

COST-BENEFIT EVALUATION OF CONTAINERS IN THE CENTRAL STERILE SERVICES DEPARTMENT (CSSD)

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OBJECTIVES

To conduct a comparative analysis between rigid packaging systems (containers) and disposable packaging systems (SMS), focusing on economic and sustainability aspects.

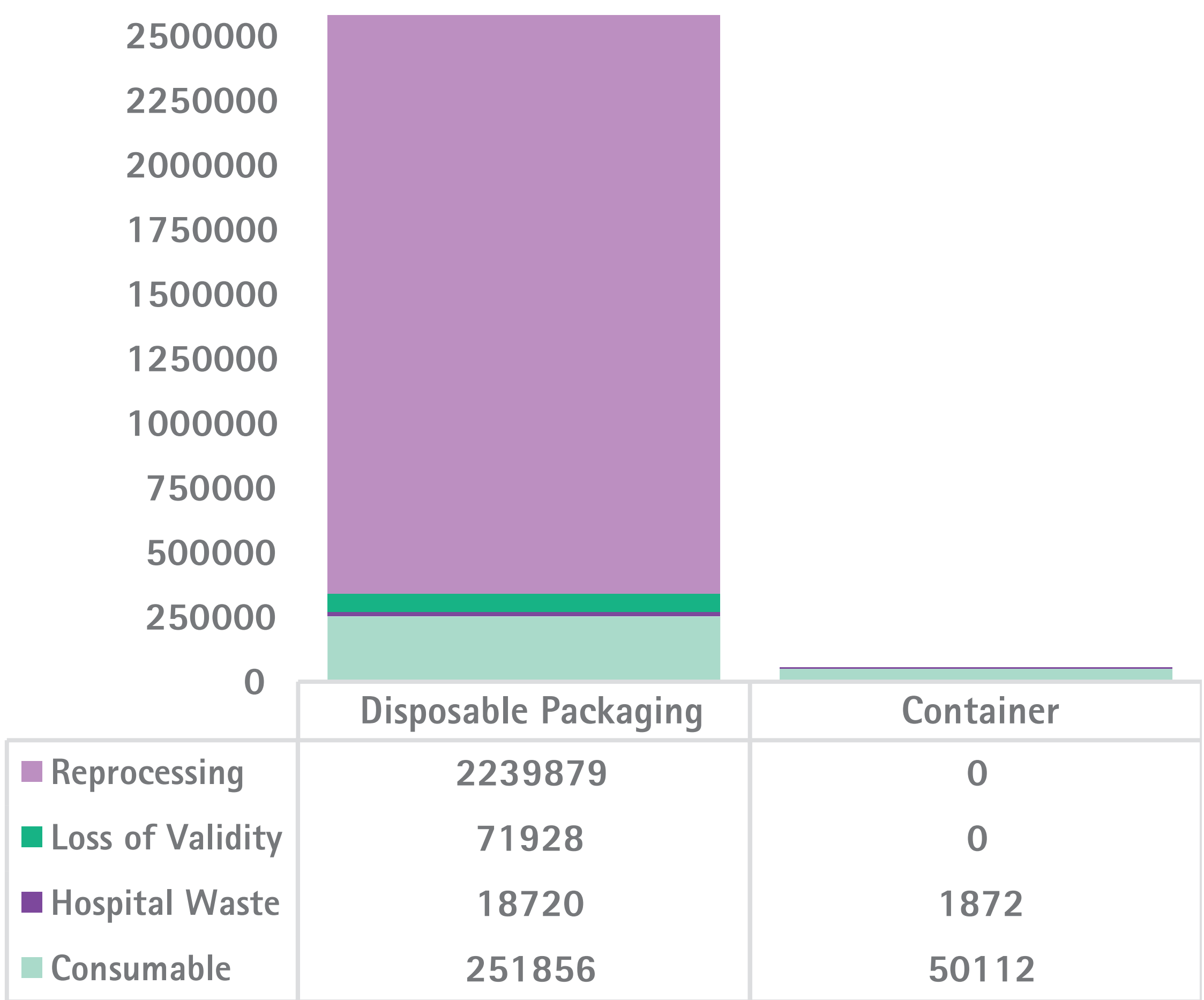
METHODS

Cost-benefit analysis from the provider's perspective. The scenario involves 144 boxes with surgical instruments and 14,400 sterilization cycles in saturated steam under pressure over a one-year period. The quantity of consumables, time to prepare surgical materials, and estimated costs of surgical boxes with disposable packaging were also included¹⁻⁹. The following data were considered: 3% loss of validity of disposable packaging¹⁰; 6.7% of larger holes (6.7 to 10 mm)¹⁰; 18% of packaging with microholes (smaller than 6.7 mm)¹⁰; and costs of operating room downtime due to the request for exchange for another surgical box¹¹. Finally, the dimensions of each type of packaging and costs for the disposal of hospital waste were considered^{12,13}.

RESULTS

In the presented scenario, the use of **containers** represents **annual savings of 98%** compared to disposable packaging (**R\$ 51,984 vs. R\$ 2,583,383**), primarily by eliminating reprocessing costs (R\$ 0 vs. R\$ 2,239,879) and significantly reducing consumable costs (R\$ 50,112 vs. R\$ 251,856).

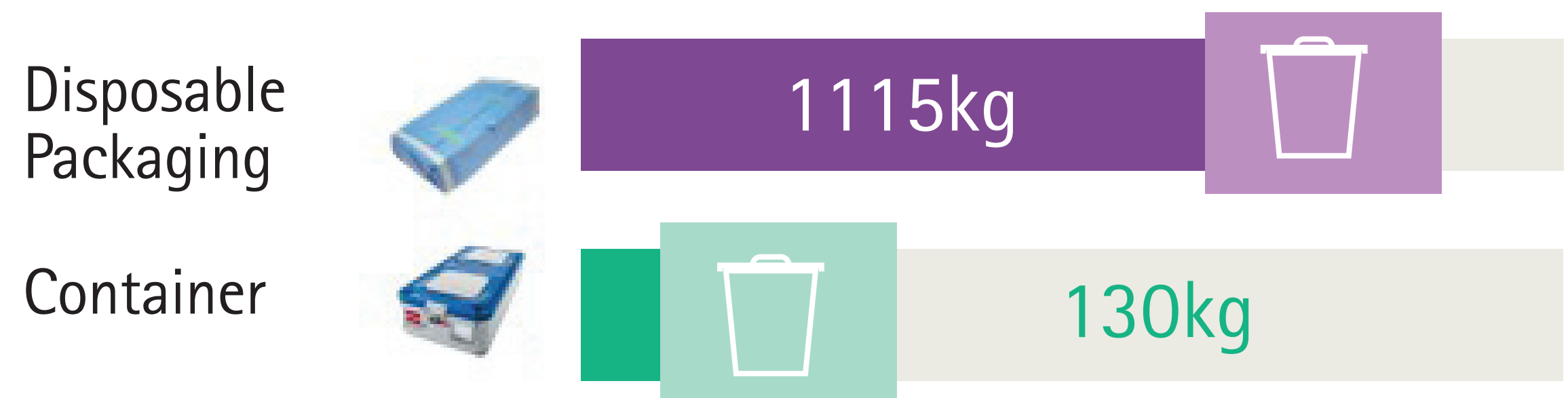
Graphic 1: 1-year costs comparison (Container vs Disposable Packaging; in BRL)



CONCLUSION

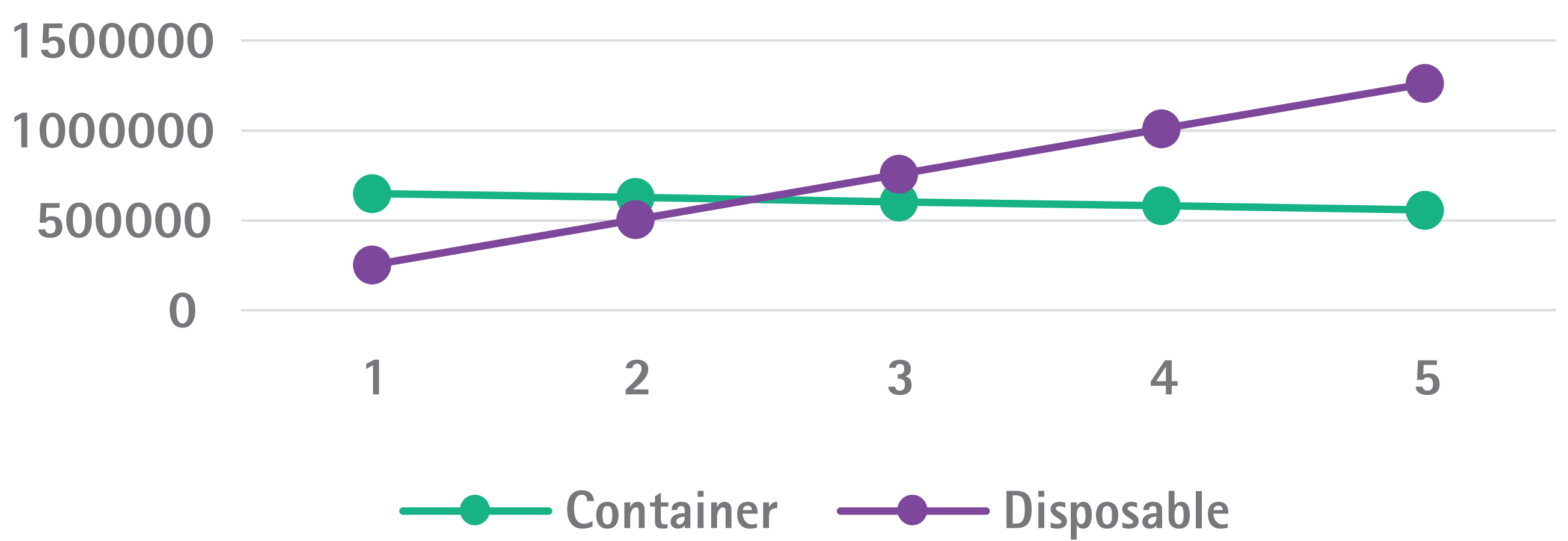
Containers offer savings of 98% compared to disposable packaging, considering the costs of consumables, reprocessing due to expiration dates, adverse events related to packaging, and hospital waste production. Additionally, can optimize inventory and increase the provider's profitability, contributing to more sustainable care from both environmental and economic perspectives.

Figure 1: 1-year hospital waste comparison (Container vs Disposable Packaging)



Additionally, there is a **substantial reduction in hospital waste** (130 kg vs. 1,115 kg) and a 67% gain in space savings for the CSSD arsenal. The use of **containers can save R\$ 690,378** in operating room hours due to adverse events related to packaging. Furthermore, considering depreciation over 10 years and an acquisition cost of R\$ 4,500, it is possible to achieve ROI from the 30th month after acquisition.

Graphic 2: ROI comparison YoY (Container vs Disposable Packaging; in BRL)



REFERENCES

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