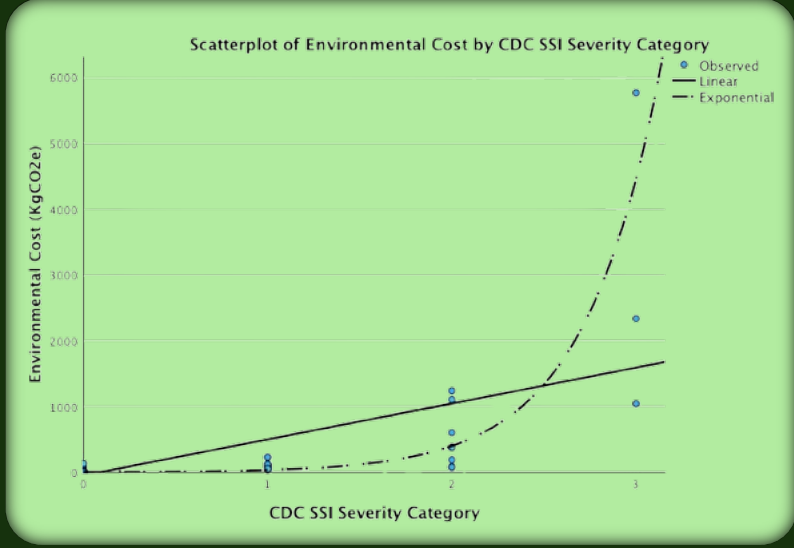
1. GIVE Study Group. IWJ, 2020.

Environmental Impact of SSI



190
Low intensity
bed days

5
High intensity
bed days



The clinical, financial and environmental
impacts of Leukomed Sorbact®
A before and after comparison in high-
risk vascular surgery

Methodology

“Spend to Save” programme & business case

Service evaluation with prospective audit and retrospective cohort comparison

Inclusion

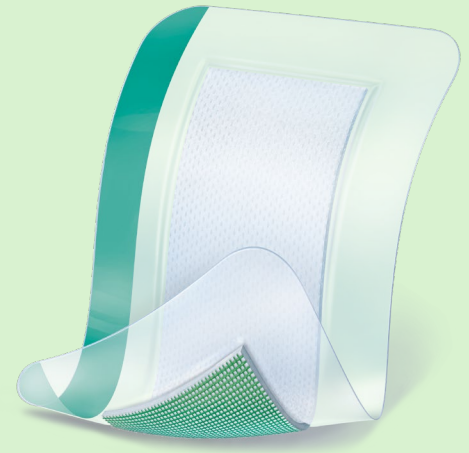
All clean groin incisions for femoral artery exposure at LVI over 2 years.
Infected cases were excluded.

Dressings

Simple island dressing Vs Leukomed Sorbact dressing

Standard operative techniques

- MRSA decolonisation
- Hair clipping. Alcoholic iodine/Chlorhexidine
- Iodine-impregnated incise drapes. Antibiotic prophylaxis
- Layered fascial closure. Subcuticular absorbable skin sutures



Data Extraction & Analysis

- All cases identified through electronic theatre database system
- 2 external auditors from Essity performed initial data entry
 - Hospital EPR plus Primary Care link
 - LVI clinical research team subsequently performed internal validation.
- Adherence to institutional Information Governance and Caldicott principles and the STROBE guidelines.
- Data exploration and Statistical analyses were conducted in SPSS v29.

Data Extraction & Analysis

Primary outcome:

- SSI (CDC definitions, up to 90 days)

Secondary outcomes:

- Length of stay (LoS)
- Readmission rates
- Reoperation for groin infection
- Costs derived from the PLICS (Patient Level Information Costing System)
- Assessment of environmental impact of SSI

Results

Primary Outcome

		Pre-Leukomed Sorbact	Leukomed Sorbact	p
SSI	Any	19 (14.4%)	4 (4.6%)	.021
CDC Classification	Superficial	7	3	.129
	Deep	6	1	
	Organ/Space	6	0	

68% SSI Reduction

Multivariate logistic regression: Pre-LS cohort Odds Ratio for developing SSI = **3.489** (95% CI 1.144 – 10.638, p=0.028)

	Pre-LS		LS		SSI Rate		
	n	SSIs	n	SSIs	Pre-LS	LS	
Endarterectomy	47	8	30	3	17%	10%	↓
Arterial bypass	63	9	41	1	14.3%	2.4%	↓
Thromboembolectomy	19	2	10	0	10.5%	0%	↓
Aneurysm/vessel repair	3	0	6	0	0%	0%	-

Financial impact

	SSI Costs*				
	Pre-LS	LS	Pre	Post	Saving
No. of SSIs	19	4	£39,368	£8,288	£31,080

* NICE MTG55 SSI base cost

Inclusive within cost savings:

- Generic island groin dressing = £0.17
- Leukomed Sorbact groin dressing = £4.38

Cost of ward bed ~£400pn

SSI associated with significantly increased median LoS:

- 6 Vs 44 days

PLICS Analysis: Median excess cost of £7138.50 per SSI

~£700 per patient cost saving with Leukomed Sorbact practice

£700 per patient saving

Environmental impact

		CO ₂ Impact (kgCO ₂ e)	
		Pre-Leukomed Sorbact	Leukomed Sorbact
SSI	Superficial	620.9	266.1
	Deep	3,034.8	505.8
	Organ/Space	18,283.8	0.0
Total impact of SSIs (kgCO₂e)		21,939.5	771.9

The total CO₂ impact reduction of SSI between dressing groups:
= > 21 TransAtlantic Flights from New York to London

97% kgCO₂e
Reduction

Discussion

Collaborative

Determine clinical, financial and environmental impact

Patient level data

Cradle to grave pathway assessment

Hotspot analysis

Readmission, reintervention, clinical review key contributors

Severity gradient

Clinical Impact
Resource use
Antimicrobial use
Missed opportunities?

DRESSING Trial

High risk vascular surgery
Severity will be key

Limitations

Temporal effects
Spend based data
Generalisation

Involvement

Collaborative Approach

Tom Wallace - Consultant Vascular Surgeon, Leeds Vascular Institute, LTHT

David Tunstall - Senior Costings Accountant, LTHT

Ross Lathan - NIHR Academic Clinical Fellow, HUTH / Chief Sustainability Officer's Clinical Fellow NIHR & Greener NHS

Essity Team:

- Brea Stewart & Verity Hunter - Strategic Data Analyst and Clinical Auditors, Essity
- Elliot Dixon & Ashley Clydesdale – Brand Managers UK, Essity
- Stephen Goalen – Business Development Manager
- Julie Dickinson – Strategic Healthcare Partner
- Rod Hulme - Global Product Manager, Essity
- Michael Dietrich – Medical Affairs, Essity



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