

# Upgrading Pneumatic Tube System



## INTRODUCTION

**This project aims to reduce 75% of system downtime.** Enhancement is completed within 4 months to facilitate the delivery of coordinated care and seamless service for a positive clinical outcome and experience.

Project goals are to improve system availability of Pneumatic Tube System:

- To reduce risk of system downtime
- To improve overall system performance to ensure that the system is functioning at the optimal level.
- To increase the system availability for timely sending and receiving of the documents and specimens.

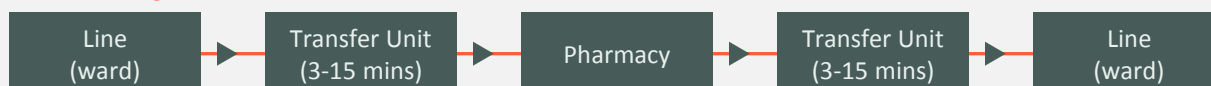


**Redesign the system for better efficiency.**

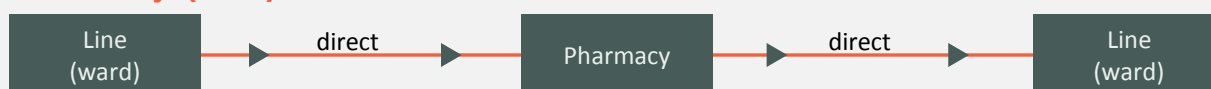
## METHODOLOGY

- Split from 4 lines to 5 dedicated lines.
- Install 5 auto-send station at Pharmacy and Lab.
- Dedicated carrier for Pharmacy and Lab to prevent chances of contamination.
- FRID tracking for carriers to better track of transfer.
- Old system free run affected the whole system; while new system is localised, not affecting other stations that are running normally.

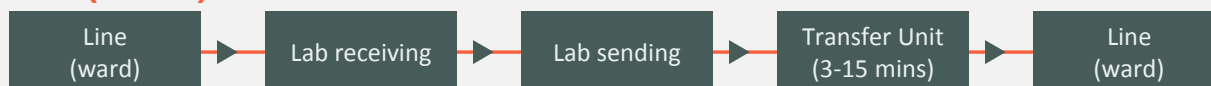
### Pharmacy (Before)



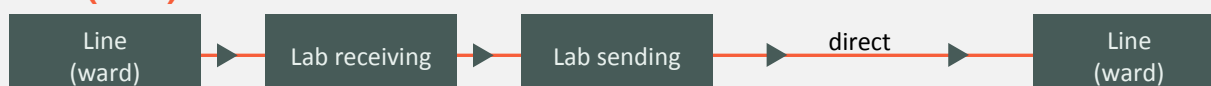
### Pharmacy (After)



### Lab (Before)



### Lab (After)



Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	Total
Before	177	101	58	44	12	14	2	3	7	22	440
After	0	11	15	20	11	6	0	0	8	33	104
Up / Down	-100%	-89%	-74%	-55%	-8%	-57%	-100%	-100%	14%	50%	-76%

Number of Faults in 6 Months

### Types of faults

- |                             |  |
|-----------------------------|--|
| F1 – Transfer unit reset    | F6 – Duplicate work order                  |
| F2 – Individual line fault  | F7 – User never clear basket               |
| F3 – System free run        | F8 – User try sending 2 carriers at a time |
| F4 – Reset station system   | F9 – Replacement of parts                  |
| F5 – Carriers stuck in line | F10 – Others / No fault / Job cancel       |



## RESULT

**76% IMPROVEMENT**



## CONCLUSION

- Allow tracking of carriers with RFID.
- Able to redistribute empty carriers to station.
- Save on time & labour.
- Localize fault rectification.
- Efficiency improve by 76%.