

Project Title

Enhanced Recycling Programme to Reduce and Minimise Waste Generated in SGH Campus

Project Lead and Members

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Organisation(s) Involved

Singapore General Hospital, Singapore National Eye Centre, National Heart Centre Singapore

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Environmental Services, Operations & Facility

Project Period

Start date: 2019

Completed date: 2021

Aim(s)

- Achieving Environmental Sustainability by increasing recyclability and substituting raw material inputs which leads to decreasing hospital waste expenditure

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Additional Information

Singapore Healthcare Management Congress 2022 – Merit Award (Operations category)

Project Category

Care & Process Redesign

Value Based Care, Operational Management

Keywords

Environmental Sustainability, Recycling, Waste Reduction

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Introduction / Aim

Introduction:

SGH generates approximately **4,200 tonnes** of general waste and **17,870 Bins** of biohazard waste in a year. This is equivalent to SGH spending approximately **SGD\$1.6m** on waste disposal.

Aim:

Achieving Environmental Sustainability by increasing recyclability and substituting raw material inputs which leads to decreasing hospital waste expenditure.

Methodology (Six Sigma – DMAIC)

DEFINE

Before 2019, 8 types of items collected for recycling in SGH.



MEASURE

Introduce enhanced forms of recycling instead of disposing items generated as general and/or biohazard waste.

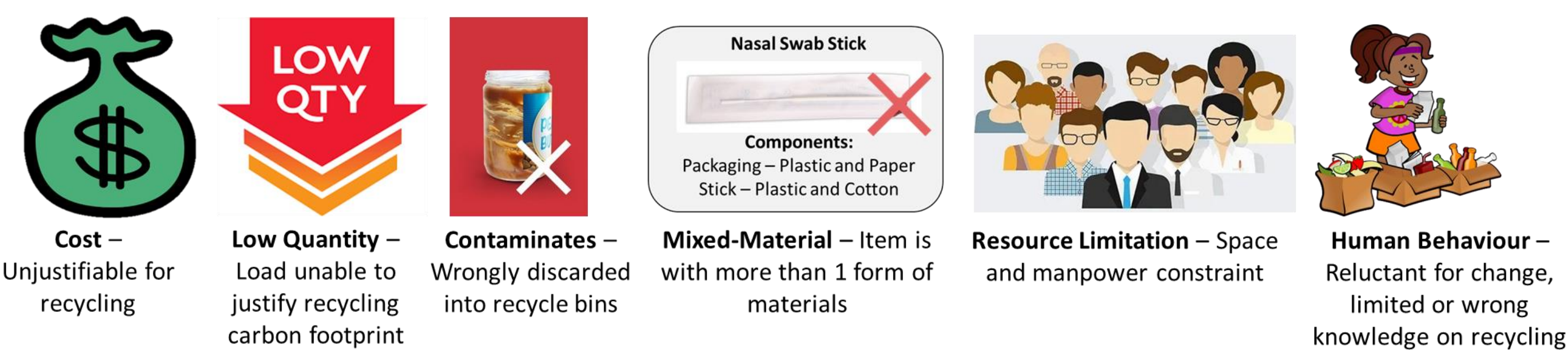
ANALYZE

Limitations in Recycling at Workplace :



- 1) Technology** – Limited recycling technology available in SG due to the operating cost and economies of scale
- 2) Infection Control Compliance** – Items associated as contaminated or infectious are not recommended for recycling
- 3) Single-use Items** – Single patient use items during procedure to reduce the risk of surgical site infections and cross contamination

Constraints of Recycling at Workplace :



IMPROVE

1. From 2019, enhanced recycling programmes and introduced more forms of recycling in SGH.



2. With the introduction of SGH Sustainability Movement Working Group (SSM) and Environmental Sustainability Shared Services, staff's awareness on recycling is made known with more departments reaching out for recycling efforts.

CONTROL

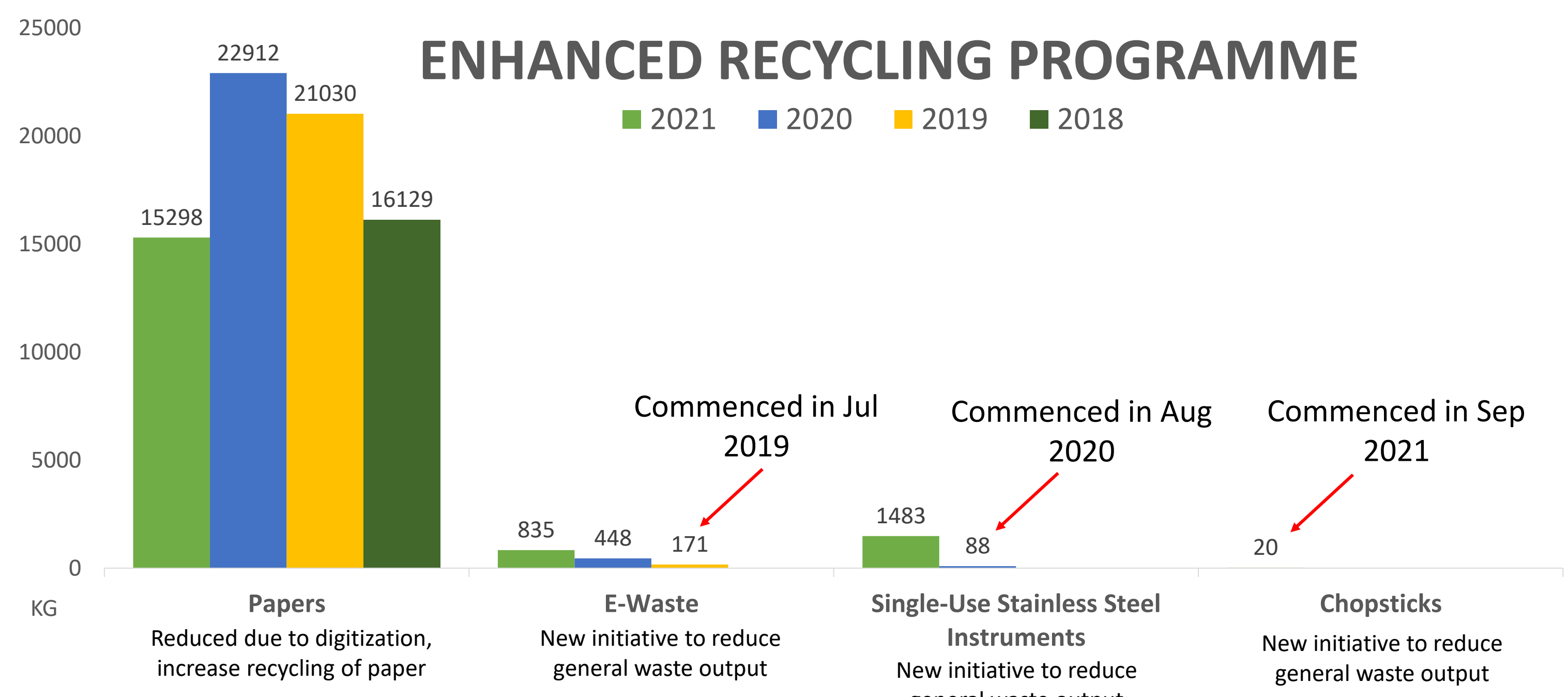
Propose ways to counter the limitations faced in recycling and pushing out forms of recycling initiative with fellow colleagues and institutions to bring awareness and encourage on implementation and/or increase ways and more types of recycling initiatives.

Various forms of recyclability introduced are measured to determine the reduction of waste load and cost savings on yearly basis from waste disposal.

Results

Introduced More Forms of Recycling in SGH Campus To Minimize Waste Disposal

Today, we have doubled our forms of recycling to reduce waste and encourage on recycling efforts. This resulted to an increase/decrease on various types of recycled waste output.



Reduction In Hospital Expenditure

From the increase in recyclability, there was reduction of biohazard and general waste generated, this has reduced hospital's expenditure by approximately **SGD\$42k** per year.

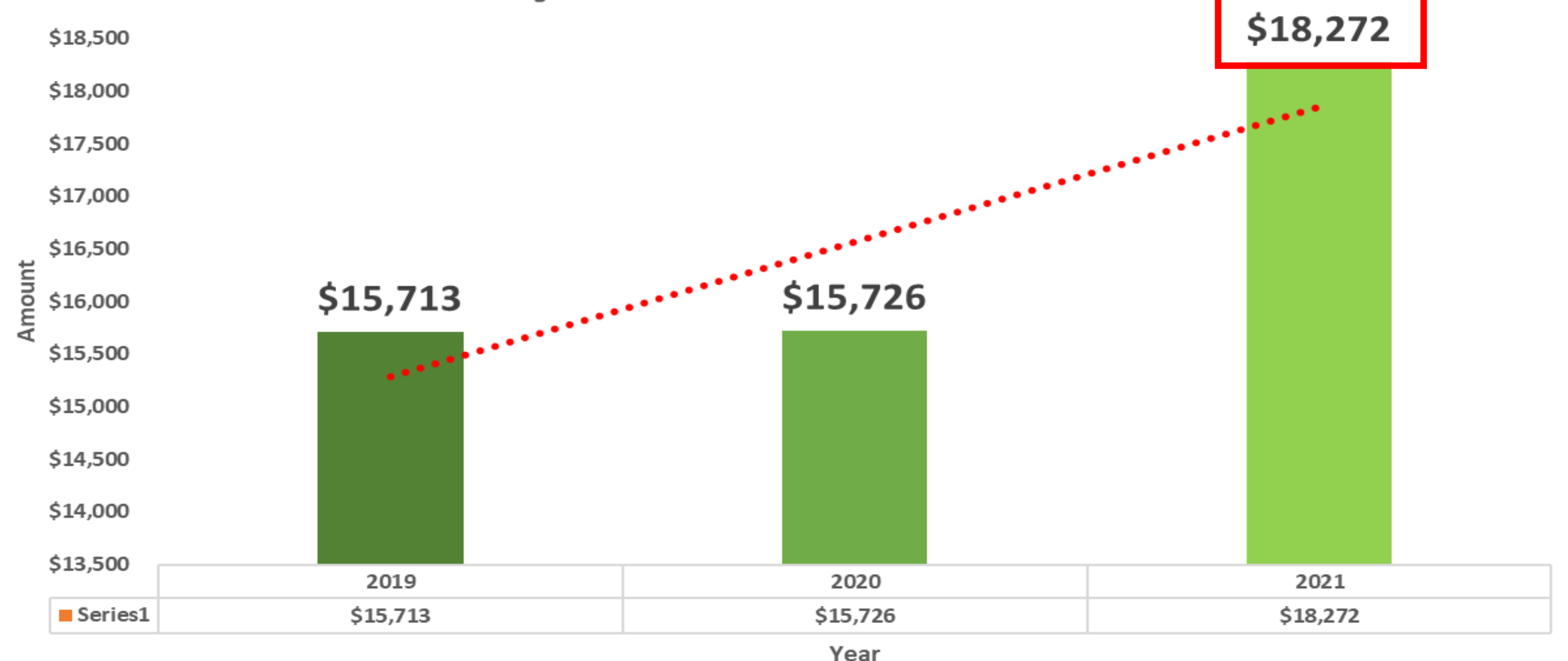
Illustration of savings from biohazard waste through recycling of single-use stainless steel instruments.	Illustration of savings from general waste through new recycling initiatives introduced. Total Recyclable Items Collected in 2021.
<p>11 Sharp Boxes = 1 Biohazard Bin Per month utilization = 187 Sharp Boxes 187 Sharp Boxes / 11 = 17 Biohazard bins 1 Biohazard Bin Disposal = \$69.10 Total Disposal Cost = \$1,174.70 (per month)</p>	<p>Per month utilization = 23,318KG = 23.318 Ton Per month disposal cost = (24 Ton*\$71.96) = \$1,727.04 Haulage = 4*\$80 = \$320 Rental = \$300 Total Disposal Cost = \$2,347.04 (per month)</p>

Average Per Year Disposal Fee = \$3,521.74 x 12 (months) = \$42,260.88

Increase Rebate Amount

With the increase on recyclability, there was an increase in the recycle rebate amount at an estimate of **SGD\$18k** in the year 2021.

Recycled Waste Rebate



Conclusion

Environmental Sustainability is a continuous journey that requires on-going improvement within the healthcare industry. The main benefit of recycling minimizes expenditure and need for landfill for incinerated waste disposal.

To further improve the recycling index, SGH ES has collaborated with Campus Institutions (SNEC and NHCS) to step up on SGH-Campus recycling efforts.