

# **RFID** Ambulatory Treatment Unit Management System

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## A Introduction

Managing high variability in patient flow which included facility, patient and treatment factors are key challenges in providing timely treatment to cancer patients in the Ambulatory Treatment Unit (ATU). Deployment of a Real time resource management system enhances the unit's ability to provide timely treatment as well as increases it's capacity to treat.

#### **B** Problem

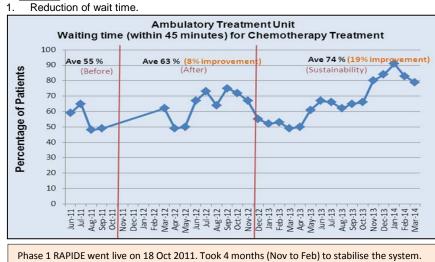
- Unevenness in the workload demand leads to long patient waiting time. Variability factors including bottleneck for the turnaround time of lab results and consultation process compound the problem leading to ATU being the reservoirs of 'all' waiting time.
- No SMS reminder before treatment; patients would frequently wait at the waiting area, afraid to go for meal, worried about missing their turn.

## C Methodology

The solution was to develop an RFID system named Real time Ambulatory Patient Information Deployment Enabler (RAPIDE). It provides the following features for effective scheduling and efficient resource management.

- "VISIBILITY" into the real-time location, status and identification of patients, nurses and bed/recliners.
- Visual recognition of a patient's physical location for correct clinical placement and association of staff to patient.
- Shared communication platform for all service staff; Schedulers, Pharmacists and Nurses.
- Location and status data can be integrated into mobile devices for SMS service to patients
- Flagging of patient location and activity using colour codes for resource management. Generation of report for evaluation of resource scheduling and management for continuous improvement.





Phase 2 implemented in Jun 2012.

- Time saving of 825hours averagely per year for nurses in manual search for treatment 2. beds/chairs, phone calls to Scheduler when there is prolong treatment duration and checking of drugs status when nurses are ready to treat before patients' appointment time
- Time saving of 744 hours averagely per year for front counter staff through faxing. 3. Work process was re-engineered to enhance productivity by multi-tasking the Schedulers.
- SMS service 30 minutes before appointment time yield high patients satisfaction 4. where patient could productively use of their time.

### E Learning Points

Accuracy of the RFID system in timely and correct update of the patients' treatment status has direct impact on the throughput of the unit. Tag management is a crucial part of the RFID process.

- Proper functioning of the hardware e.g. sensor mat, reader, patient/nurse tag Patient's behaviour i.e. placement of the patient's tag, seating position.
- Nurse's behaviour Effective tag management included proper maintenance of the hardware, patient education and titrating the right signal strength are crucial aspect.

#### F Conclusion

Using Real Time Resource Management has helped ATU in managing its variability and improve the patient's waiting time and the unit's throughput.

Acknowledgement Mr Tony Liang Yuk Bing Deputy Director, iHIS Ms Afidah Binte Abdul Manaf Senior Principal Pharmacist ior Principal Ph

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- When patient has drug reaction or complication, the nurse would press the button to extend the treatment duration.
- For duration extension, a flag would appear for responsive intervention by front count
- Once treatment completes, patient drops tag into the deactivation box. After 10 minutes, it will disassociate and the bed/chair resource is released. This timing supersede the end time of the treatment.