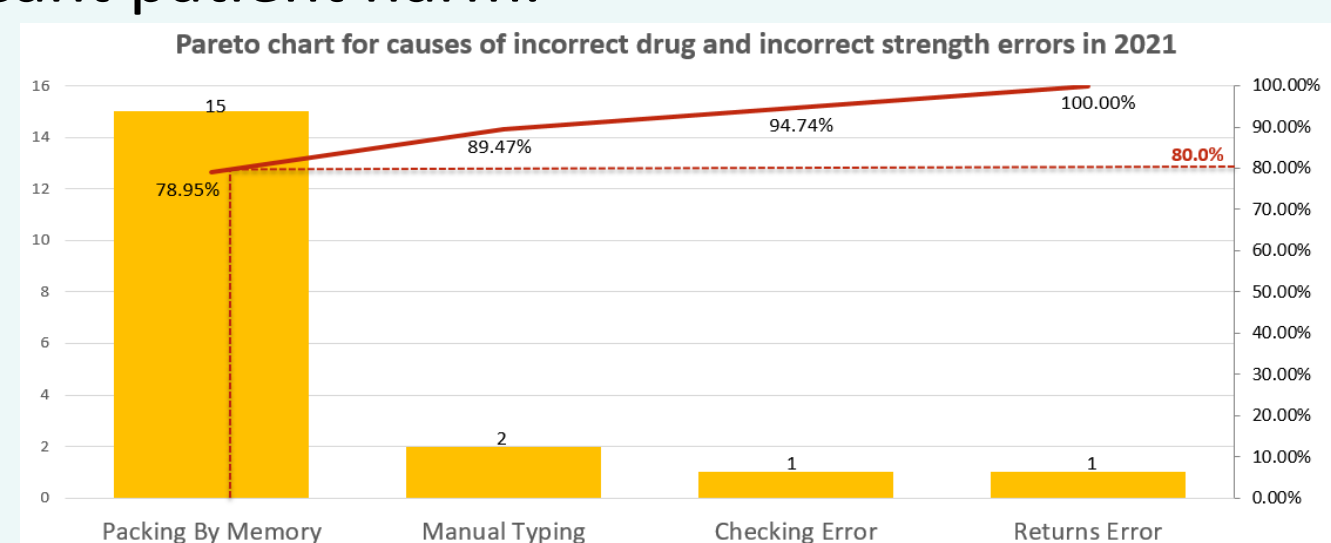# Reducing incorrect drug and incorrect strength dispensing errors at SKH Outpatient Pharmacy

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Problem Statement

Dispensing errors where an incorrect drug/dosage of medication is supplied to the patient may lead to significant patient harm.

Pareto chart for causes of incorrect drug and incorrect strength errors in 2021

A Pareto chart based on all medication error reports from 2021 showed that "Picking by Memory" was the root cause for almost 80% of such errors. Picking staff using memory (instead of bin location codes) to determine location of drug bins are prone to errors due to Look-Alike-Sound-Alike (LASA) medications.

Project Aim

Current State: From Jan 2021 to Dec 2021, there were 1.11 incorrect drug/strength errors reaching the patient for 10,000 prescriptions processed.

Primary Objective: To reduce number of incorrect drug or incorrect strength dispensing errors at SKH Outpatient Pharmacy by 80% over 7 months

Lessons Learnt

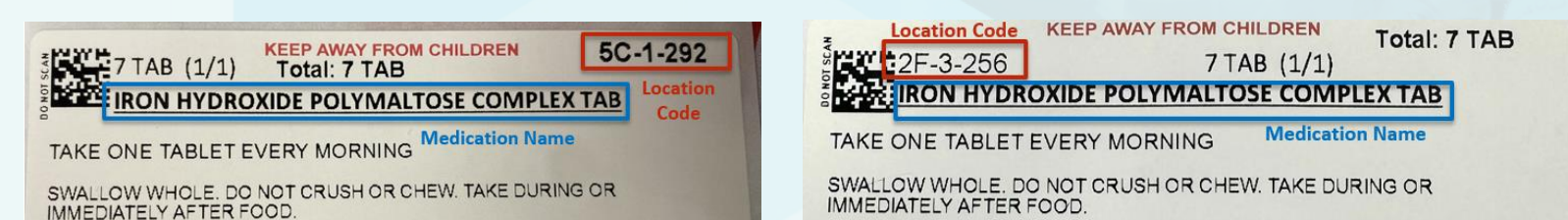**Challenge #1: Obtaining Ideas for Interventions**
While we were able to identify the root cause of the errors, the team initially lacked ideas for interventions. To overcome this, we engaged the ground staff through focus group sessions to elicit ideas for interventions.

Challenge #2: Sustainability of Interventions
After implementing Zone-Based Picking, we noted the intervention was manpower intensive. Upon reverting this intervention, error rate remains low with 0.27 errors per 10,000 prescriptions processed (Jan 2023 – Sept 2023). Not all interventions may be successful so it is important to review if they are warranted.

Potential Solutions

Intervention 1: Redesign of Medication Label

The drug name is sighted prior to location code on the old label (left) as information is processed in a left-to-right manner. The new label (right) was redesigned for picking staff to see the location code prior to the drug name.

Intervention 2: Zone-based Picking
LASA medications are separated into 3 distinct zones. Medication pickers can only pick medications located in their specific zones
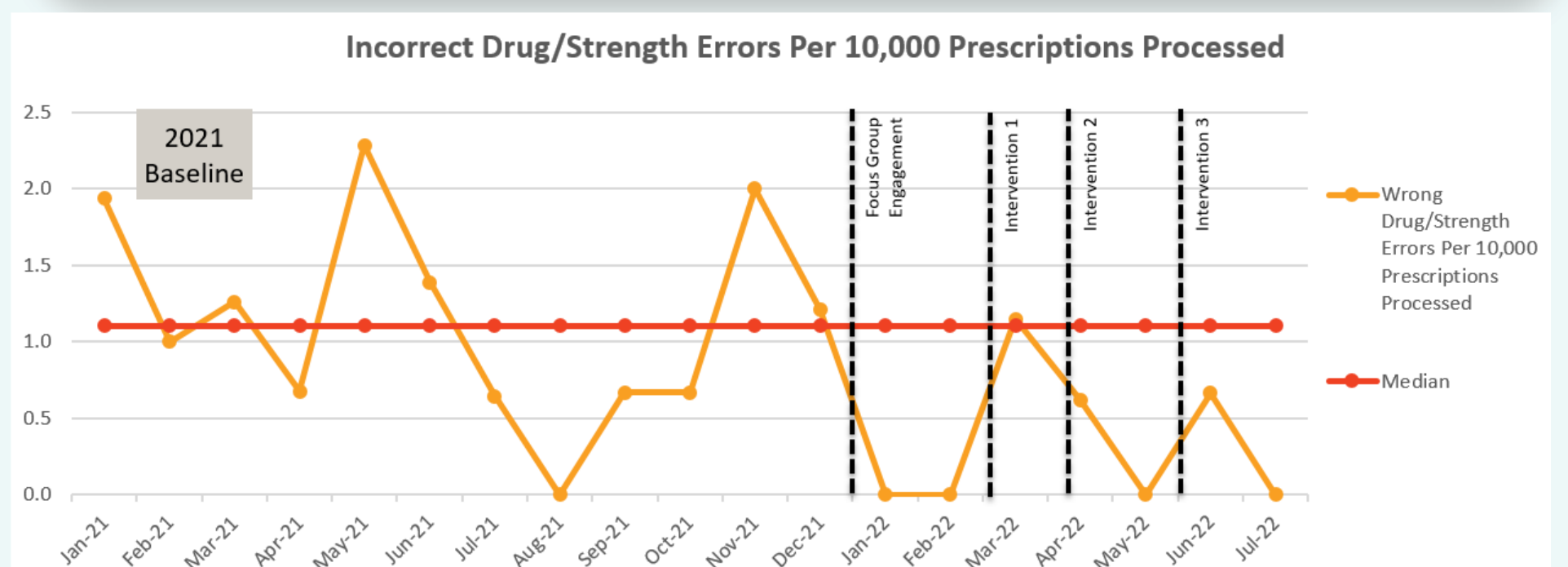
Zone	Picking Area
Zone 1	Gondola 1, 2 & 3
Zone 2	Gondola 4, 5 & 6
Zone 3	Gondola 7 & 8
All Zones	Fridge Items, Parata, Manual Shelves

Intervention 3: Redesign of Medication Bin Label

Redesigned labels on medication bins (left) feature the bin location code more prominently than old labels (right)

Outcomes & Impacts

Incorrect Drug/Strength Errors Per 10,000 Prescriptions Processed

There was a **67.5% decrease in number of incorrect drug and incorrect strength errors** from 1.11 errors per 10,000 prescriptions processed (2021 baseline) to 0.36 errors per 10,000 prescriptions processed (Jan – July 2022).

There were **zero** errors reaching the patient due to "Picking by Memory" from Jan – July 2022.

As shown in the run chart above, the data points post engagement sessions and interventions implementation are generally below median, demonstrating improvement.

The redesigned medication label and bin labels has since been spread to SKH Inpatient Discharge Pharmacy and SKH Unit Dose Pharmacy.