



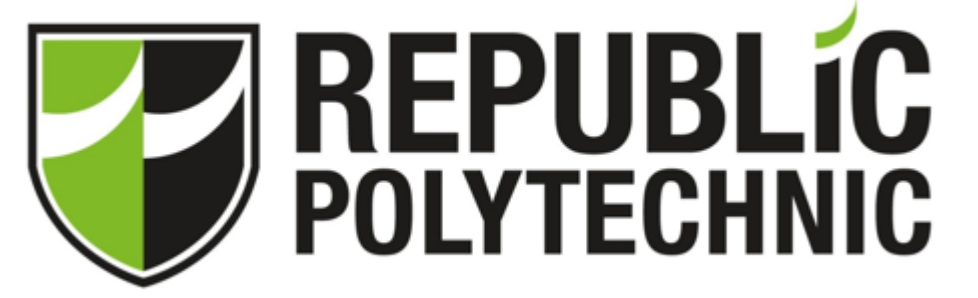
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Streamlining of workflow in Specialist Outpatient Clinic Pharmacy at National Cancer Centre Singapore

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Introduction

Specialist Outpatient Clinic Pharmacy @ National Cancer Centre Singapore

The Specialist Outpatient Clinic (SOC) Pharmacy which is located at Level 1 of National Cancer Centre Singapore (NCCS) is the pivotal point of oral oncology medication supply and management. The SOC Pharmacy supplies medication mainly for NCCS patients, specializing in anti-cancer cytotoxic medication for the treatment of cancer, while also supplying medication for chronic medical conditions

The SOC Pharmacy also provides others services such as home delivery, medication management, medication refill, medication counselling, among other services. A number of medications kept in the SOC Pharmacy that may not be kept by other pharmacies include drugs such as everolimus, palbociclib, afatinib, erlotinib and letrozole. Hence, the SOC Pharmacy plays an important role in managing and dispensing of oral oncology medication.

Objective

The objective of this study is to propose different systems with the aim of facilitating the streamlining of the various processes in the pharmacy to reduce processing time for prescriptions and hence reduce waiting time for patients.

Studies Conducted

Urgent Order Time Study

Urgent order time study				
Month	Dec 2017	Timing 1	Timing 2	Timing 3
1/12/2017	19 min	12min		
2/12/2017	6min			
4/12/2017	8mins			
5/12/2017	20mins			
6/12/2017	11mins			
11/12/2017	15mins			
13/12/2017	13mins			
15/12/2017	7mins			
16/12/2017	10mins			
26/12/2017	20mins			
27/12/2017	7min	8mins	6mins	6 min
28/12/2017	8mins	5mins	8 mins	
Total:				189mins 3hr 9 mins

Figure 1: Urgent order time study

Urgent Order Form Used Time Study

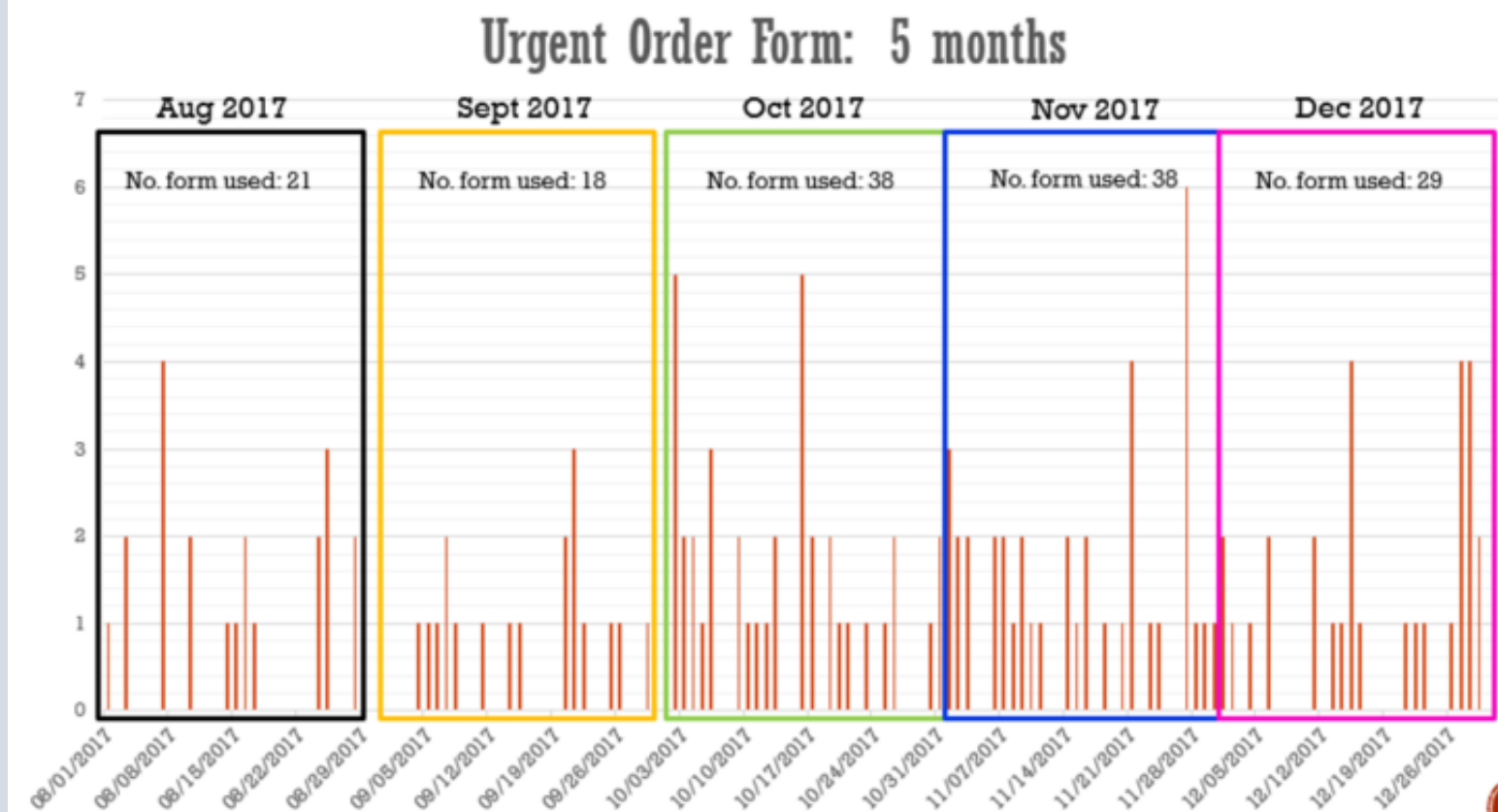


Figure 2: Urgent order form used time study

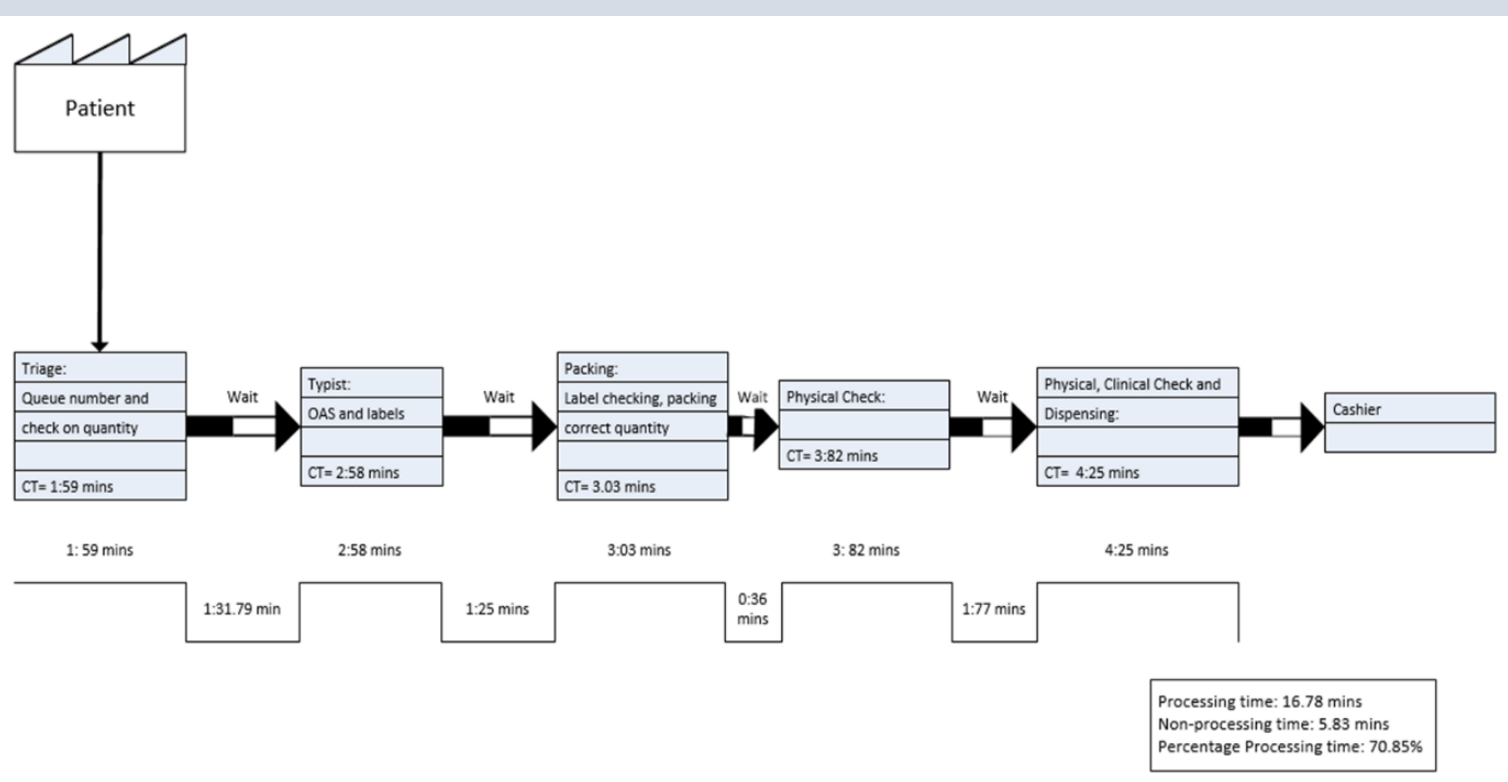


Figure 3: VSM Trial October 2017

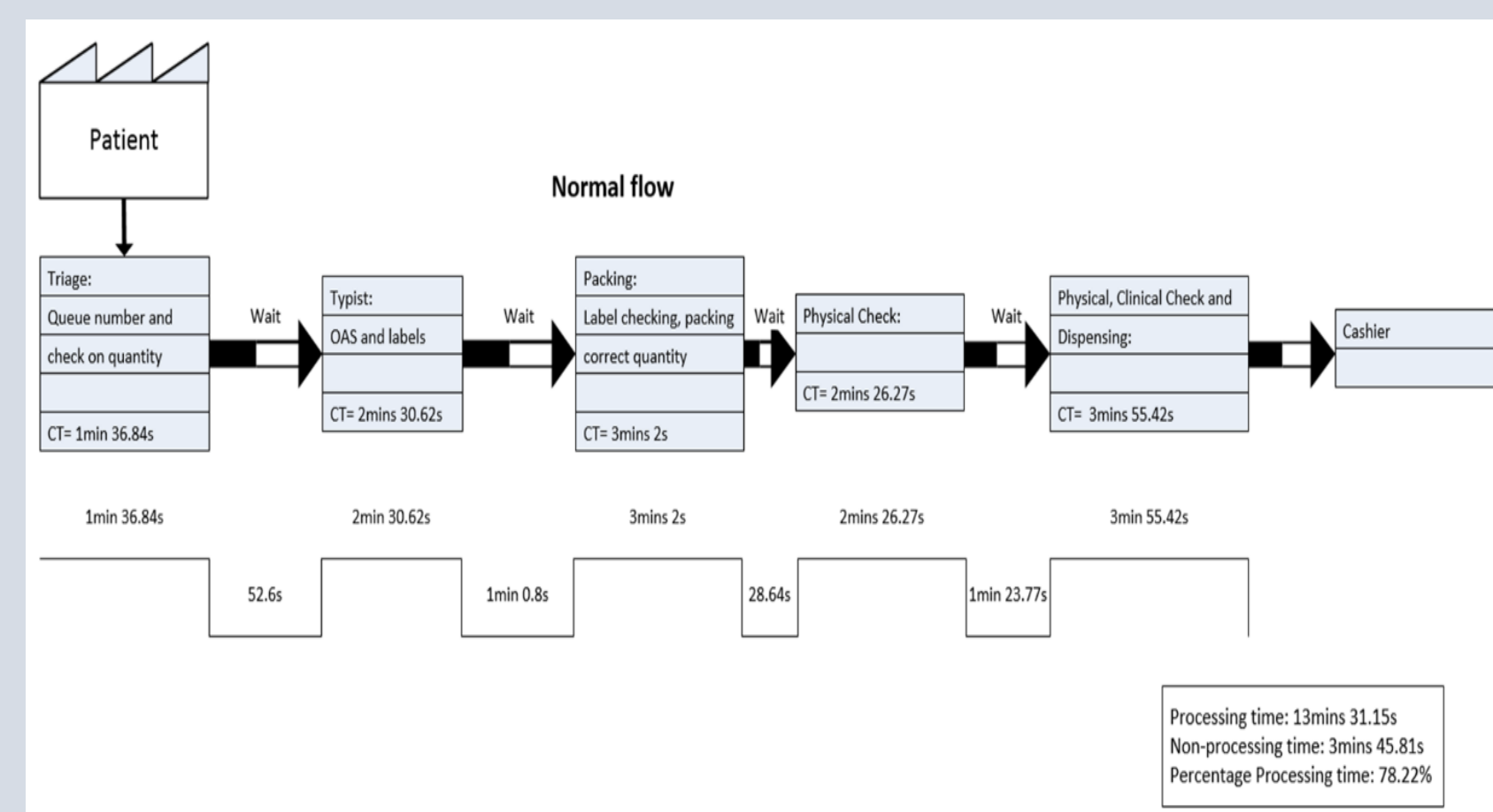


Figure 4: VSM Trial December 2017

(1 week survey) (Sat not included)	Patient change their minds	Patient class is wrong	Medifund/ Medisave limit exceeded	Pharmacist intervention	Drugs are packed wrongly	Others
Frequency	52	11	7	18	4	Typing Error: 9 Patient Add item: 1 Others: 2

Figure 5: 7 day rework study

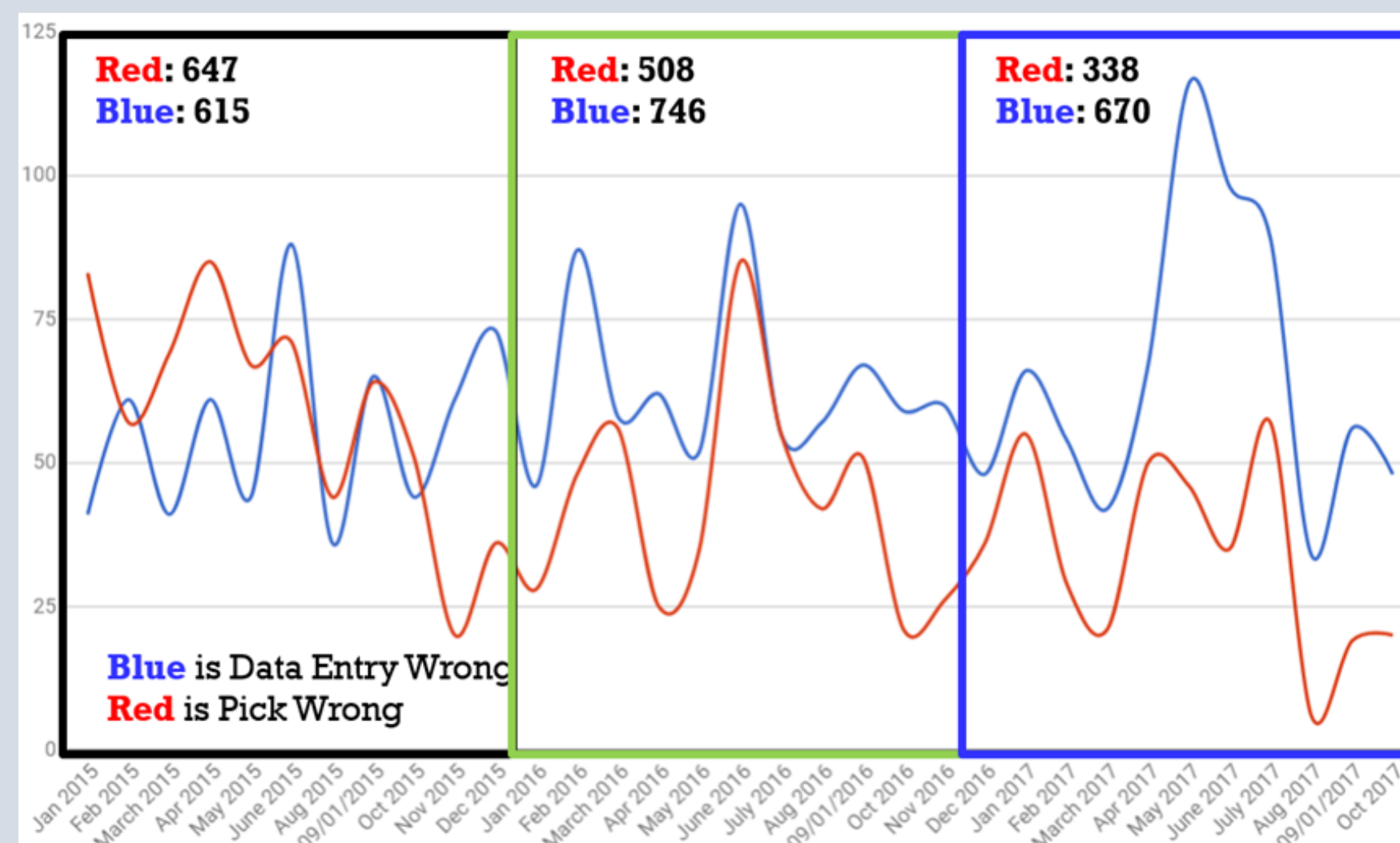


Figure 6: Frequency of data entry or picking error

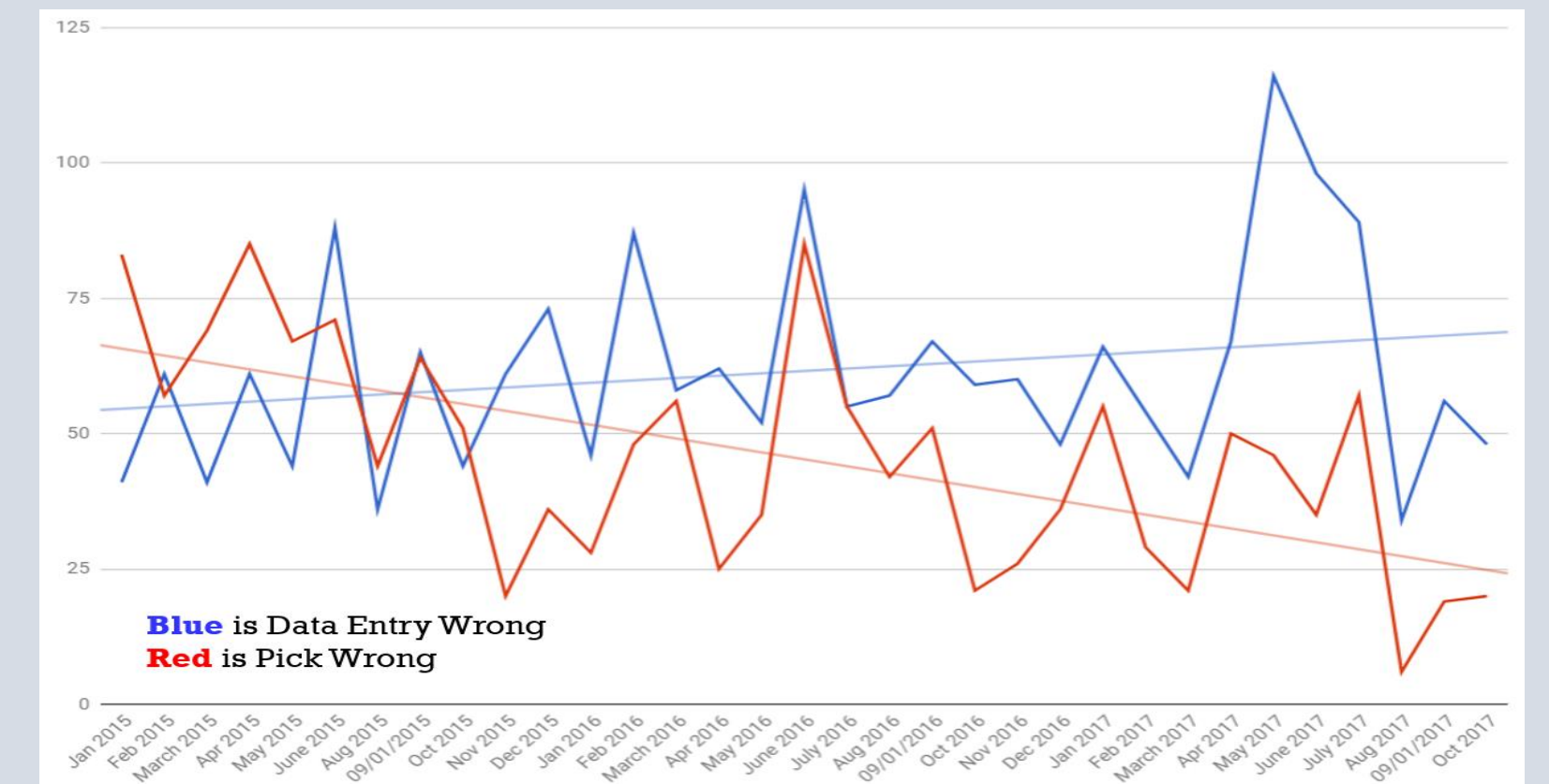


Figure 7: Trend diagram for data entry or picking error

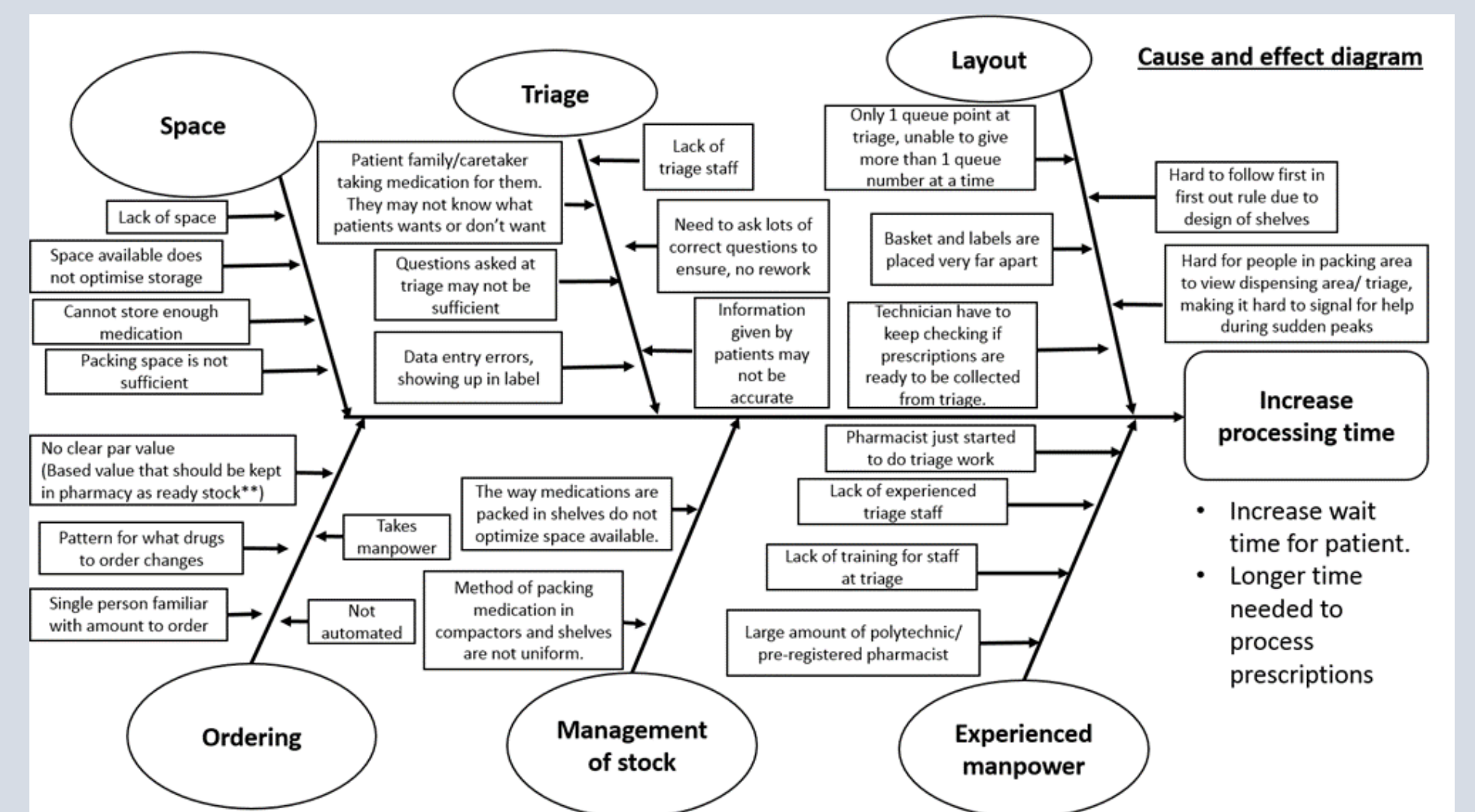


Figure 8: Cause and effect diagram

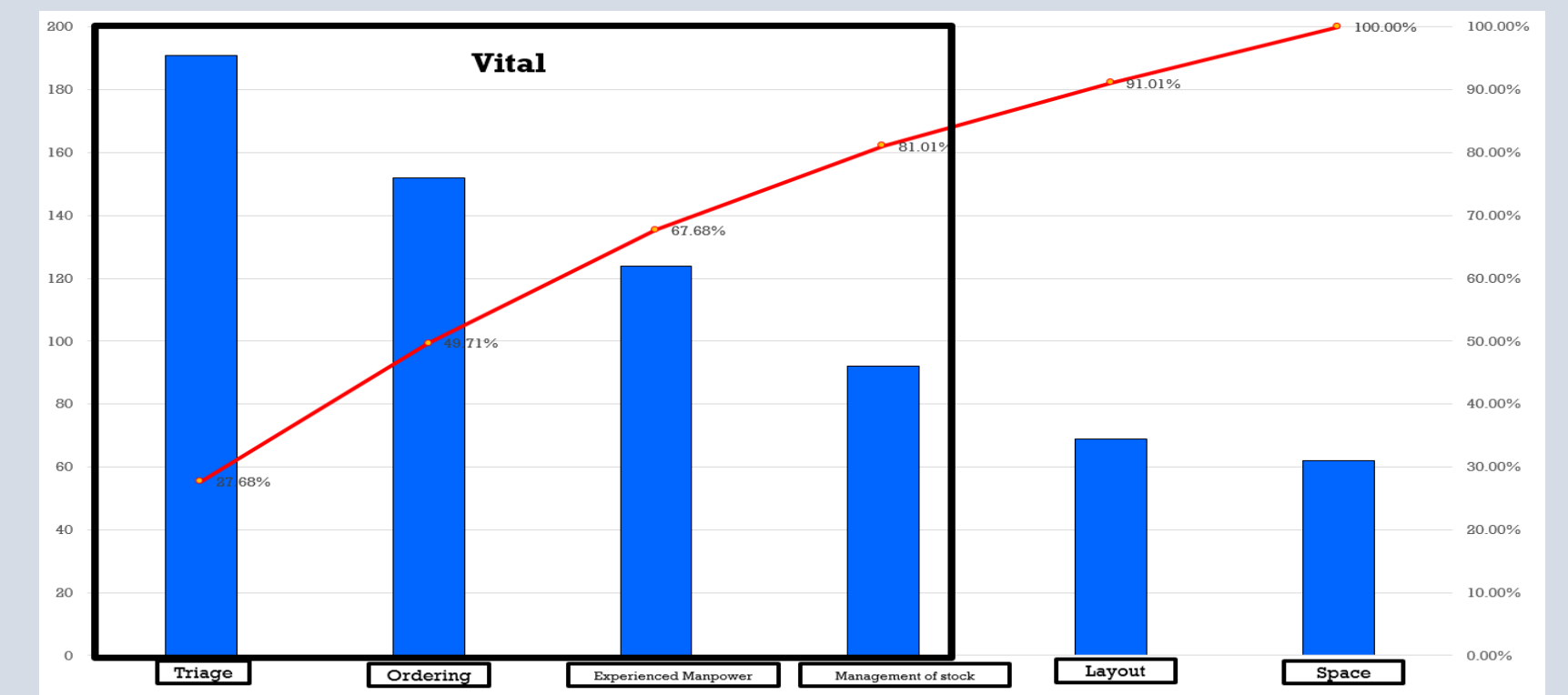


Figure 9: Pareto Analysis Diagram

Layout & Spaghetti Diagram

SOC Pharmacy

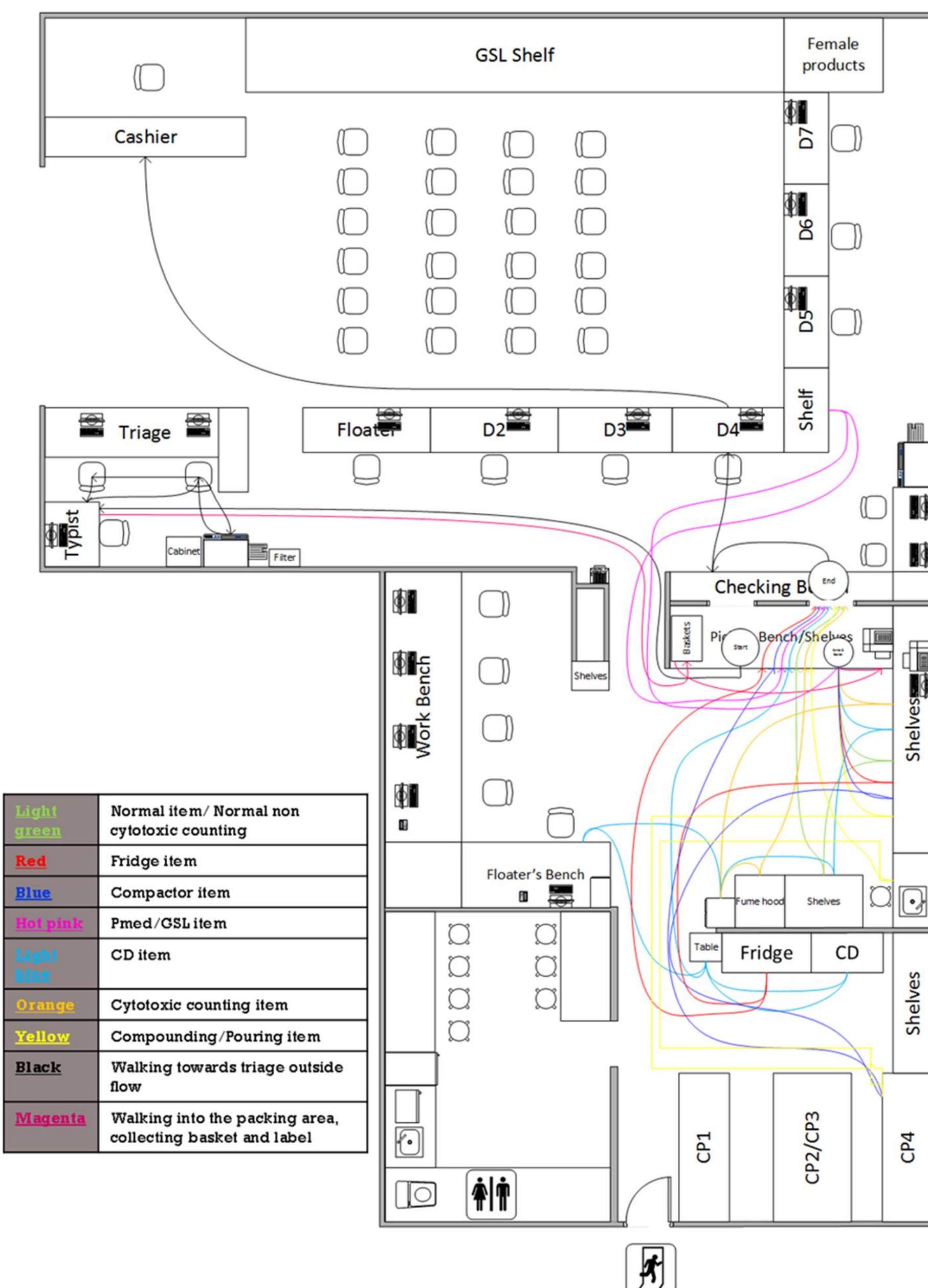


Figure 10: Layout & Spaghetti Diagram

Proposed Solutions

Triage

1. Visual aids:

- Give patient a visual representation of the quantity in addition to informing them in terms of the duration of the medication (in weeks or months).
- Physical display of the medication bottles to show what the patients wants to collect, allowing them to get a better idea of the amount they are going to receive.
- Digital display facing the patient to show them the medication that they are going to receive. Allowing them to have a visual of what they are going to receive as some patients may not know the name of the medication they are taking but can identify them based on their packaging.

2. Standard questionnaire

- Help to standardize the questions to ask to clarify the quantity or drugs the patients want to collect. This is to prevent "rework".

3. Changes to the MAXCARE system

- Prevent variation of dosing instructions on the label. Example, "0.5 tablet vs half a tablet". Provide suggestions for standardized special instructions.
- Drug: Full drug name suggestions prompted when typing through drug name.
- Instructions: Simplifying instructions so that user can just tab to go to next section minimising keystroke errors.
- Encourage standardised instructions.
- Special instructions boxes: A drop down menu with list of special instructions which can be selected for different drugs.
- Expiry date: Filled in by packer on packaging. Simplify UI.
- Highlight items that has been typed: Allows typist to know which item has been typed and which has not so as to prevent items from being missed out.
- To serve as a confirmation of medication the patient is collecting.

Ordering

1. Colour-coded Kanban bin system using order cards.

- Kanban bin helps to obtain a par stock value.
- Allows strict adherence to "First in First out" (FIFO) rule.
- Order card allows faster ordering without estimation
- Ordering bin: Bin to collect ordering card and facilitate ease of ordering
- Multiple people tasked to order: Reduce workload and stress for the person who is tasked to order alone previously.
- Implementation of Kanban bin system with ordering cards allows anyone to know what quantity and how much to order

2. Standardize re-packing

- Reduce bulky packing and ease of storing in shelves and compactors.

Layout

1. Changes to triage

- Changing the printer to a smaller one so that it can fit in a more strategic location in the triage area so as to decrease motion waste.
- Changes to packing area: Changing the location of the printer and packing baskets.
- This will allow a more unidirectional flow and decrease movement overlaps when many people are working on the packing bench.
- Allows pharmacist easier access to labels from the printer.
- This will reduce motion and time waste.

3. Changes to packing area and triage

- Addition of a switch to be placed at the triage area.
- This is to be able to alert the staff inside of a surge in patients volume and also inform the Pharmacy Technicians to assist at the triage area.