



# Reducing Drugs Wastages in Inpatient Drug Management and Blk 8 IPAS

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## 1. Background

Drug wastage due to accidental breakages, dropping of medications and drug rejects from the automations system are inevitable as part of the daily operational processes at Inpatient Pharmacy (IP). IP services are carried out at 3 different locations, Inpatient Drug Management, Discharge Pharmacy and Blk 8 IPAS Room. The creation of a drug disposal database system allows tracking and consolidation of all drug wastages occurring in IP. This ensures the accountability of the drug inventory in IP as all drug wastages need to be discarded and condemned via the electronic condemnation system.

## 2. Mission Statement

To reduce the amount of drugs wasted in the Inpatient Drug Management and Blk 8 IPAS by 50% within 1 year

## 3. Analysis

We noticed from the database, a median of 7878 drugs wasted from October 2015 to April 2016. Collation of the drug wastage is a tedious procedure as all drugs are required to be removed from the original packaging prior to discarding as per institutional policy. Time and manpower are required to submit the data via the electronic condemnation system. Drug wastages also incur costs for the department.

Data was retrieved from our drug disposal database system. We identified 6 main reasons for drug wastages. The final root causes were identified using the Pareto Chart. Based on the 80/20 rule, the main root cause for drug wastages were broken and brittle tablets.

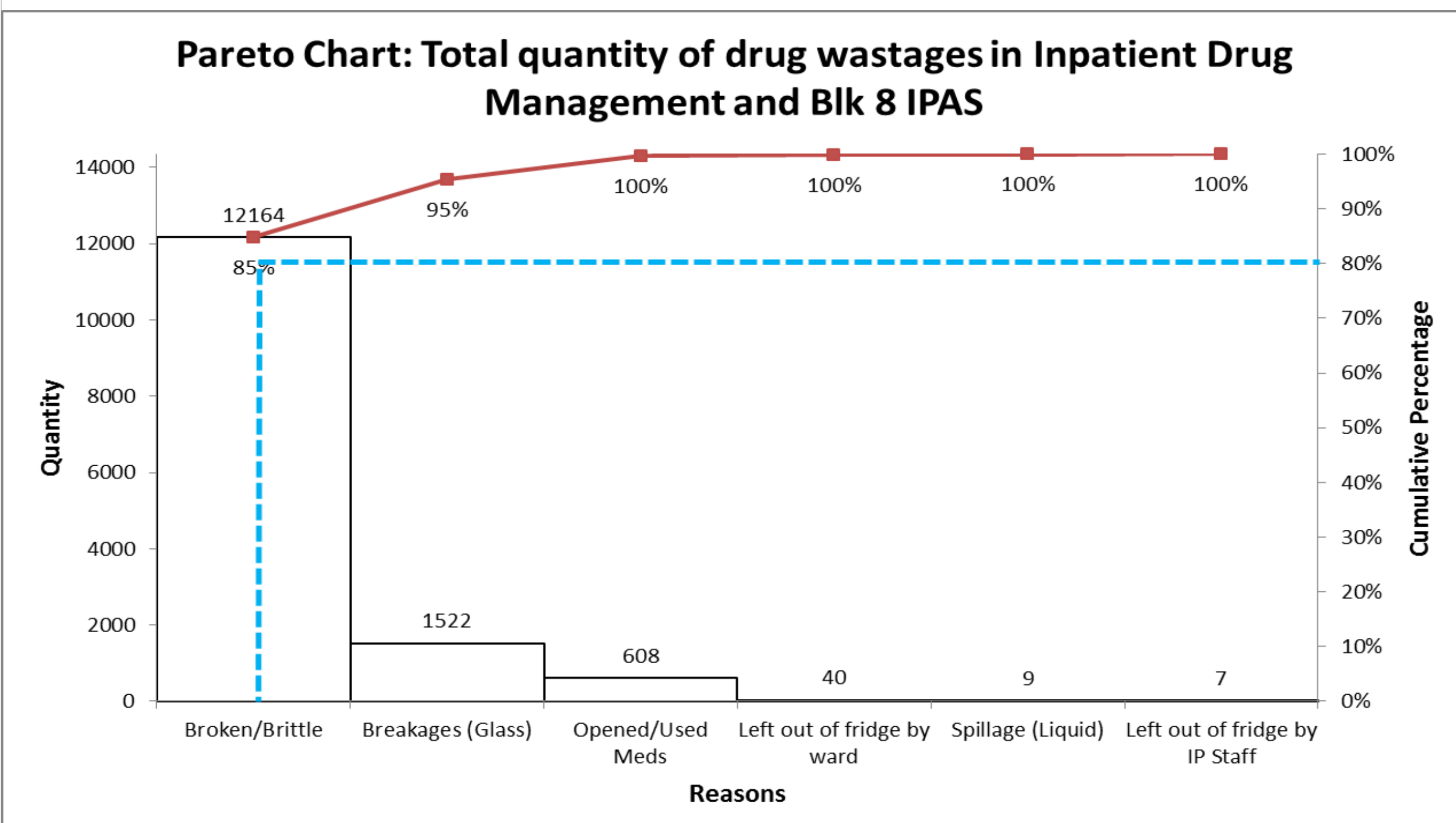


Figure 1: Pareto Chart

We proceeded to conduct 5-why analysis for broken and brittle tablets as well as the second root cause of wastages because drugs that are packaged in glass are typically higher value drugs. Thus, if we could reduce the wastages due to glass breakages, this potentially can reduce the total cost of drug wastages.

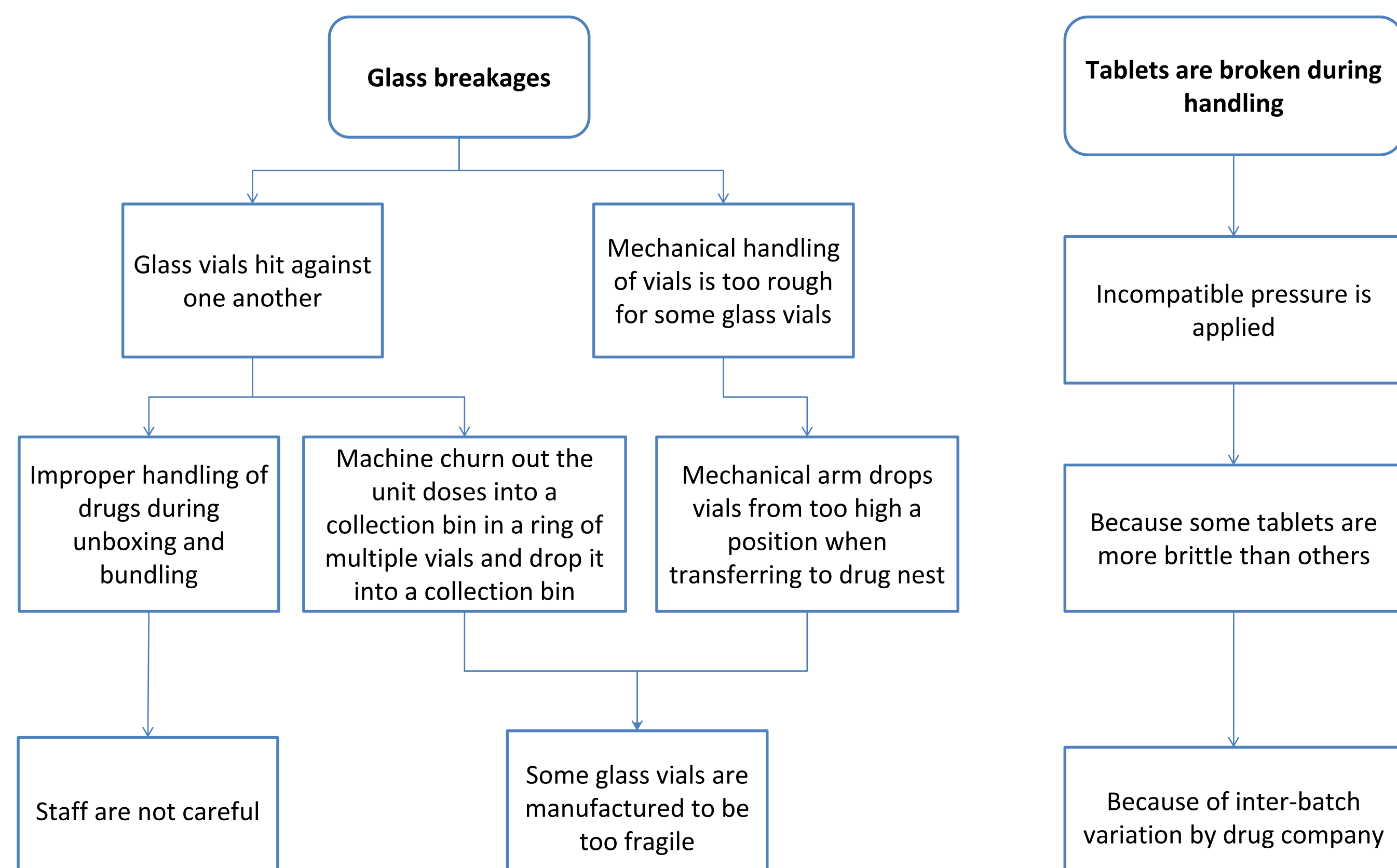


Figure 2: 5 Why Diagram 1

Figure 3: 5 Why Diagram 2

## 4. Intervention(s)

PDSA Cycle 1: Education and reminders were given to staff to be more vigilant in unboxing and bundling so as to reduce the incidences of breakages due to glass vials hitting against each other.

PDSA Cycle 2: We noticed that Potassium Dihydrogen Phosphate breaks frequently during the packing process by the automation system. We identified that the glass vials are more fragile than other drugs. Thus, drug was removed from the automation system and sent to external vendor for barcoding.

PDSA Cycle 3: We highlighted drugs with inter-batch variation. During this PDSA cycle, we identified that there was a batch problem for the paracetamol tablets and replace with the new batch of paracetamol for the automation system

## 5. Results

After implementation of the various PDSA cycles, the total quantity of drug wastages reduces from 7878 to 4550. This represents a 42% drop in the median from pre to post implementation.

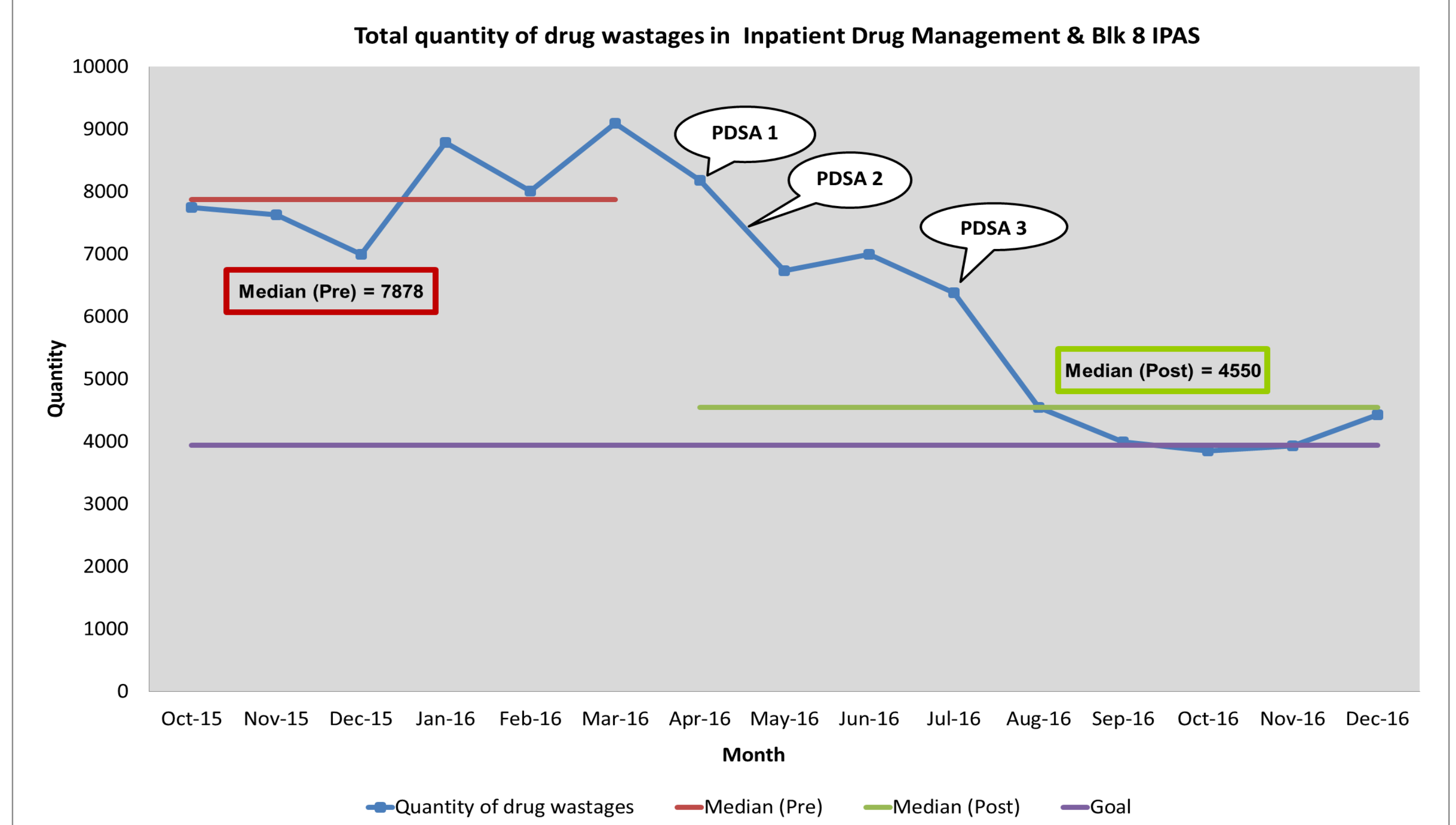


Figure 4: Graph of total quantity of drug wastages

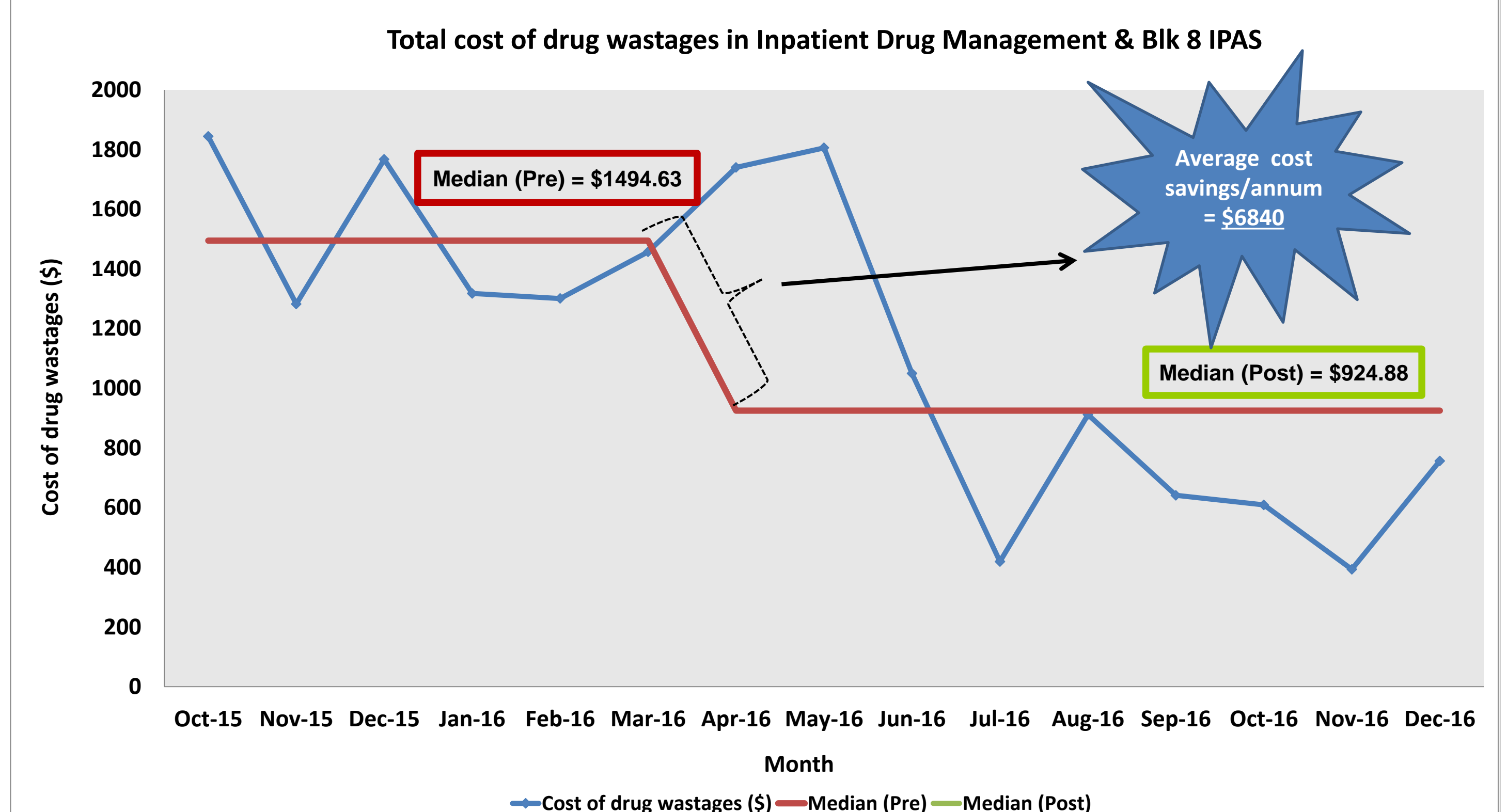


Figure 5: Graph of total cost of drug wastages

After implementation, the median cost of drug wastage was reduced from a median of \$1495 to \$925, which translates to an average cost saving of \$6840 per annum. In addition, the IPAS machine was upgraded in August 2016, which may further reduce drug wastages due to inaccurate cutting of blisters.

## 6. Sustainability Plans

To ensure the sustainability of the project over time, a standard work process has been put into place whereby an inventory in charge will review the data every month to ensure that drug wastages are kept to the minimum. Moving forward, drug wastages can be analyzed with the production volume as a denominator to effectively detect production issues.