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Optimising loose implant packaging: A strategic approach to minimise resources by 75% in 6 months in Operating Theatre

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BACKGROUND

In the Operating Theatre (OT), loose pouched implants encounter integrity issues, stemming from overcrowded tote boxes (Pic.1), leading to heightened storage demands in the OT Store. OT nurses conduct routine integrity checks on these implants, a process taking approximately 1 hour per person to complete the checklist (Pic.2). This proves challenging when nurses, already burdened with various responsibilities, including patient care and preparing for the next day's surgeries, find insufficient time for comprehensive implant examinations.



Pic.1: Stacking of Loose Implants in tote boxes

Item	Qty	Expiry	Check	Date	Done	Done
3.5 Pelvic System						
3.5.1	1	2024-01-01	OK			
3.5.2	1	2024-01-01	OK			
3.5.3	1	2024-01-01	OK			
3.5.4	1	2024-01-01	OK			
3.5.5	1	2024-01-01	OK			
3.5.6	1	2024-01-01	OK			
3.5.7	1	2024-01-01	OK			
3.5.8	1	2024-01-01	OK			
3.5.9	1	2024-01-01	OK			
3.5.10	1	2024-01-01	OK			
3.5 Central System Standalone Set						
3.5.11	1	2024-01-01	OK			
3.5.12	1	2024-01-01	OK			
3.5.13	1	2024-01-01	OK			
3.5.14	1	2024-01-01	OK			
3.5.15	1	2024-01-01	OK			
3.5.16	1	2024-01-01	OK			
3.5.17	1	2024-01-01	OK			
3.5.18	1	2024-01-01	OK			
3.5.19	1	2024-01-01	OK			
3.5.20	1	2024-01-01	OK			
3.5 Locking System Standalone Set						
3.5.21	1	2024-01-01	OK			
3.5.22	1	2024-01-01	OK			
3.5.23	1	2024-01-01	OK			
3.5.24	1	2024-01-01	OK			
3.5.25	1	2024-01-01	OK			
3.5.26	1	2024-01-01	OK			
3.5.27	1	2024-01-01	OK			
3.5.28	1	2024-01-01	OK			
3.5.29	1	2024-01-01	OK			
3.5.30	1	2024-01-01	OK			

Pic.2: Sample of loose implant checklist

Furthermore, it is recommending to undergo reprocessing for unused implants after a year (Pic.3). Between January and August 2022, a worrisome total of 899 expired implant pouches were sent for reprocessing. The Central Sterile Supply Unit (CSSU) invested a significant amount of time in this reprocessing endeavour, occasionally encountered challenges with mislabelling or misplacing individually pouched implants.



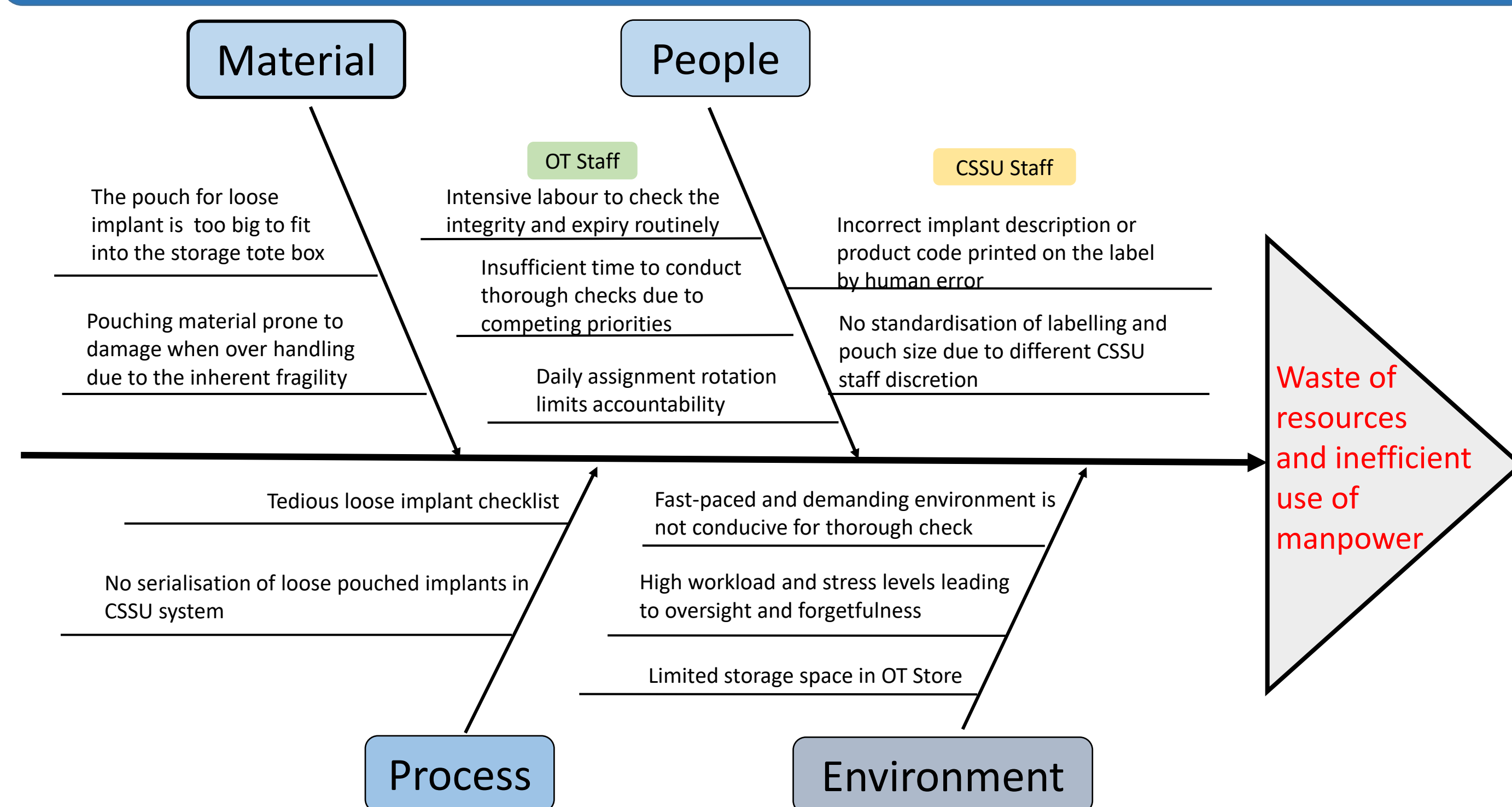
Pic.3: Expired Loose Pouches for reprocessing

The absence of a structured workflow for replenishing loose implants, coupled with the time-consuming routine checks by OT nurses, impedes efficiency. This challenge is compounded by the demand for nurses in patient care, underscoring the need for streamlined processes to enhance overall operational effectiveness.

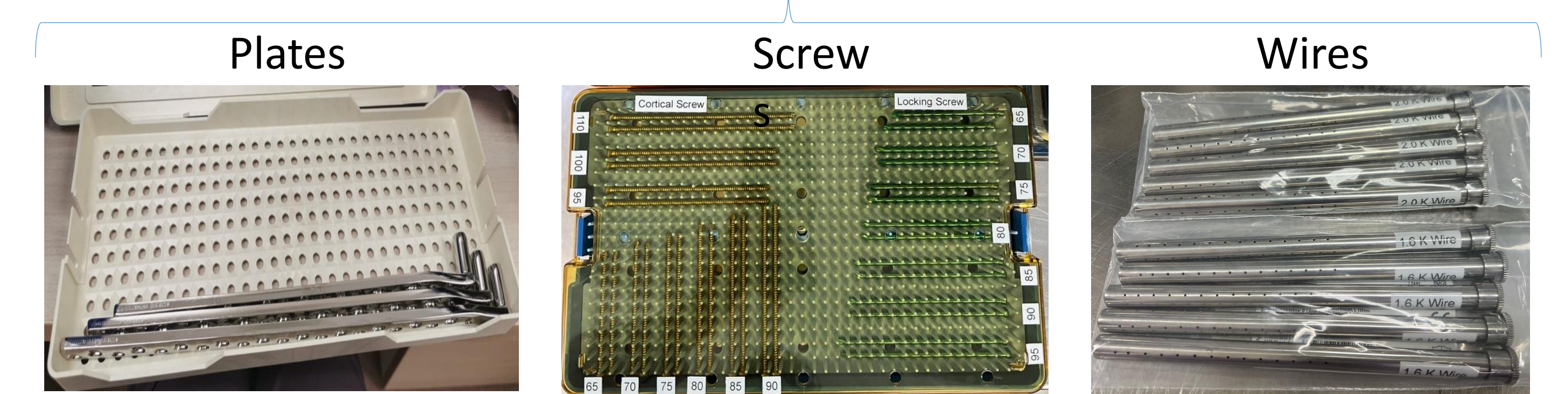
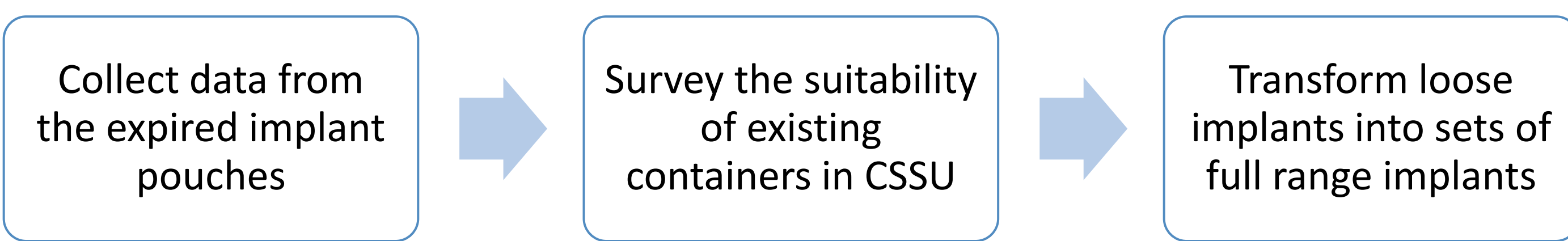
AIMS

Reduce the resources wastage such as (i) lowering reprocessing costs by 75% and (ii) reduce the time taken by OT nurses to check implants against checklist by 75% within 6 months.

ROOT CAUSE ANALYSIS

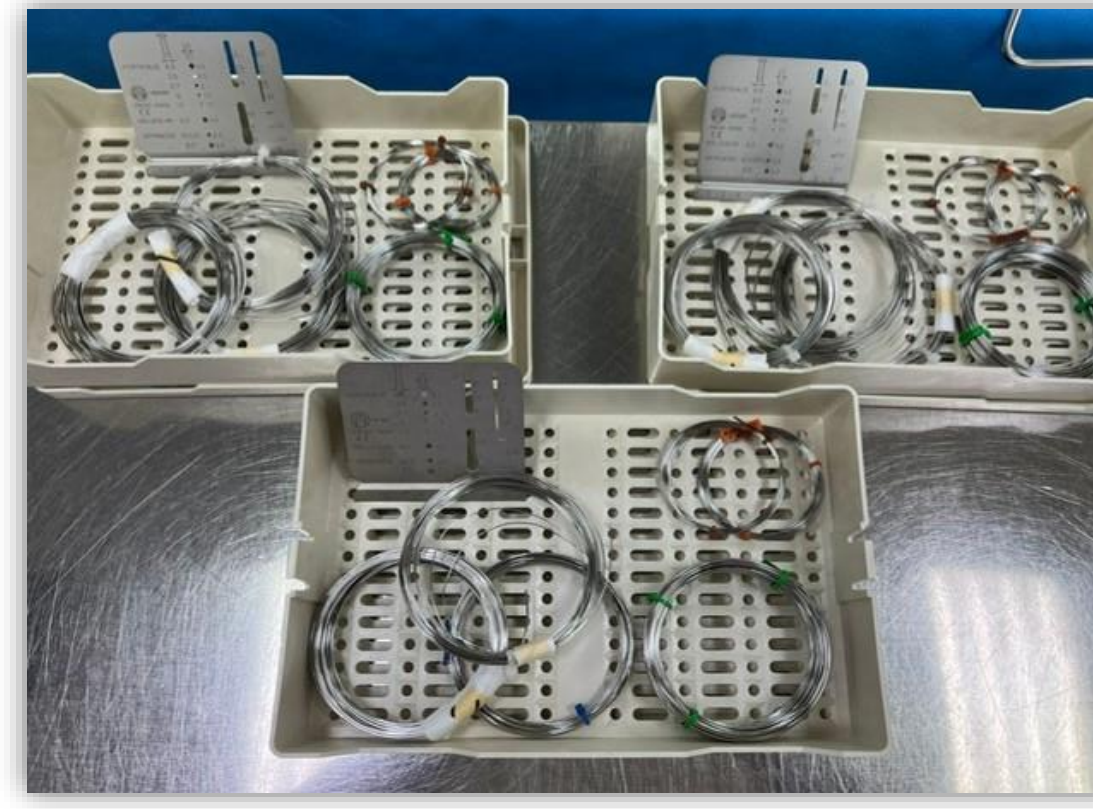


METHODOLOGY

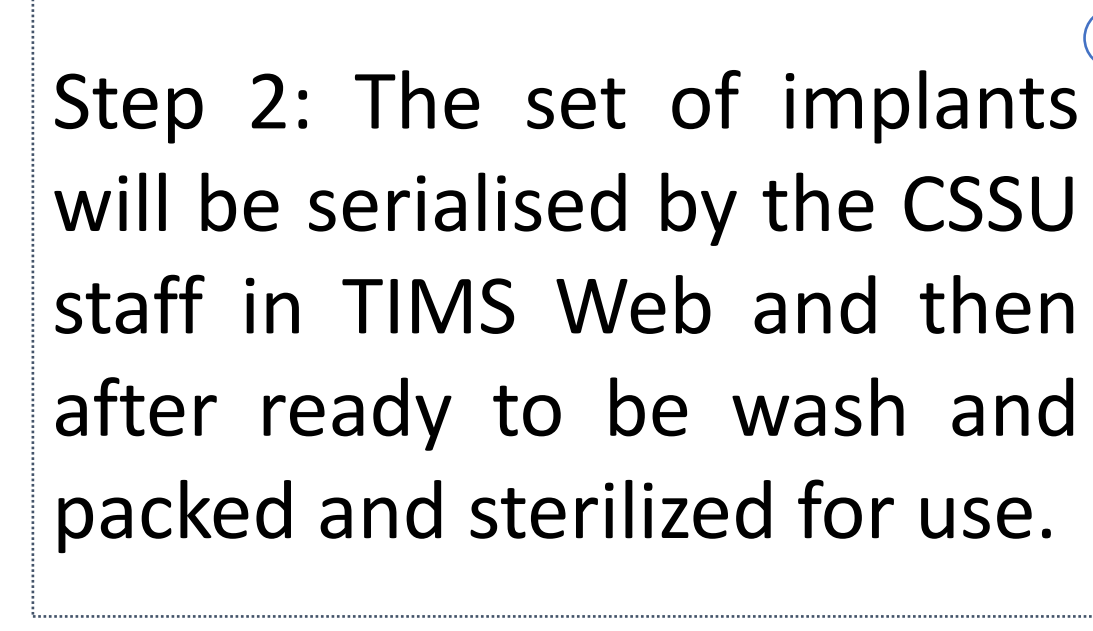


INTERVENTION

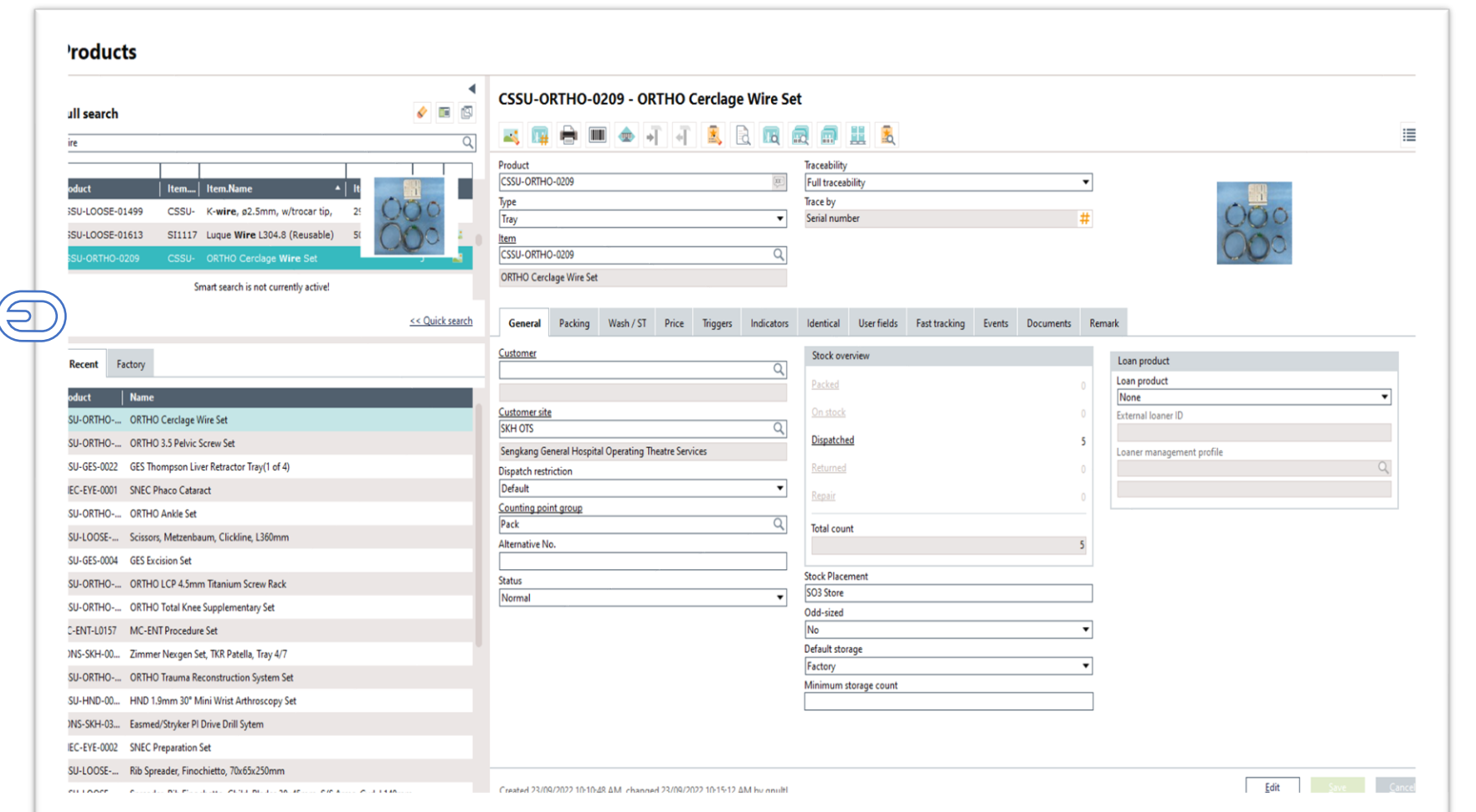
Between January to June 2023, the team converted individual implant pouches into sets through the following steps.



Step 1: OT nurses combine different sizes of implants with same category and pass to CSSU team



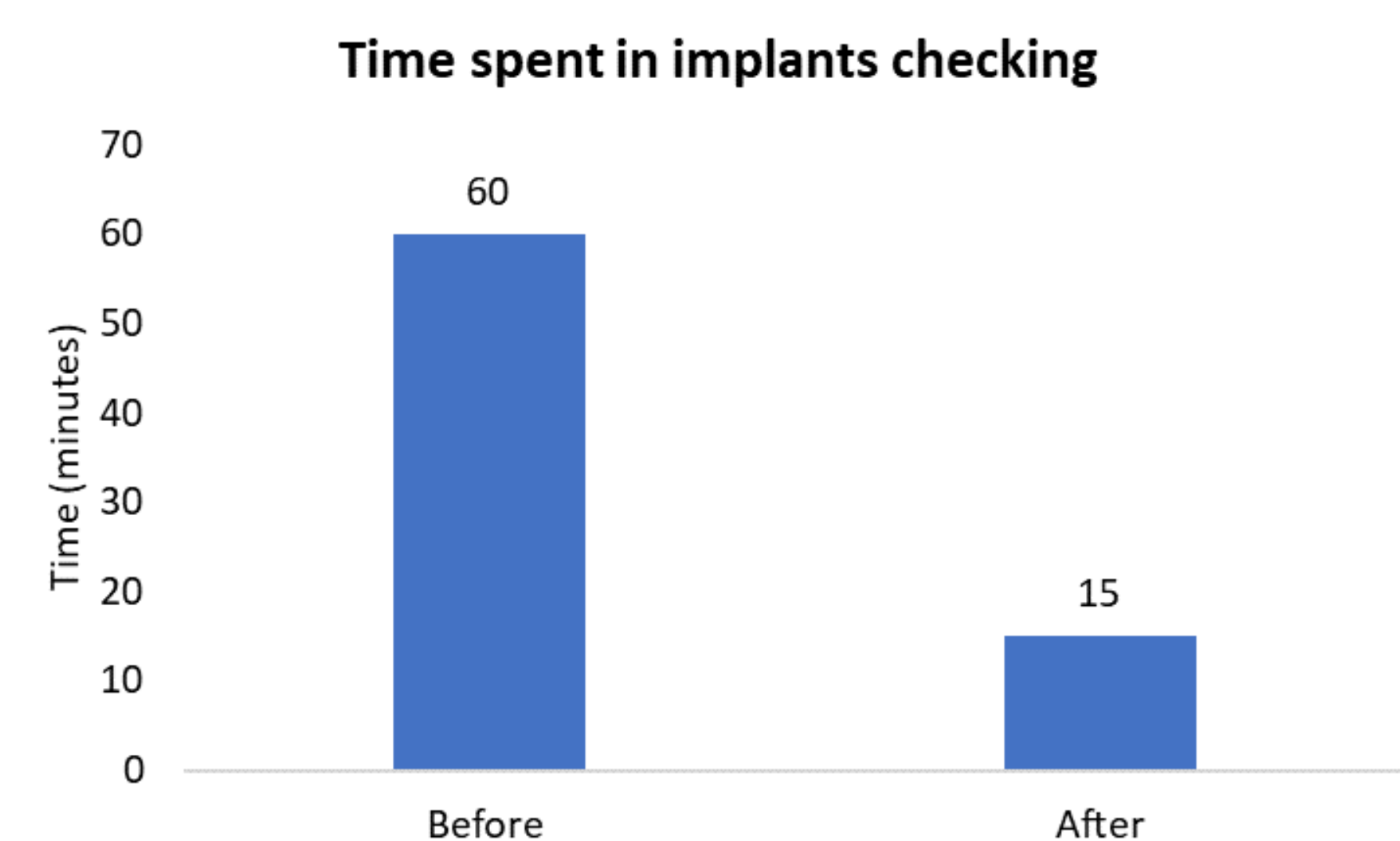
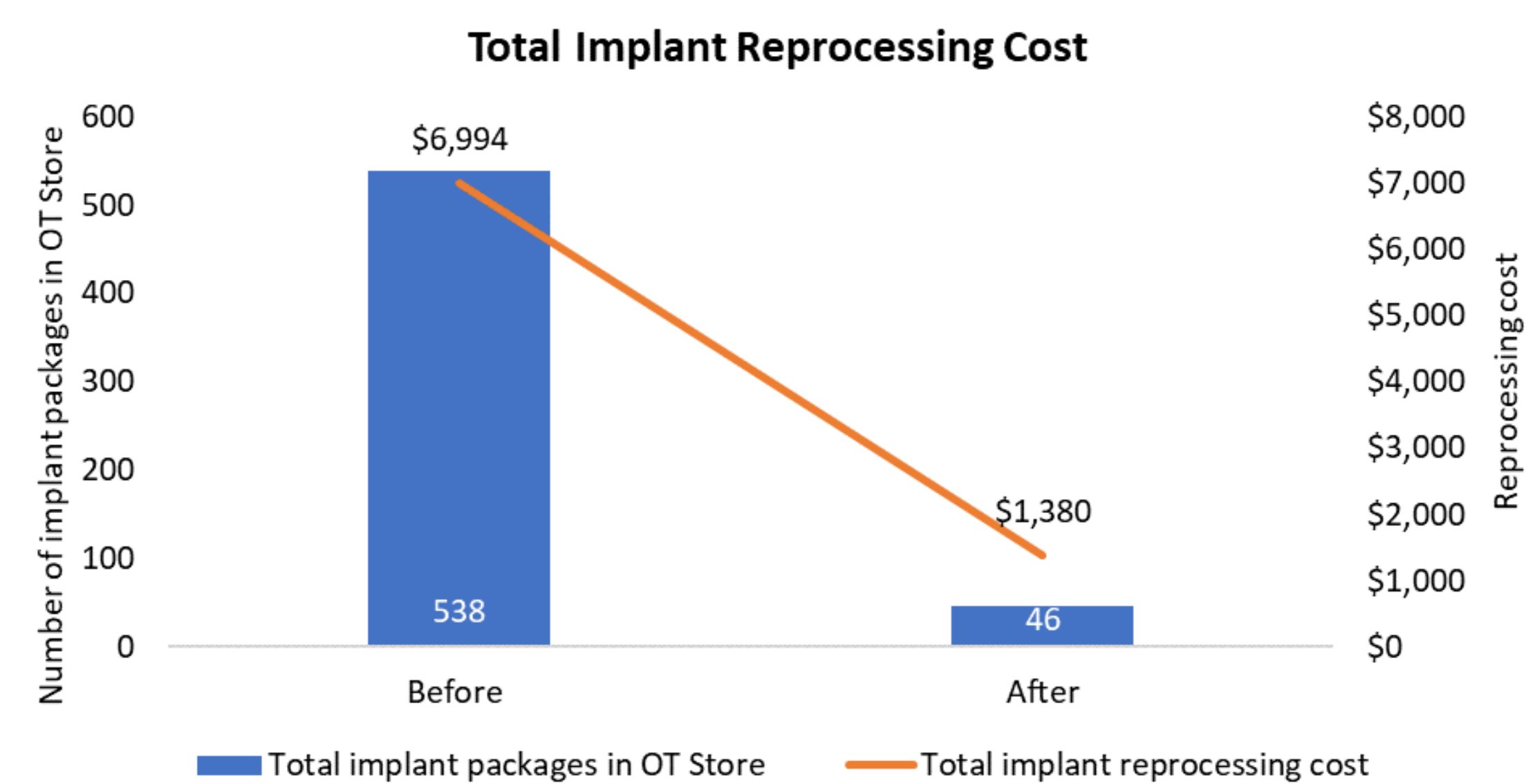
Step 2: The set of implants will be serialised by the CSSU staff in TIMS Web and then after ready to be wash and packed and sterilized for use.



Step 3: The combined implant sets are placed in OT Store. Storage racks are labelled accordingly for easy visual checking of implant availability.

RESULTS

	Before	After	Savings
Number of implant packages in OT Store (A)	538 loose implant pouches	46 implant sets	-
Estimated reprocessing cost (B)	\$13 per pouch	\$20-40 per set	-
Total implant reprocessing cost (A x B)	\$6,994	\$1,380	\$5,614 (80.26%)
Amount of time taken by OT staff nurses to weekly check implants against checklist	60 minutes	15 minutes	45 minutes (75%)
Total annual manhour cost savings		39 hours * \$47.40 [^] = \$1848.60	[^] Manpower norm cost



CONCLUSION

Converting individual implant pouches into sets offers numerous advantages. This transformation improved implant storage and sterility maintenance, significantly reduced material and manpower resources by 80% and 75% respectively, hence, heightened operation efficiency in both OT and CSSU.