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Reducing the incidence of sterility break of sterile pouched reusable instruments from 0.64% (Median) to 0% (Median) within 12 months



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Introduction

National Cancer Centre Singapore Operating Theatre (NCCS OT) obtains sterile instruments from Sterile Supplies Unit (SSU) at Singapore General Hospital (SGH). The instruments are sent to NCCS OT via Towcart services. There were instances of sterility break noticed in the sterile pouched reusable instruments (Pictures 1 and 2) upon reaching NCCS OT. These instruments were then rendered unsterile and cannot be used in surgery.

This leads to decrease satisfactions of doctors, staff (NCCS OT and SSU) and patients together with the problems listed below.

Data collected from January 2017 - September 2019 showed an incidence of 0.64% (Median) of sterility break (Picture 3). Our objective is to reduce the incidence of the sterility break of single pouched reusable instruments from 0.64% (Median) to 0% (Median) within 12 months.

Problems

Cost

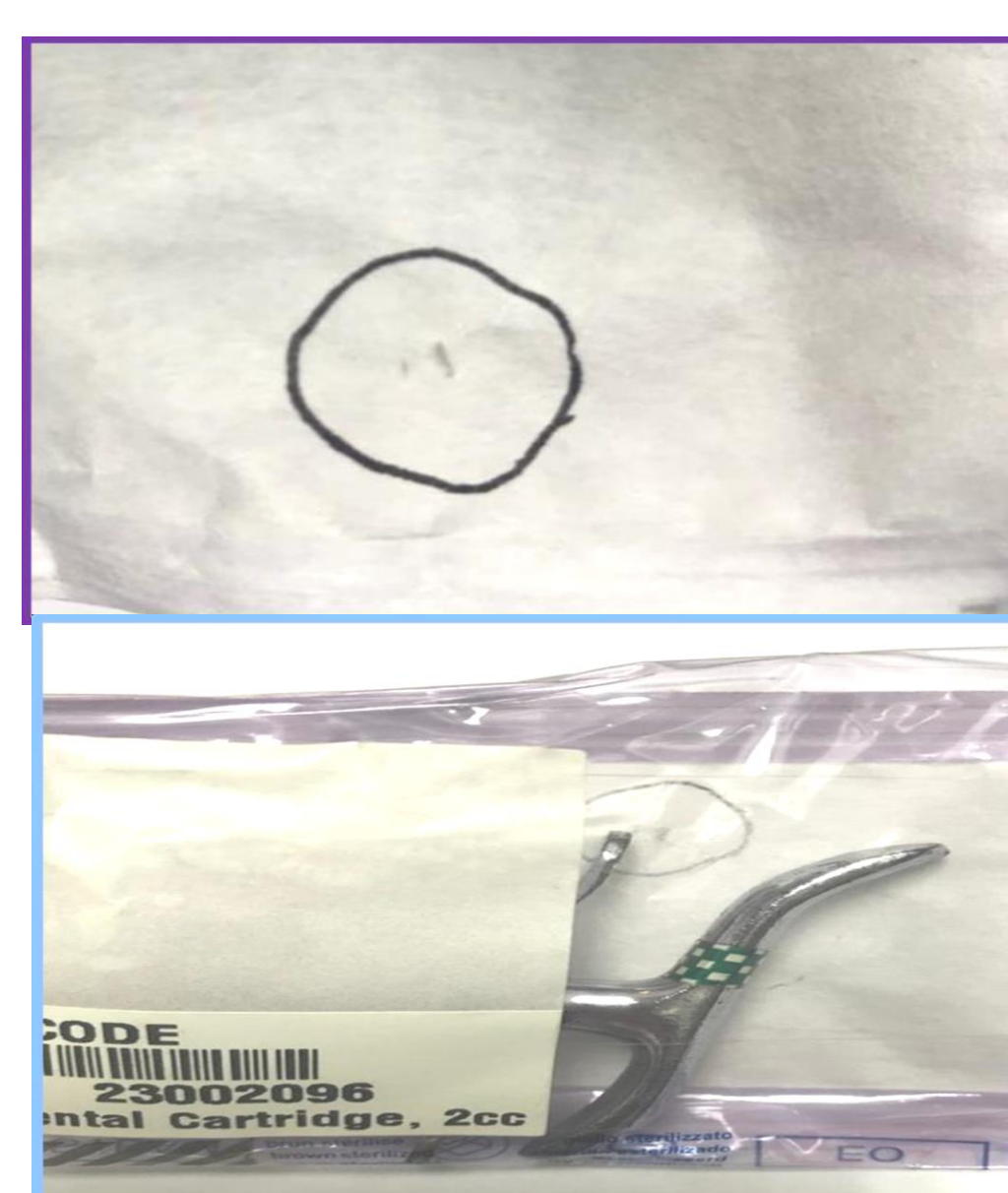
The cost of each pouch ranges from \$16 - \$32. When a sterility break occurs, the instruments are unusable, rendering the cost unrecoverable.

Time

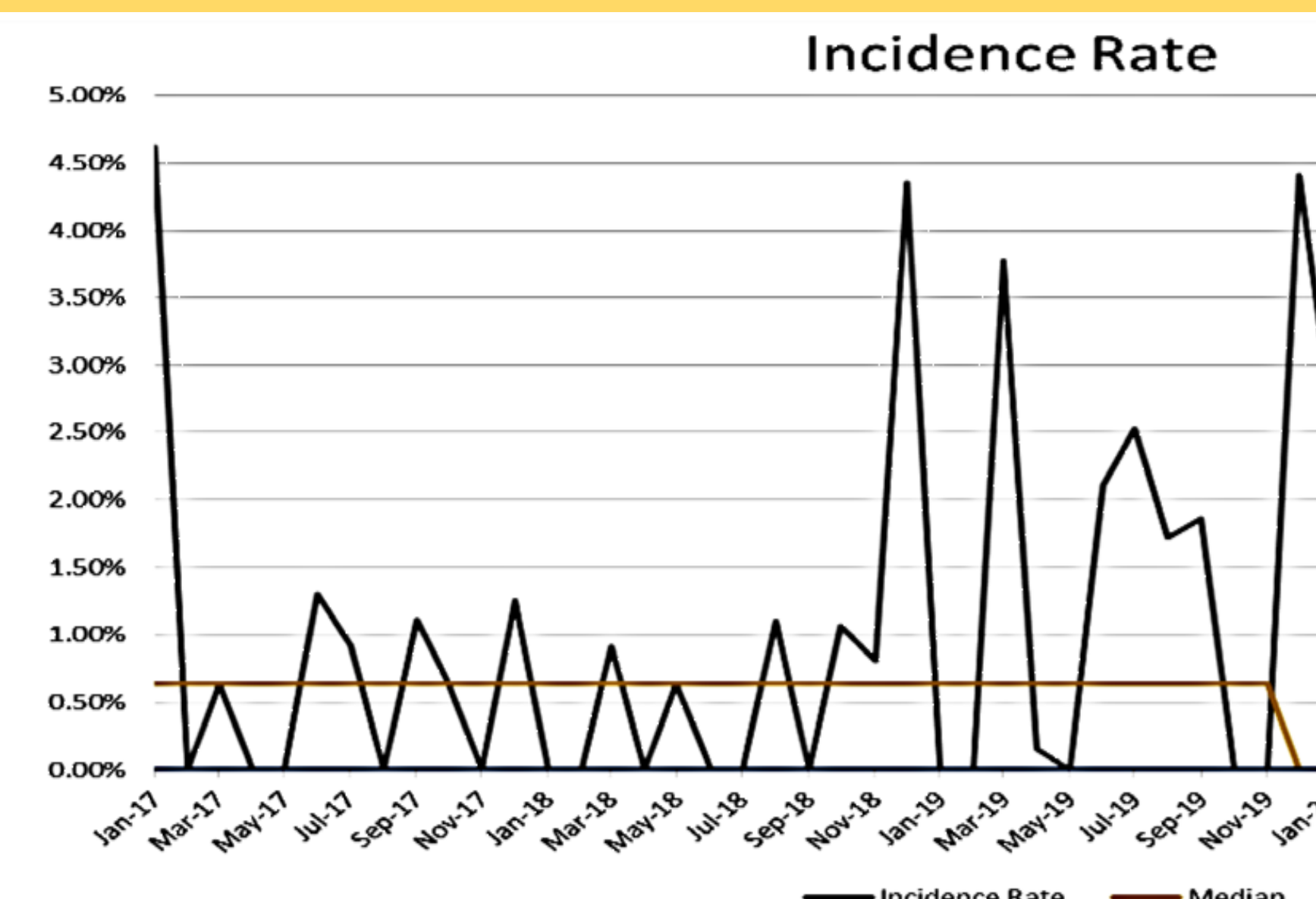
It takes approximately 1 hour for a replacement to arrive. Due to this and in event a replacement is unavailable, there may be potential surgical delays, extended surgical and anaesthesia time, potential change in surgical approach and postponement of surgery.

Risk of Unavailability of Replacement

There are risks of unavailable replacements as SSU at SGH supplies sterile instruments to other areas within Outram Campus.



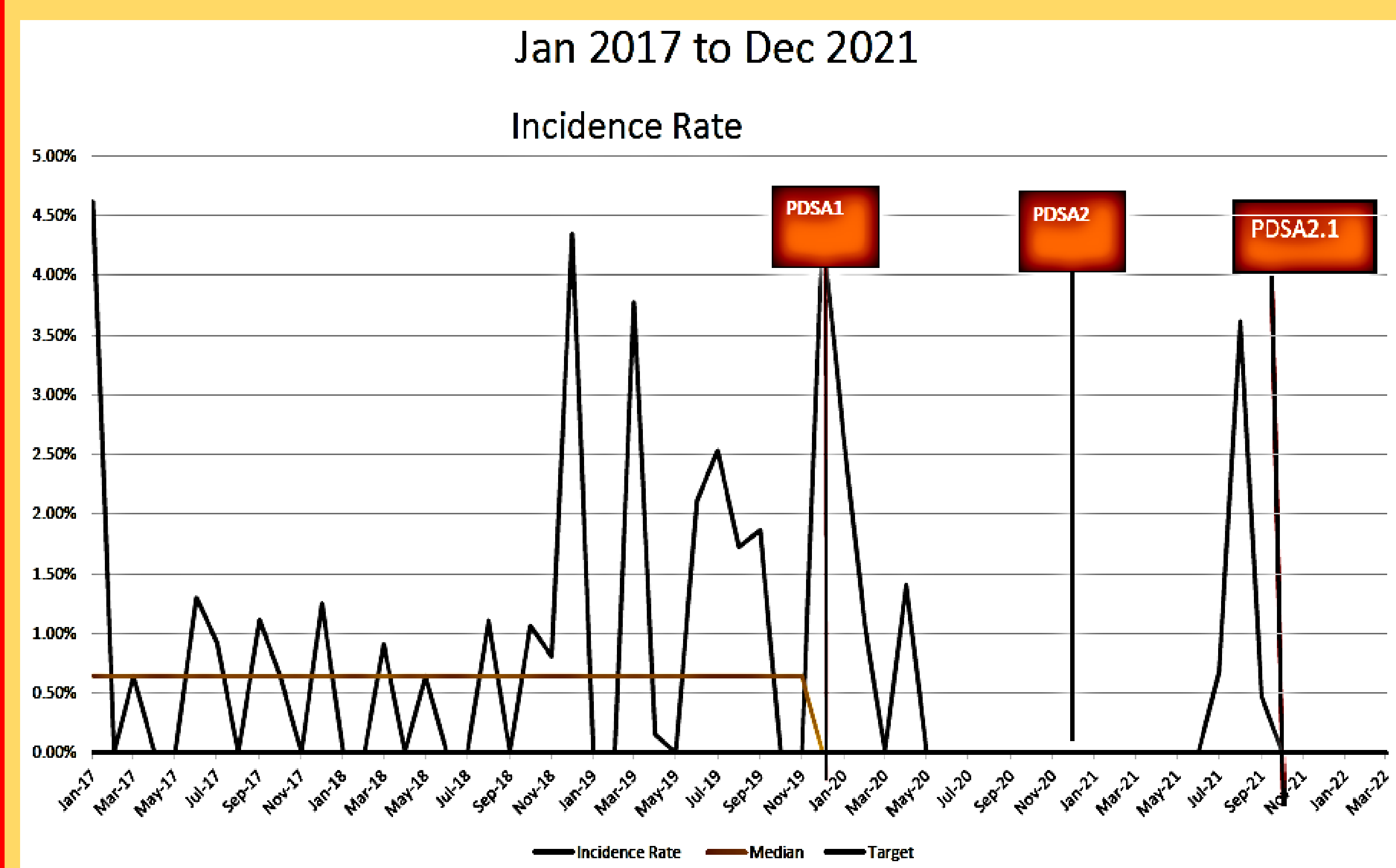
Pictures 1 & 2: Examples of sterility break.



Picture 3: Incidence of sterility break at 0.64% (Median).

Results

0% (Median) incidence rate was achieved for both PDSAs and the sustainability period as shown below:



The unrecoverable cost of the pouches was estimated at \$229.33 - \$458.67 per year (2017-2019).

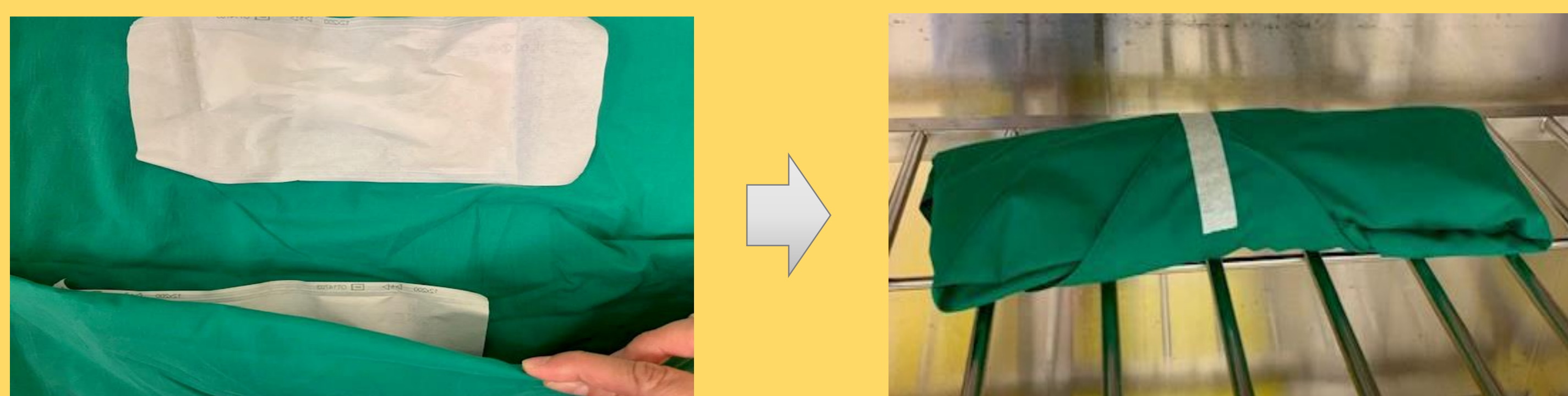
After both PDSAs' implementation, this cost was estimated at \$64 - \$128 per year (2020-2021).

Cost savings are estimated to be \$165.33 - \$330.67 per year.

Methodology

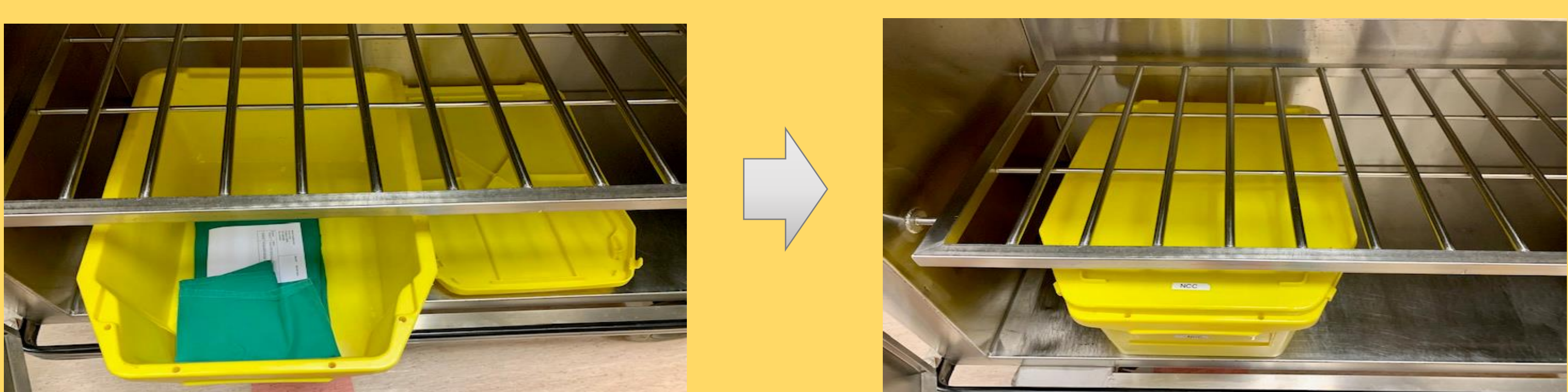
PDSA 1 (Dec'19 - Nov'20)

The "Sandwich" wrap consisted of a linen fold method. Each fold separated and provided protection for each pouch. The period was extended due to the circuit breaker which saw a reduced workload.



PDSA 2 (Dec'20 - Mar'21)

Standardised placement of the "Sandwich" wrapped instruments in a tote box in the Towcart. This prevented the instruments from having excessive movements within the Towcart during its journey.



We continued from Apr'21 - Dec'21 to ensure sustainability with a reinforcement to SSU at SGH in Oct'21 (PDSA 2.1).

Conclusion

We have reduced costs, decrease risk of extended surgical and anaesthesia time, unavailability of replacement instruments and its associated risks; thus providing the "Best Outcome, Best Experience" for our patients.