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JOURNAL

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17 ANNUAL CONFERENCE AND EXHIBITION

APR. 2-4 **2019**

PHOENIX CONVENTION CENTER **PHOENIX, ARIZ.**

RFID JOURNAL **LIVE!** 2019

IMPROVING OPERATING ROOM TURNAROUND TIMES

Randy Saad (SaadR1@ah.org)
Director, Perioperative Services
Adventist Health White Memorial

Understanding Room Turnaround

A well-run surgical department is a highly-choreographed dance routine that requires staff, patients and assets to move together in a tightly coordinated manner

ORs account for 30% to 50% of a hospital's expenses and 60% to 70% of its revenues[1].

1 Surgical Solutions, 2019

Adventist Health
White Memorial

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PHOENIX CONVENTION CENTER PHOENIX, ARIZ.
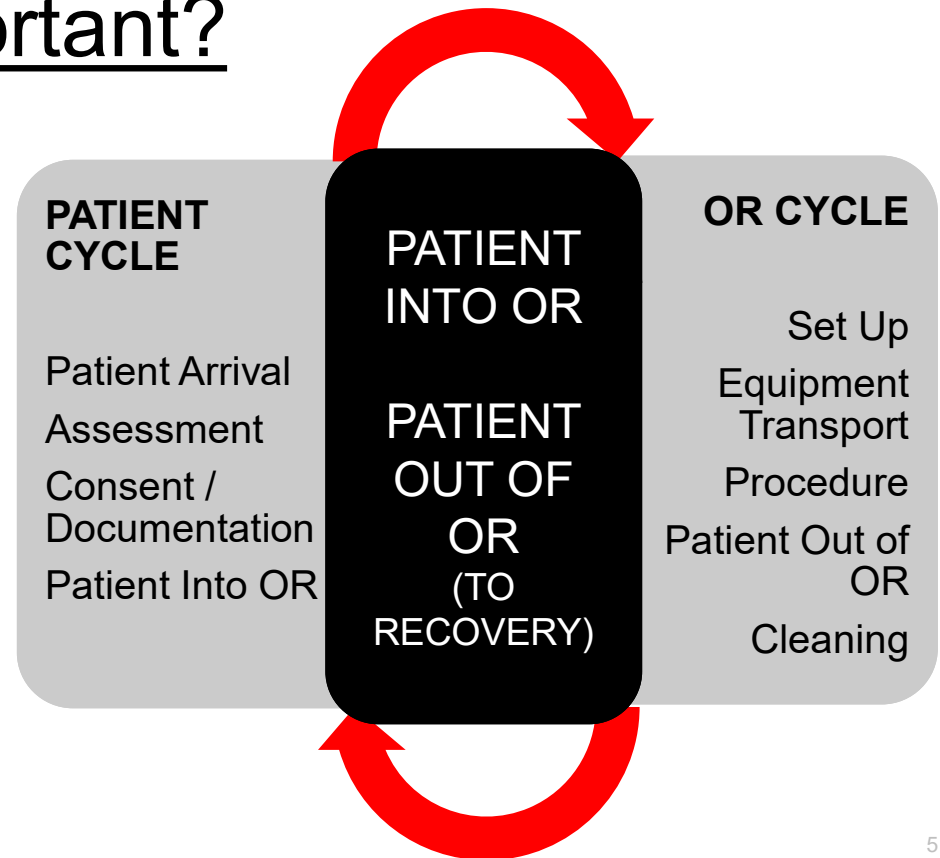
Definition: Room **T**urn**a**round **T**ime (TAT)

Patient out of room to next patient into room (POPI)

- **Critical** operational statistic
- Must balance **efficiency** and **patient safety**
- Improving facilitates optimizing clinician *and* ancillary staff resources, suite utilization & **impacts the bottom line.**

Why is Turnaround Important?

- Industry benchmark reflecting **operational efficiency**

- Goals based on specialty mix, but **average is 25 min** for top quartile

- TAT <25 min reduces costs & increases capacity for additional cases (**revenue**)

PATIENT CYCLE

Patient Arrival

Assessment

Consent / Documentation

Patient Into OR

PATIENT INTO OR

PATIENT OUT OF OR (TO RECOVERY)

OR CYCLE

Set Up

Equipment Transport

Procedure

Patient Out of OR

Cleaning

Room Turnover Challenges at White Memorial

PATIENTS

- ✓ Forgotten or Lost
- ✓ Stalled procedure start times due to unknown location
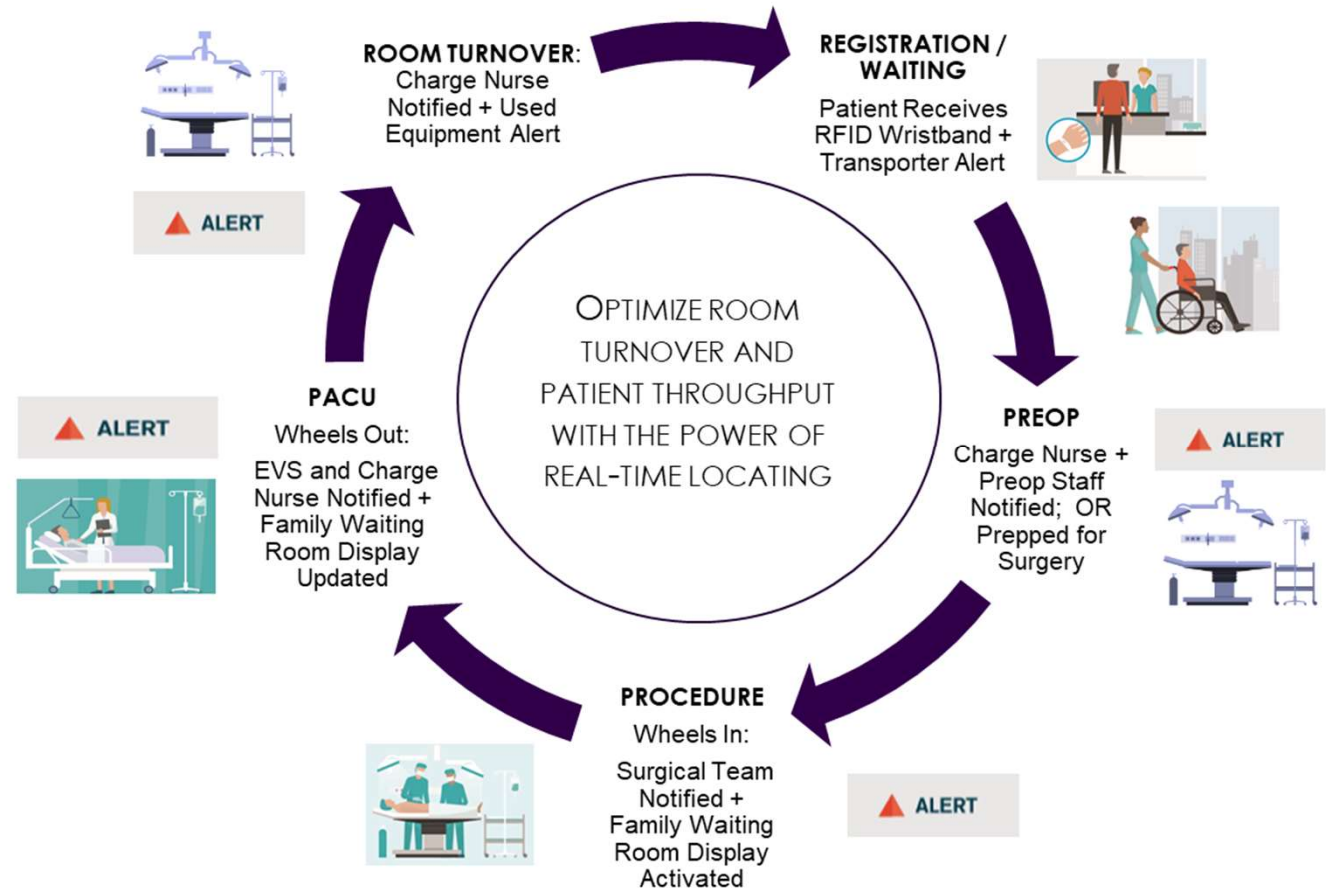- ✓ Extended Pre-op wait times

STAFF

- ✓ Inconsistent Communication
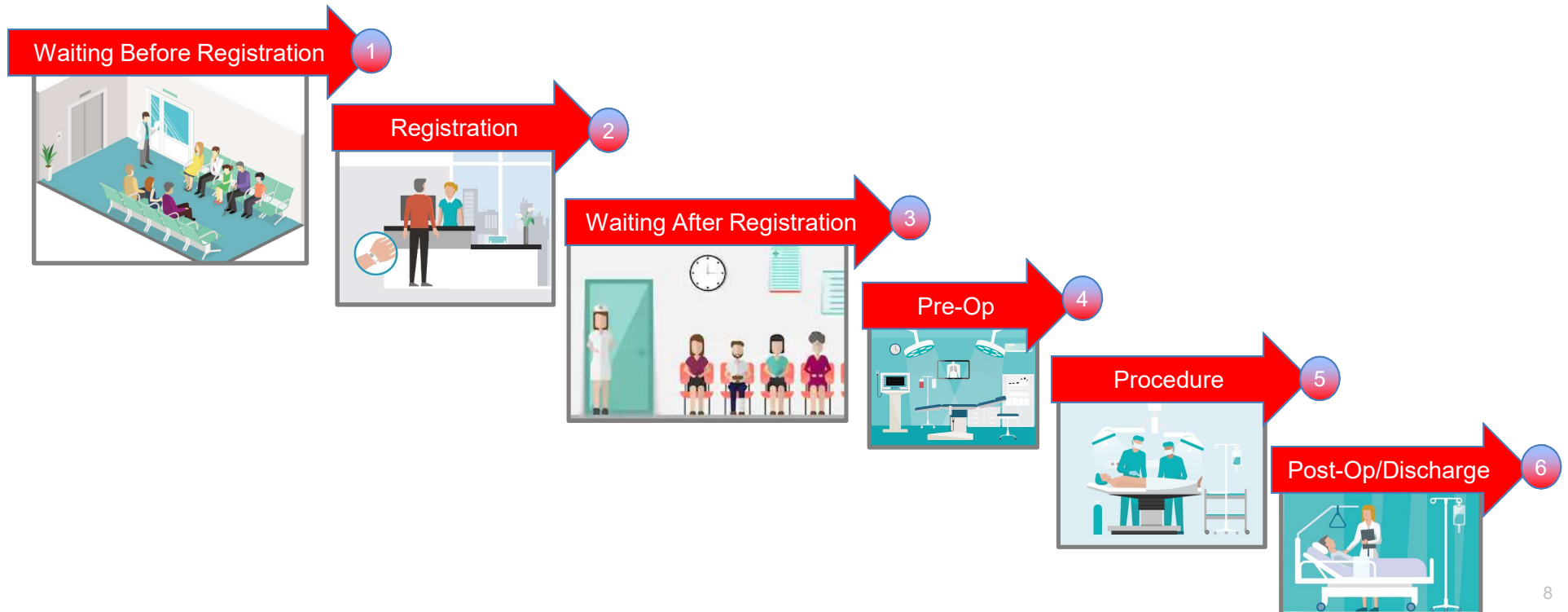- ✓ Lean Resources
- ✓ Unpredictability of shift end

OPERATIONAL

- ✓ Limited OR rooms:6
- ✓ Need to reduce expenses & grow revenues
- ✓ Management lacks accurate data

The Workflow Using RFID

ROOM TURNOVER: Charge Nurse Notified + Used Equipment Alert

⚠ ALERT

REGISTRATION / WAITING
Patient Receives RFID Wristband + Transporter Alert

PREOP
Charge Nurse + Preop Staff Notified; OR Prepped for Surgery

⚠ ALERT

PROCEDURE
Wheels In: Surgical Team Notified + Family Waiting Room Display Activated

⚠ ALERT

PACU
Wheels Out: EVS and Charge Nurse Notified + Family Waiting Room Display Updated

⚠ ALERT

OPTIMIZE ROOM TURNOVER AND PATIENT THROUGHPUT WITH THE POWER OF REAL-TIME LOCATING

OR Workflow at White Memorial

Waiting Before Registration 1

Registration 2

Waiting After Registration 3

Pre-Op 4

Procedure 5

Post-Op/Discharge 6

Obstacles and Delay Factors

- **Underutilized:** Procedure rooms underutilized by 40%
  - Creates significant financial strain (average OR time is $42/min[2])
- **Need to grow:**
  - # of surgeries performed in the US grew by 17% in the last two decades
- **Inefficient use** of staffing hours

2 JAMA Surgery, February 28, 2018

DELAY FACTORS

| Environment	Documentation	Materials	Communication	Manpower	Patient

Benefits of RFID Technology in the OR

- **Track patients** from Registration → Discharge
- **Precisely** identify patients & wait times
- **Tracking screens** for indication of patient status & reduction of phone calls
- **Enable Charge Nurses** to use live feed to make the best decision
- Generate **customized reports**

⚠ ALERT
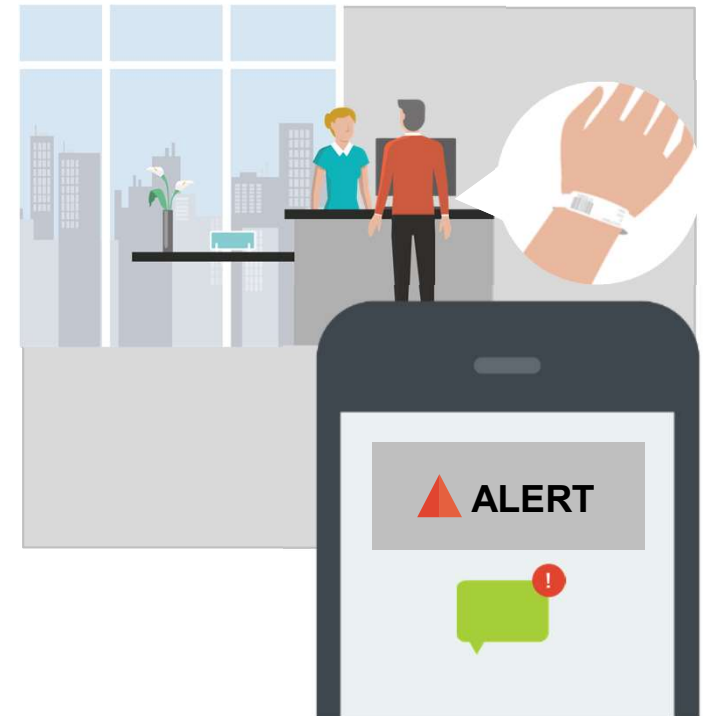
How It Works at Adventist WMMC:

- RFID Patient Tracking & Staff Locating

- Clinical & Ancillary Mobile Communication

- Software tracks and timestamps accurately at each preset location

TAGNOS
ORCHESTRATE EXCELLENCE

Database
Orchestration & Notification Engine
AI / Machine Learning Algorithms

Historical Data

Clinical Systems Integration

Patient, asset and staff tags

Ceiling monitors

Network access points

Real-Time Staff Communication

Family / Visitor Updates

Predictive Data & Reporting Suite

Actionable Data using RFID

Total Time Spent by Date in All (Click on a room name)

| Date	Avg. Bed Turnover Min
August 17, 2018	27 min
August 20, 2018	27 min
August 21, 2018	33 min
August 24, 2018	64 min
August 28, 2018	163 min
August 29, 2018	24 min
August 30, 2018	47 min
September 5, 2018	24 min
September 6, 2018	24 min
September 11, 2018	32 min
September 17, 2018	50 min
September 18, 2018	38 min
September 20, 2018	8 min
October 2, 2018	11 min
October 10, 2018	19 min
October 11, 2018	28 min
October 15, 2018	23 min
October 16, 2018	85 min
October 17, 2018	175 min
October 18, 2018	39 min
October 22, 2018	88 min
October 23, 2018	57 min
October 24, 2018	89 min
October 25, 2018	23 min
October 26, 2018	129 min
October 30, 2018	26 min
November 1, 2018	136 min
November 2, 2018	17 min
November 6, 2018	113 min
November 7, 2018	7 min
November 8, 2018	20 min
November 9, 2018	20 min
November 13, 2018	53 min

- Validation of manual EMR entries
- Chronology of times & phases
- Concurrent view of patient queue
- Continuous communication
- Reports: TAT, response times in TA, trends by job title, day of week, shift, and person
- Improved decision-making to reduce delays

Fueling Mobile Communication

- **Instantaneous feed** from TAGNOS
- Key Users: Charge & Staff RN, Anesthesia Tech, Housekeeping staff (EVS)
- **Alerts to phone** as patient enters / exits room
- **Communication is automatic**, not requiring phone call or text
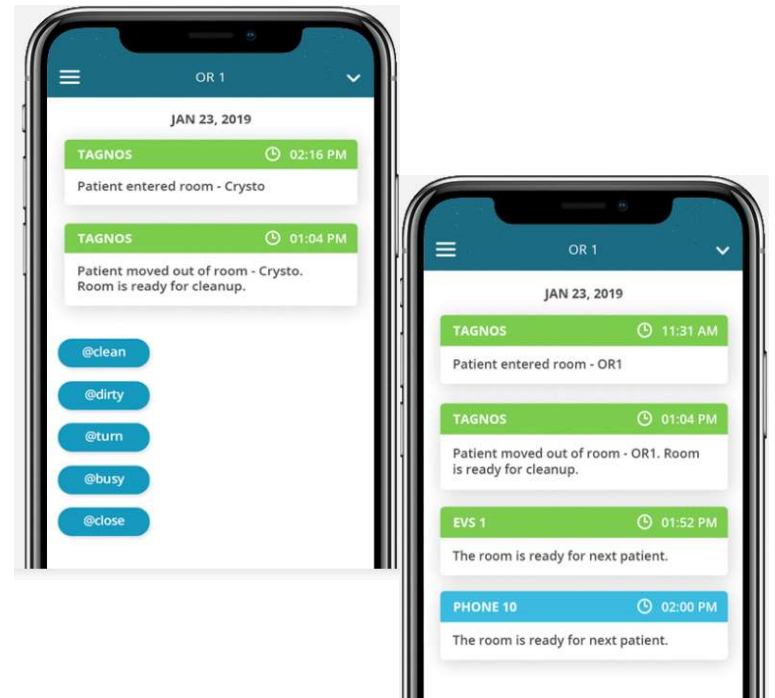
Significant Results

- Overall TAT for OR **decreased** from 28.0 to 25.3 (9.7%)
- Improvements in housekeeping staff response time into room: **decreased** <104 seconds, 61% in room at Patient Out
- Anesthesia Tech response time **increased** from 60% to 80%
- Added Turnaround Technician with TAGNOS phone to facilitate setup and additional support during turnaround

ASSUMING TURNAROUND TIME REDUCED BY 3 MINUTES
5 room turnarounds/day x 3 minute reduction x 6 operating rooms = 90 minutes/day
22 working days/month x 12 months x or 264 days
Using $41 per minute means (90 x 264 x 41) =
$974,160 estimated annual savings from use of TAGNOS to improve room turnaround

Future of RFID at WMMC

- **Add** additional **departmental usage** (BioMed, Anesthesia)
- **Leverage AI/Machine Learning** for Case Length Predictions & equipment readiness
- **Measure** patient & staff **response times** before <u>and</u> during turnaround
- **Reduce** overall **length of stay** to create capacity in Preop, OR, and PACU.
- **Create** effortless, live **communication** between Preop and OR Registered Nurses

Final Thoughts

- Provides **Holistic View** of Patient, Staff & Equipment Movements to Develop Steps Towards **Sustained Improvements** & Ultimately the Improvement of **Patient Satisfaction**

- RFID in the OR setting allows management & care delivery teams to focus on **driving change** and **improving outcomes** to maintain compliance

THANK YOU

2019

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