SUSQI PROJECT REPORT

Project Title:

'Streamlining Procedure Packs – A Sustainability Project'

Start date of Project:

Date of Report:

28/11/2025

Team Members:

- Dr Slater, Consultant Anaesthetist
- Dr Lyon, Clinical Fellow Anaesthetics/ITU

Background:

The NHS is responsible for up to 5% of the U.K.'s carbon emissions and has a commitment to reach net zero by 2045. Critical care is one of the most carbon-intensive areas of the hospital, this is in part driven by single-use consumables. Anaesthetic practices account for approximately 2% of the NHS carbon footprint. Anaesthetic and critical care procedures rely on pre-assembled packs, to standardise practice, improve efficiency, and reduce infection risk [1], [2]. The NHS supply chain framework notes that custom procedure packs offer time savings and help infection control, although this is not peer-reviewed [3]. Routine opening of items that are never used, however, leads to avoidable waste, increased cost, and unnecessary carbon footprint.

From the tax year April 2024-March 2025, the trust purchased 4,850 individual pre-assembled packs, costing £61,706, this can be broken down as:

- Epidural Packs - 52 cases of 30 packs - this is 1560 individual packs, costing £39,236.
- Central Venous Catheter (CVC) packs - 43 cases of 10 packs - this is 430 individual packs, costing £15,325.
- Spinal packs - 143 cases of 20 packs - this is 2860 individual packs, costing £7,145.

Members of the anaesthetic team raised concerns regarding the volume of waste generated by current procedural packs. Working across main theatres, obstetrics, and the intensive therapy unit (ITU), and regularly performing the procedures that utilise these packs, staff are acutely aware of the extent of this waste. There is strong anecdotal support within both our ITU and theatre departments for initiatives aimed at reducing waste. In response, which supported development of the current project to rationalise the content of these packs. This aligns with the Intensive Care Society's *Intensive Care Environmental Recipe Book* [4], which recommends: *"Review clinical packs and liaise with the supplier to remove never or rarely used items."*

Specific Aims:

To minimise the environmental and financial waste produced by epidural/spinal/CVC insertion by:

- Excluding items rarely or never used in insertion packs.
- Including essential items currently missing from packs but supplied separately.

Methods

Studying the system

The initial step for this project was discussions with procurement, regarding the feasibility of altering the procedure pack contents. It was identified that the three bespoke packs made for Northampton General Hospital (NGH) could be altered, but other standard packs used nationwide could not be altered in the short term. Therefore, this project focused on the three bespoke packs supplied to the trust.

NGH currently uses 3 custom-made packs in ITU/Anaesthetics:

- Epidural Pack (PAJUNK NRFit). Primarily used in obstetrics to provide labour analgesia and less frequently for thoracic epidurals.
- Spinal Pack (Unisurge F810415). Used in trauma theatre and obstetrics and occasionally for non-trauma cases. At NGH, obstetric spinals nearly always use diamorphine. NGH policy does not currently allow diamorphine to be used in spinal blocks outside of obstetric theatres.
- Central Venous Catheter (CVC) Pack (KIMAL Generic). Used in ITU and theatre for establishing central venous access. It provides the associated items for central venous access, excluding the line itself. The line can be a central line or a VasCath (for renal

replacement therapy) and these come directly from the manufacturer, in varying lengths and configuration. Since packs come directly from the manufacturer, we have limited control over their contents.

We reviewed the three custom-made procedure packs and separated the spinal pack analysis into obstetric and non-obstetric categories, as intrathecal opioids are used exclusively in obstetric practice. We anticipated that creating distinct packs for each clinical area might ultimately prove more economical and reduce waste.

Our next step was to design surveys for anaesthetists, to determine how frequently each item within the three packs was used. Responses were categorised as *never*, *sometimes*, or *always,* with an optional free text field for additional comments. To support clarity and accuracy, itemised photographs were included. Items identified as *never* used by most respondents were flagged for potential removal. Where removal posed no safety concerns, we recommend their exclusion from future pack designs.

The survey was disseminated over several weeks via an online platform and included responses from anaesthetists and intensivists across all grades who regularly utilise the procedure packs in theatres, obstetrics and ITU. The full contents of each pack are provided in Appendix 1. From analysing the results of these surveys, we were able to identify items infrequently used which could safely be removed to improve pack sustainability. These are detailed below. The survey results also demonstrated there were some vital omissions from the packs.

<u>Summary of current usage of procedure pack items and potential for change</u>

1. Epidural Pack (PAJUNK NRFit)

Survey feedback highlighted several unused or rarely used components in the current epidural pack. 40% never use the 5 ml syringe, with the majority opting for the 12ml syringe for local anaesthetic, and 50% never use the plastic tray. Clinicians commonly open Tegaderm and Lock-It Plus (catheter securement device) separately for every case, indicating these should be incorporated. A small number of respondents suggested a 21G needle may be more appropriate, and one comment noted that thoracic epidurals require a longer drape.

Rationale for changes

- The 12 ml syringe is preferred for local anaesthetic; removing the 5 ml syringe poses no safety risk.
- The gallipot, although used by 80%, creates additional steps and waste; removal aligns with aseptic guidance from the RCOA/AAGBI and sustainability goals.
- Polyware tray: Is simply a repository for other items and could be changed for cardboard. However, suppliers reported cardboard is too flimsy but are planning a shift to a more sustainable plastic alternative.
- Including Tegaderm and LockIt Plus reflects real-world practice and prevents opening extra packaging.

2. Spinal Pack (Unisurge F810415) – both Obstetric and non-Obstetric (Appendix 2).

We explored the feasibility of separate obstetric and non-obstetric spinal packs since only obstetric practice uses diamorphine, drawn up with a 1 ml syringe. Survey analysis showed the 1 ml syringe is the only meaningful difference between the two settings, making dual pack production impractical. The most balanced option is to retain the 1 ml syringe, accepting that it will be occasionally discarded in non-obstetric theatres. Several components were consistently reported as frequently "never used" and are easily obtained if required.

Rationale for Changes

- Forceps, dressing towels, 3 ml syringe, gallipot, and ball gauze can be removed without affecting safety or workflow.
- The gallipot's occasional use for sharps can be replaced by using the tray.
- As with the epidural pack, the tray can be replaced with a more sustainable alternative.

3. CVC Pack (KIMAL Generic + Arrowgard 5-Lumen)

The Generic and Arrowgard packs were evaluated together because they are frequently used in combination on ITU, particularly for right internal jugular central venous access. Because items often appear in both packs (e.g. multiple syringes and needles), usage was assessed across the combined contents.

We identified the majority "never use":

- 23G needle (75%)
- Surgical hat (63%)
- Face mask (63%)

- 21G needle (63%)
- 25G needle (50%)
- Sharps pad (50%)
- Bungs (62.5%)

The themes that arose from the comments box were:

- The labels are needed for local anaesthetic / saline / TPN.
- Staff typically need: 2 × 5 ml syringes, 1 × 10 ml syringe, 1 drawing up needle
- The current blue bungs are not the correct type

Rationale for changes

- The hat and mask appear unused because many CVCs are done in theatre, but they must remain for ITU aseptic technique where they are not readily accessible.
- 21G, 23G, and 25G needles are rarely required; removing them poses no safety concern.
- The sharps pad is seldom used, and the safety team supports its removal.
- The blue plastic bungs are not compatible with local CVC practice and should be removed; appropriate bungs should be provided.
- Although labels were reported as rarely used, local anaesthetic and saline labels serve an important safety function. The TPN label can be removed.
- Both drawing up needles can be removed; if needed, they are easily accessible.
- Syringes can be rationalised: only one 5 ml and one 10 ml syringe are routinely used, reflecting the shift to prefilled saline syringes.
- A transducing line and blood gas syringe should be added to match standard ITU workflow.
- All needles should be replaced with safety needle equivalents.
- The tray should move to a more sustainable material, as with other packs.
- Reusable hat and gown options were explored but are not currently feasible.

As well as delivering environmental sustainability, there was also a significant opportunity to improve patient safety by reinforcing safer clinical practice. For example, removing the gallipot from the epidural pack encourages clinicians to draw up saline directly from the bottle rather than decanting it into a gallipot first. This approach is more aseptic and may reduce the theoretical risk of spinal abscess formation [2].

In parallel with this work, a 'never event' occurred in which a CVC was inadvertently inserted into an artery, this prompted an independent review of CVC insertion technique. One of the key recommendations was the addition of two items to the NGH CVC pack: a transducing line and a blood gas syringe. Both assist in confirming correct catheter placement. Although the current LocSSIP for CVC insertion recommends their use, this is not always consistently followed. By incorporating these items directly into the pack, we aim to prompt clinicians and those assisting them, towards safer, more reliable practice.

Changes Recommended:

After careful review of the survey results, along with discussions with a consultant anaesthetist and the patient safety team, it was decided that the alterations as listed in table 1 below would be recommended. The changes advised are a combination of items that can be safely removed, along with additional equipment to add which would improve patient safety. It was felt clinically the polyware tray could be swapped for a cardboard alternative. But as the suppliers along felt cardboard trays were not fit for purpose, the suggestion of swapping to a more sustainable plastic tray was made.

Table 1. Proposed changes to procedure packs

	Epidural Pack (PAJUNK NRFit)	Spinal Pack (Unisurge F810415)	CVC Pack (KIMAL Generic + Arrowgard 5-Lumen)
Remove	5ml syringe Gallipot	Forceps Dressing towels 3ml syringe Gallipot Ball gauze	21G, 23G & 25G needles 18G needle with cannula Both drawing up needles 3 X 10 ml syringe 1 X 5 ml syringe Sharps pad TPN label
Add	Tegaderm Lock-it-plus		Traducing line Blood gas syringe
Change	Polyware tray for more sustainable plastic alternative	Polyware tray for more sustainable plastic alternative	Polyware tray for more sustainable plastic alternative Swap basic needles for safety needles Swap incorrect bungs
Infrequently used items to retain			Surgical hat Face mask Local & saline labels

Due to delays from procurement and the manufactures, it has not been feasible to implement the pack changes within the project window. Therefore, we have used the surveys and literature to suggest sustainable changes that could be implemented in our packs and modelled our results accordingly.

Measurement:

Patient outcomes:

No negative patient outcomes were predicted from this project. Safety changes to the CVC pack were driven by one serious incident and came from advice of the ITU consultants at NGH. There is little strong evidence as such to support the idea that including these items will reduce never events. Fenik et al. [1] ran an RCT to show that pre-assembled procedural packs may improve efficiency and reduce procedural error during central line insertion. 'Safe Vascular Access' [5] from AAGBI recommends multiple venous confirmation methods, including:

-Ultrasound visualisation of needle and guidewire.

-Pressure transduction/manometry demonstrating venous waveform.

-Blood aspiration and blood gas analysis.

We extrapolate from these two documents to suggest that, by including a transducing wire and blood gas syringe in the packs, we will prompt safer practice.

Safety changes to epidural pack are theoretical. Onofrei *et al* [2] published a study in *International Journal of Obstetric Anaesthesia* which compared bacterial contamination rates in direct draw up technique versus Gallipot. There was higher contamination in latter – but results weren't statistically significant.

Population outcomes:

There were no predicted changes in population outcomes.

Environmental sustainability:

We collected data from the Anaesthetics supplies team on the average number of pre-assembled surgical packs (Generic, Epidural and Spinal) used at Northampton General Hospital for the tax year April 2024-March 2025. The contents of each pack are listed in Appendix 1.

A process-based carbon footprint analysis was carried on all the items listed in table 1. The analysis included GHG emissions associated with primary materials production, transport, and disposal. The carbon footprint of waste disposal was based on Rizan et al.'s (2020) carbon footprint of high temperature incineration.

The material data for each consumable was converted into GHG emissions using carbon conversion factors from the 2025 UK Government Greenhouse Gas Conversion Factors database UK DESNZ Database. For transport emissions, where supplier address location was available, distance in miles was collected from the manufacturer location to the country-of-origin main port if imported, the distance between the port to UK main port of entry, from UK main port to the NHS supply chain distribution centre in Rugby and then to the hospital. For locally manufactured products, distance from the manufacturer to the hospital was considered. This distance was converted into emission using carbon conversion factors from the 2025 UK Government Greenhouse Gas Conversion Factors database UK DESNZ Database. For end-of-life treatment, disposable equipment was assumed to be disposed of as clinical waste, while the packaging waste for only the added item to the packs was assumed to be dry mixed recyclable with the corresponding emission factors taken from Rizan et al.(2020).

The emissions savings were translated into equivalent miles driven in an average car with unknown fuel using a factor of 0.3399 kgCO2e per mile, as published by the UK Government Greenhouse gas reporting: conversion factors 2025. This factor is inclusive of fuel and well-to-tank emissions.

The carbon emissions associated with the additional instruments included in the pack (the blood gas syringe and the transducing line) were not calculated. These items were already used as part of the existing procedures in their individually packaged forms. The only change introduced by the project was to include these two items within the new consolidated pack. As the reduction in packaging materials was minimal, the impact on carbon emissions was considered negligible.

Economic sustainability:

Pack cost is unlikely to change, although we will confirm this with the suppliers. Theoretical staff time savings from not having to open extra items for epidural, although this is not likely to be significant.

Social sustainability:

The social sustainability was not formally measured but anecdotal impacts are outlined in results.

Results:

Patient sustainability

No negative patient outcomes were predicted from this project. Negative outcomes were measured pre-project, by reviewing the Datix system for adverse outcomes related to CVC, epidural and spinal insertion. As the proposed revised procedural packs did not go live during the project window, post project patient negative outcomes could not be measured. The rationale for which items can be safely removed was carefully reviewed by the clinical and patient safety teams. To minimise patient risk some items infrequently used were kept in the packs (surgical hat, face mask and local anaesthetic/saline labels).

Whilst studying the system, a never event (CVC in an artery) occurred, prompting an independent review of CVC insertion practice. The inclusion of a transducing line and blood gas syringe in the CVC packs has the potential to eliminate the occurrence of this never event and can be monitored through the organisation's Datix system post pack implementation.

Drawing saline directly from the sterile bottle is *theoretically* safer because it removes the extra handling step involved in decanting into a gallipot, which increases opportunities for contamination. Strict aseptic technique is required for epidural and CVC insertion, and guidelines emphasise maintaining sterility and minimising unnecessary manipulation of fluids. This is especially important for neuraxial procedures, where contamination can lead to spinal epidural abscess, a rare but serious complication. With fewer steps and fewer exposure points, direct withdrawal from the bottle carries a lower infection risk than using a decanted pot. [2]

Incidences of the related complications are fortunately rare. As only one incident occurred pre project implementation, it will be unlikely we will be able to attribute statistical significance when comparing to post project data.

Population sustainability

There were no predicted changes in population outcomes with this project.

Environmental sustainability:

Table 22. Carbon savings from adjusting items in the surgical packs

Pack	Items removed/added	Carbon footprint per item ($kgCO_2e$)	Carbon savings per pack ($kgCO_2e$)	Number of packs per year	Annual Carbon savings per year ($kgCO_2e$)	Total project carbon savings ($kgCO_2e$)
Spinal Pack (Unisurge F810415)	3ml Syringe	0.011	0.167	2860	477.17	948.48
	Forceps	0.018				
	Crepe paper towel	0.022				
	Gallipot	0.008				
	Ball gauzes	0.016				
	Plastic polyware tray	0.091				
Epidural Pack (PAJUNK NRFit)	5ml Syringe	0.017	0.222	1560	346.97	
	Gallipot	0.030				
	Plastic polyware tray	0.175				
CVC Pack (Kimal Generic)	5ml Syringe	0.017	0.289	430	124.39	
	10 ml Syringe	0.086				
	Blood gas syringe	-0.016				
	Hypodermic safety needle 21G	0.011				
	Hypodermic safety needle 23G	0.011				
	Hypodermic safety needle 25 G	0.010				
	Transducing line	-0.035				
	Plastic polyware tray	0.116				
	I8 G Needle with Canula	0.017				
	Drawing up needles	0.006				
	Sharps pad	0.067				

We made assumptions on the transducer carbon footprinted for central line pack. As the exact transducer is not yet known, we have footprinted based on a commonly used item. Only items being removed/added were carbon footprinted, as it is assumed that carbon footprint of immanent items remains constant. The Tegaderm and Lock-It Plus components added to the epidural pack were previously in use but supplied as individually wrapped items. The only change in emissions relates to eliminating the separate packaging for these two components. As the avoided emissions from this packaging were assessed to be negligible, they were not included in the overall footprint.

Streamlining a spinal pack has the potential to yield carbon savings of 0.167$kgCO_2e$ whereas Epidural and CVC generic packs have the potential of saving the trust 0.222 $kgCO_2e$ and 0.289$kgCO_2e$ respectively. This includes the associated reduction in emissions related to reduced waste disposal. Projecting these savings to annual consumption of 2860 packs for spinal, 1560 for epidural and 430 for CVC generic, has the potential to reduce emissions by 477.17 $kgCO_2e$, 346 kgCO2e and 124.39 $kgCO_2e$ respectively yielding cumulative carbon savings of 948.48 $kgCO_2e$ for a one-year period. This is the equivalent to driving 2,789 miles in a petrol car of unknown fuel.

Economic sustainability:

Were we unable to model any predicted economic savings for this project. The suppliers did not respond throughout the duration of this project with indications of pack cost based on the advised contents change. There is unlikely to be any significant change in terms of pricing, but this will be identified in the future.

We were able to calculate the modelled savings from associated waste avoidance for the three packs, which was £72.11 per year, see table 3.

Table 3. Associated waste avoidance costs

Parameter	**Epidural Pajunk Nrfit Pack**	**Spinal Pack Uniserge F810415**	**CVC Pack KIMAL Generic**
Avoided waste per pack (tonnes)	0.00004705	0.00004381	0.0000823
Avoided waste disposal cost per tonne (£)		308	
Financial savings from avoided waste per pack (£)	0.01	0.01	0.03
Number of Packs per year	1560	2860	430
Annual Financial savings from avoided waste (£)	22.61	38.60	10.90
Total financial savings from avoided waste		**72.11**	

Social sustainability:

No qualitative data was collected during this project, but there was anecdotal evidence from residents that a reduction in unnecessary waste from the procedure packs is required. This project should mean that pack contents are more closely linked to what doctors are using, leading to higher staff satisfaction and alignment with personal and organisational sustainability values. We plan to share the project outcomes with staff via a QR code and via staff training and meeting forums. We plan to collect qualitative data on current and future staff opinions on the sustainability of our packs/practice.

Our patients are unlikely to be aware of the current or future contents of our procedure packs or its sustainability. Patient's having spinals or epidurals are facing away from the pack and anxious about the procedure and patient's having CVCs inserted are often acutely unwell or anaesthetised. Contemporaneously informing patients about sustainability efforts is not practical. QR codes could also be shared to explain to interested patients about the sustainable changes in their care. The outcomes from this project could be shared via the organisation's sustainability website page. This could help reassure patients they are receiving more sustainable care.

Discussion:

This was envisioned as quite a simple project, but complexities were uncovered. For example, writing the survey was not as straightforward as it had first seemed. Where there were duplicate items, we wanted to know how often all/some/none of them were being used. So, where three 10ml syringes were included, we had to add a comment box and ask people to write out what their practice was in relation to this item.

The CVC insertion pack functions as a "companion" to whichever line the clinician intends to insert. However, the VasCath pack, the 5-lumen CVC pack, and the 3-lumen CVC pack all differ from one another, and none of them can be modified. This makes it difficult to assess the use of pack contents when the clinical context varies. We ultimately chose to include the most used line pack in the survey, even though it is not modifiable, but this approach feels somewhat awkward.

There were also barriers to obtaining the necessary information. It took considerable time to receive responses from procurement teams and from the pack manufacturers regarding which components were eligible for modification. We contacted ArrowGard to ask whether they would consider adjusting the contents of their CVC pack. Although they acknowledged the feedback, they did not appear willing to make any changes.

Resident doctors regularly rotate through the department and therefore there may be significant variation in practices. Hence the importance of regularly resurveying the doctor population. There has been some delay in terms of meetings with procurement and finding the relevant people to contact. We tried to identify relevant stakeholders at the start, but this can be difficult as a Resident doctor if you are not interacting with these people regularly.

At present, we have mostly confirmed what the contents of the new generic packs should be. This work is therefore modelled but not yet implemented. Once the new packs are in circulation (realistically, this will take another 6 months at least), we will re-survey doctors in the relevant areas to find out whether we have improved efficiency and reduced waste.

Conclusions:

This project has demonstrated sustainable value can be achieved by modifying anaesthetic procedure packs contents. The carbon emissions associated with the packs can be reduced, without negatively impacting on the financial, population patient or social outcomes. There is also potential that these pack modifications may lead to improved patient outcomes, by aligning with aseptic guidance from the RCOA/AAGBI.

This has felt like a valuable project. Although aspects of this work have evolved informally over the years, this initiative documents and formalises the process in a way that is both reproducible and measurable. It establishes a framework for ongoing review of line packs and helps ensure that the sustainability standards within the Anaesthetic/ITU department are maintained. When I move on from NGH, I will hand over our work to a colleague so it can continue. Once the updated packs have entered circulation, which may take around six months, we plan to repeat the surveys to assess the impact of the changes.

References and Resources

[1] Fenik Y, Celebi N, Wagner R, Nikendei C, Lund F, Zipfel S, Riessen R, Weyrich P. Prepackaged central line kits reduce procedural mistakes during central line insertion: a randomized controlled prospective trial. BMC Med Educ. 2013 Apr 30;13:60. doi: 10.1186/1472-6920-13-60. PMID: 23631396; PMCID: PMC3645964.

[2] Onofrei M, Wee MY, Parker B, Wee N, Hill S. Bacterial contamination of saline used for epidural procedures in an obstetric setting: a randomised comparison of two drawing-up techniques. Int J Obstet Anesth. 2017 Feb;29:45-49. doi: 10.1016/j.ijoa.2016.10.002. Epub 2016 Oct 8. PMID: 27884664.

[3] https://www.supplychain.nhs.uk/product-information/contract-launch-brief/custom-procedure-packs

[4] https://ics.ac.uk/resource-report/intensive-care-environmental-sustainability-recipe-book.html

[5] Johnston, A.J., Simpson, M.J., McCormack, V., Barton, A., Bennett, J., Chalisey, A., Crane, J., Curry, S., Laycock, H., Patel, D., See, T., Shubhaker, J., Singh, K. and Thornton, S. (2025), Association of Anaesthetists guidelines: safe vascular access 2025. Anaesthesia, 80: 1381-1396. https://doi.org/10.1111/anae.16727

Surveys available at:

https://www.surveymonkey.com/r/BPBBYRC

https://www.surveymonkey.com/r/BP3PMGX

https://www.surveymonkey.com/r/W2G28CG

https://www.surveymonkey.com/r/BPHW7Q6

Appendices

Appendix 1

Contents of current procedure packs

Spinal Pack (Unisurge F810415)	Epidural Pack (PAJUNK NRFit)	CVC Pack (Kimal Generic)
Polyware tray	Gallipot	Surgical hat
Gallipot	Plastic tray	Face mask
10ml syringe	5ml syringe	Paper towels
5ml syringe	12ml syringe	Gown
3ml syringe	Drawing-up needle	Trolley cover
1ml syringe	Epidural filter	Shallow tray
Sterile drape	Epidural connector	x3 labels
Drawing up needle	Epidural catheter	Gallipot
21G needle	Sterile drape	x2 5ml syringes
23G needle	23G needle	21G needle
25G needle	25G needle	23G needle
Ball gauze	7ml LoR syringe	25G needle
Forceps	Tuohy needle	x3 10ml syringes
Swab gauzes	Sterile gauze	x2 drawing-up needles
Dressing towels	Catheter insertion aid	x2 chloraprep sticks
	NRFit drawing-up needle	Sterile drape
		Ultrasound probe cover
		Aquasonic sterile gel
		x2 sterile gauze bundles
		Sharps pad
		18G needle with catheter

Appendix 2: Spinal pack survey results.

Spinal Pack Unisurge F810415 (obstetrics)						
Item	*Forceps*	*3 ml syringe*	*Dressing towels*	*Gallipot*	*Polyware tray*	*Ball gauzes*
% who never use	100%	83%	83%	50%	50%	33%
Respondent comments	-	-	-	'For sharps'; 'for CSE'	'Use for sharps'	-
Can it be removed safely?	Yes. 100% never use	Yes. Easy to obtain if required	Yes. Easy to obtain if required	Yes	Yes. Note, however, that it acts as a repository for all other items (including sharps)	Yes. Other gauze available in pack
Recommended action	Remove	Remove	Remove	Remove	Discuss with procurement: could it be changed e.g. to paper or removed altogether?	Remove

Spinal Pack Unisurge F810415 (non-obstetrics)							
Item	*Forceps*	*Dressing towels*	*3 ml syringe*	*Gallipot*	*1 ml syringe*	*Ball gauzes*	*Polyware Tray*
% who never use	100%	86%	86%	71%	71%	29%	14%
Respondent comments	-	-	-	-	-	-	'Used for sharps'; 'this kind of tray should be in other packs as useful for sharps' *(e.g. presumably epidural)*
Can it be removed safely?	Yes. 100% never use	Yes. Easy to obtain if required	Yes. Easy to obtain if required	Yes	Yes. Easy to obtain if required	Yes. Other gauze available in pack	Yes, but used for sharps.
Recommended action	Remove	Remove	Remove	Remove	Remove	Remove	Discuss with procurement: could it be changed e.g. to paper or removed altogether?

Critical success factors

Please select one or two of the below factors that you believe were most essential to ensure the success of your project changes.

People	Process	Resources	Context
☐ Patient involvement and/or appropriate information for patients - to raise awareness and understanding of intervention ☐ Staff engagement ☐ MDT / Cross-department communication ☐ Skills and capability of staff ☐ Team/service agreement that there is a problem and changes are suitable to trial (Knowledge and understanding of the issue) **☐X Support from senior organisational or system leaders**	☐ clear guidance / evidence / policy to support the intervention. ☐ Incentivisation of the strategy – e.g., QOF in general practice **☐X systematic and coordinated approach** ☐ clear, measurable targets ☐ long-term strategy for sustaining and embedding change developed in planning phase ☐ integrating the intervention into the natural workflow, team functions, technology systems, and incentive structures of the team/service/organisation	☐ Dedicated time ☐ QI training / information resources and organisation process / support ☐ Infrastructure capable of providing teams with information, data and equipment needed ☐ Research / evidence of change successfully implemented elsewhere ☐ Financial investment	**☐X aims aligned with wider service, organisational or system goals**. ☐ Links to patient benefits / clinical outcomes ☐ Links to staff benefits ☐ 'Permission' given through the organisational context, capacity and positive change culture.