OR Charge Capture Process Optimization

- Session 313, Friday, February15, 2019, Rajesh Selvanathan, Senior Manager, Clinical Application, IT - Cleveland Clinic Abu Dhabi

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Conflict of Interest

Rajesh Selvanathan, M.D

Has no real or apparent conflicts of interest to report.

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Agenda

- Who we are (Cleveland Clinic Abu Dhabi)
- Overview of OR Charge Process at CCAD
- Problem statement, Project Plan & Governance Process
- Root Cause Analysis & Solution design
- Monitoring our progress
- Measuring our Success
- Lessons learnt
- Action plan for continuous improvement
- Questions

Learning Objectives

- Technology, people and process optimization.
- Leverage operational workflows through IT System enhancements
- Robust Training plan.
- Essence of a transition plan
- Stakeholders engagement and accountability
- Fostering a culture of open communication

Who We Are

MUBADALA

Cleveland Clinic

- Set up the first US Multispecialty Hospital Outside North America
- Cultivating a Sustainable Healthcare System
- Supporting the Development of Emiratis in Healthcare

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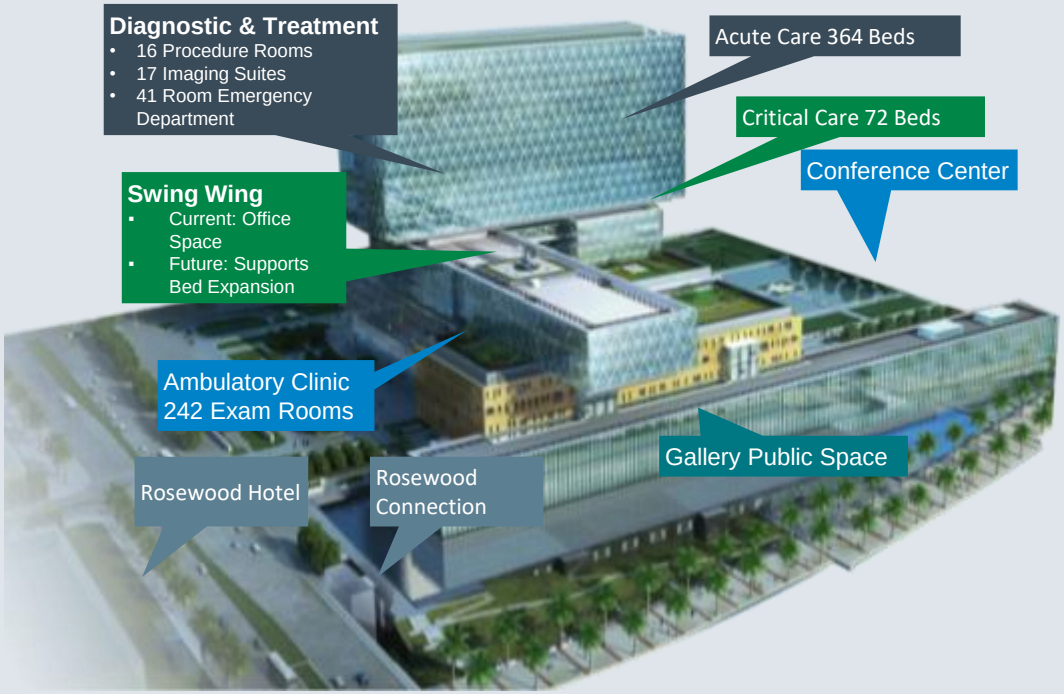
A Purpose-Built Medical Campus



- **409,234 m2 total gross area on a 23 acre site**
- **364 beds scalable to 496 beds**
- **26 Operating Rooms**
- **1st LEED Gold certified hospital in the GCC**

OR Charge Process: Overview

Lawson Inventory management

Material Mgt. Interface

Epic OpTime module

Procedure ordered

Preference Card assigned

Supplies pick list for day of surgery

OR documentation done by nursing, Surgeon and Anesthesia on OR log including charging elements

OR Inventory Location

Supplies/Implants picked for Surgery

All Surgical charges including room, procedure, supply/implants, Anesthesia, medication etc.. Are verified by the OR charge nurse

Surgical Log is posted and this drops the charges to the Epic HB module

Charges reviewed/modified by the RI and coding team and claim is processed.

Local Problem

Issues:

74% of OR case logs were not posted in under 30 days in the first nine months of opening, resulting in a potential loss of revenue up to 70%

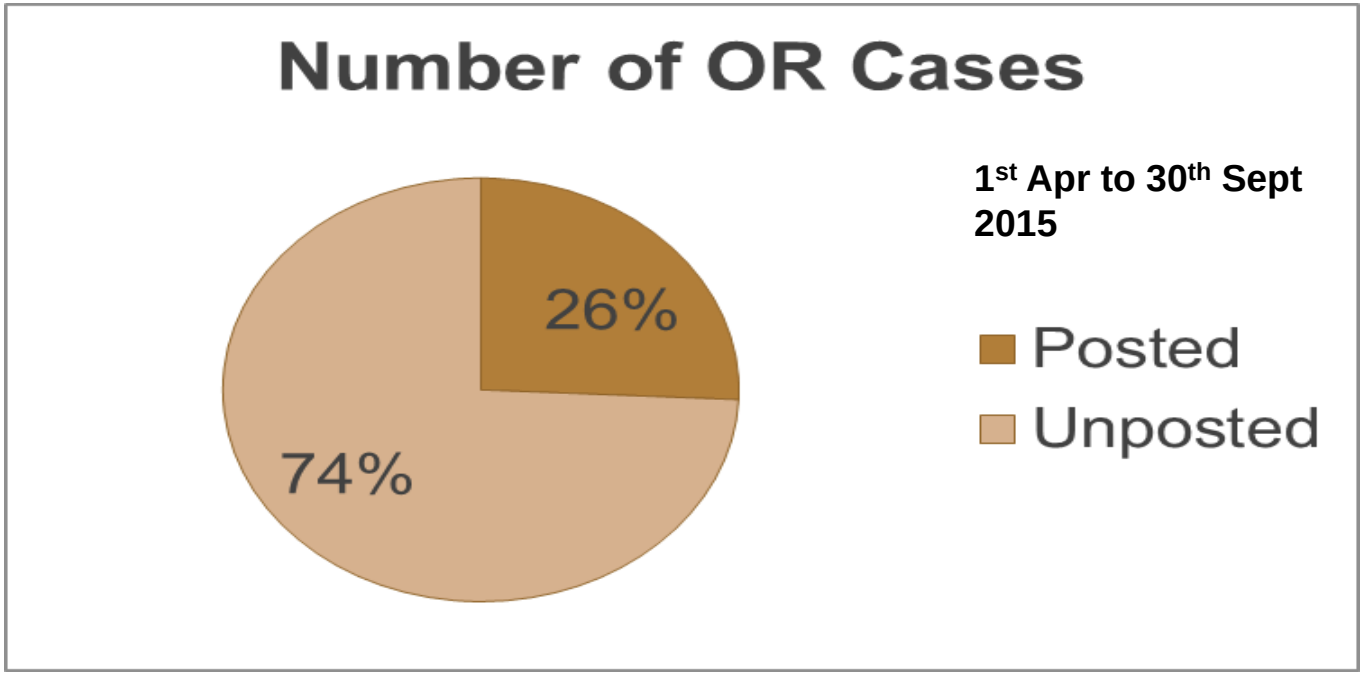
Impact:

Potential loss of revenue up to 70%

Negative patient experience due to not being able to produce a final bill

Inefficient process causing waste of both supplies and personnel utilization

Overview of Open OR Cases



Project Goals & Objectives

Primary Objective: Eliminate root causes for delay in log posting and reduce percentage of open logs from > 70% to < 5% within a year

Other Objectives:

- Reduce turnaround time for log posting from average 36 days to < 2 days
- Develop an integrated OR Technical Charging process, to allow for effective charge capturing/claim submission for revenue reimbursement
- Implement effective monitoring mechanisms

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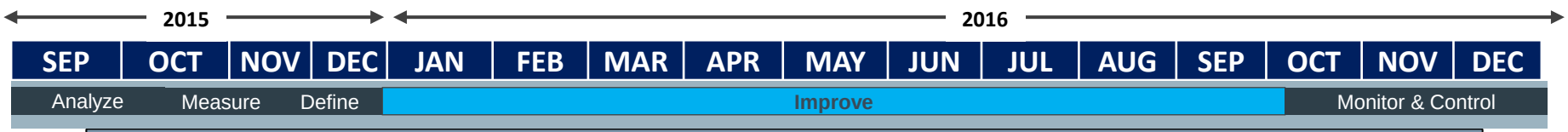
Project Plan



Analyze, Measure, Define

- Formation of Project team under guidance of Steering committee.
- Establish Operational and Clinical governance structure and process
- Analyzing workflows.
- Understanding Industry best practices
- Identifying problem areas and root causes
- Define Problem statement and develop action plan to address root causes

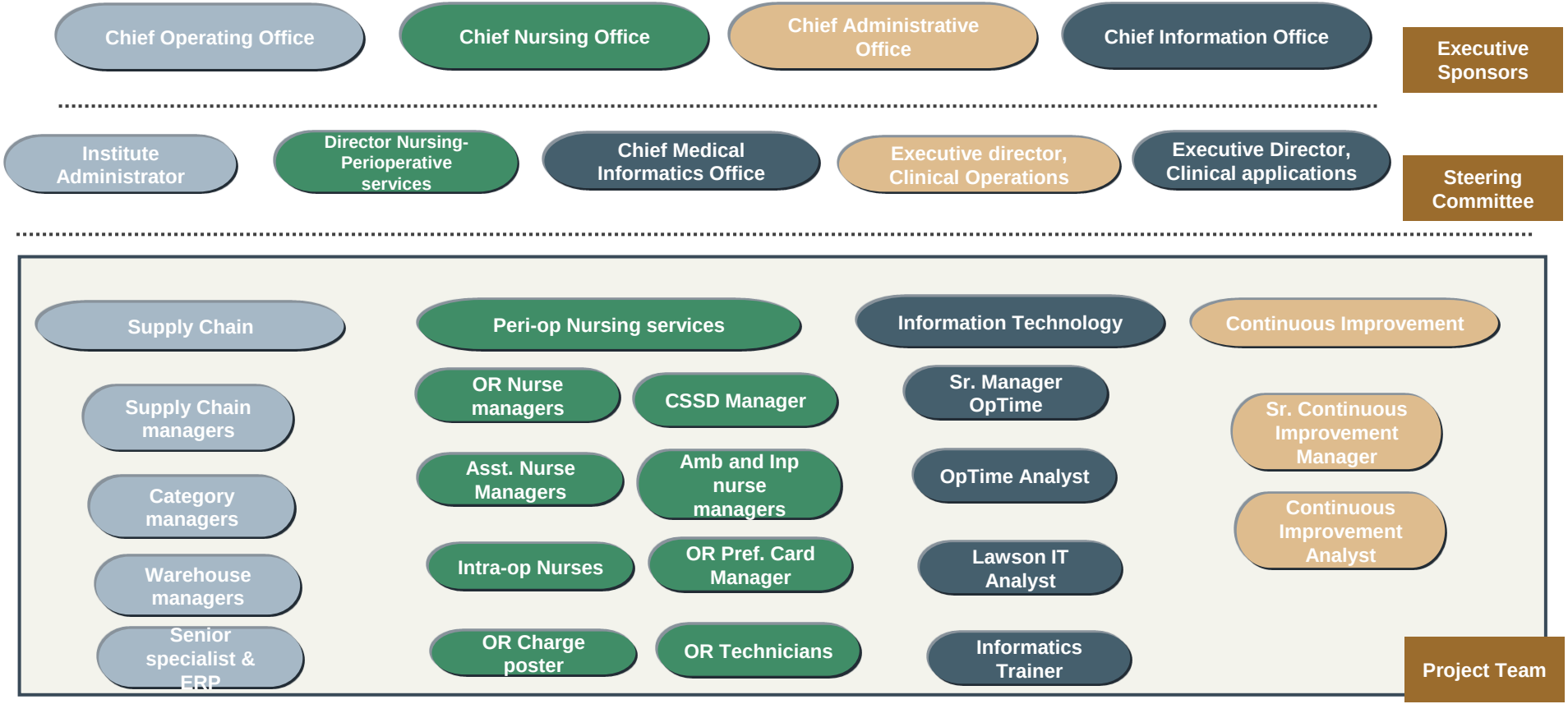
Design and Implement

- Implement Action plan to resolve root cause
- Solution designing
- Workflow optimization, process mapping improvements
- Implement operational process changes
- IT changes, Training & Deployment in production

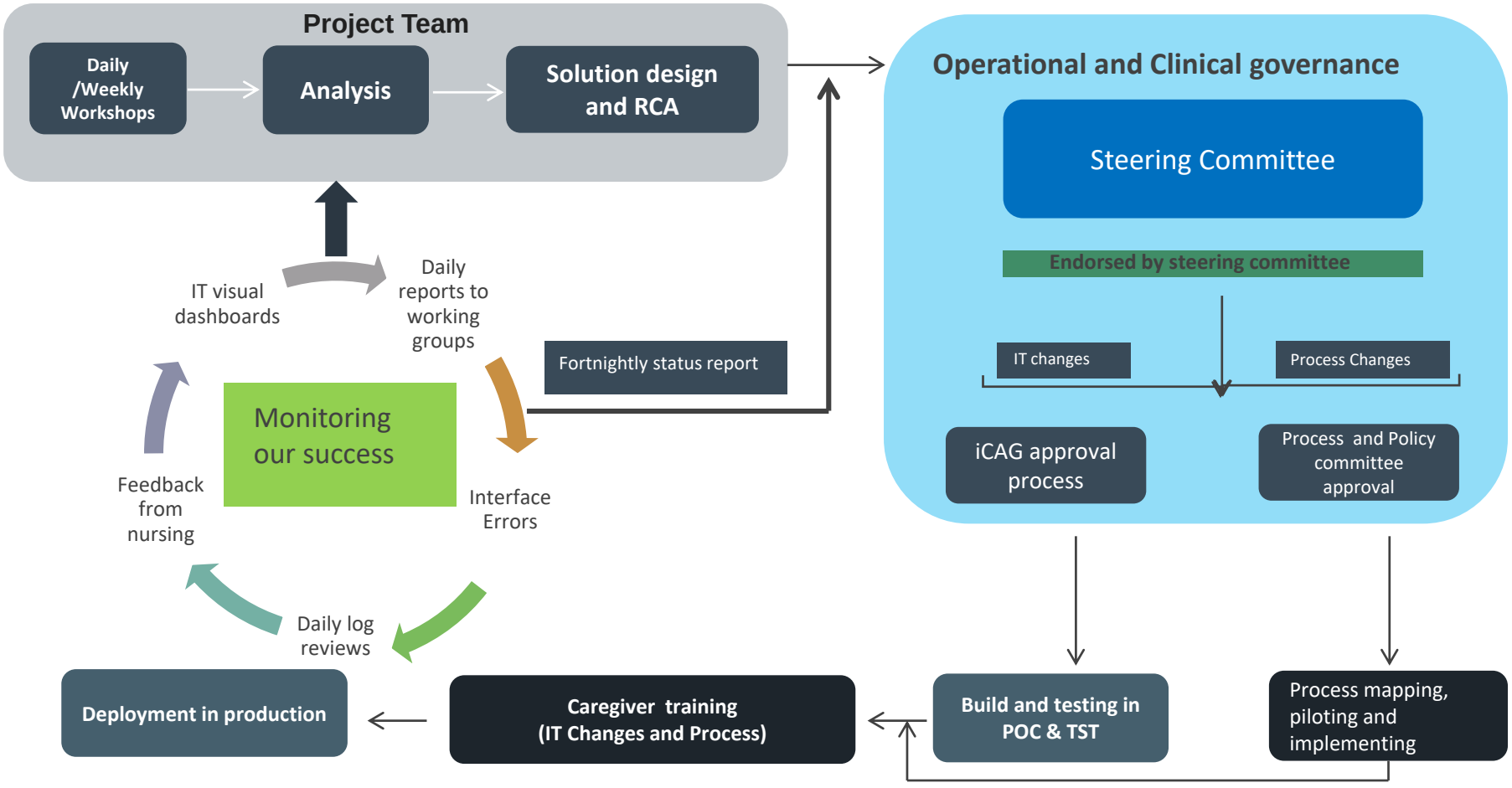
Monitor and Control

- Daily monitoring of progress through reports and caregiver feedback
- Evaluate enhancement requests, follow change process and deploy changes

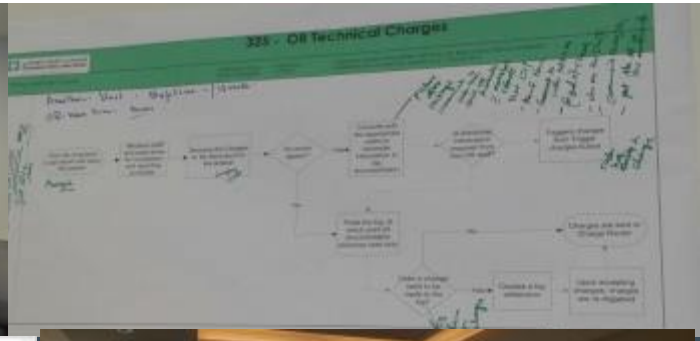
Project Sponsors and Team



Project Governance



Analyze, Define and Measure

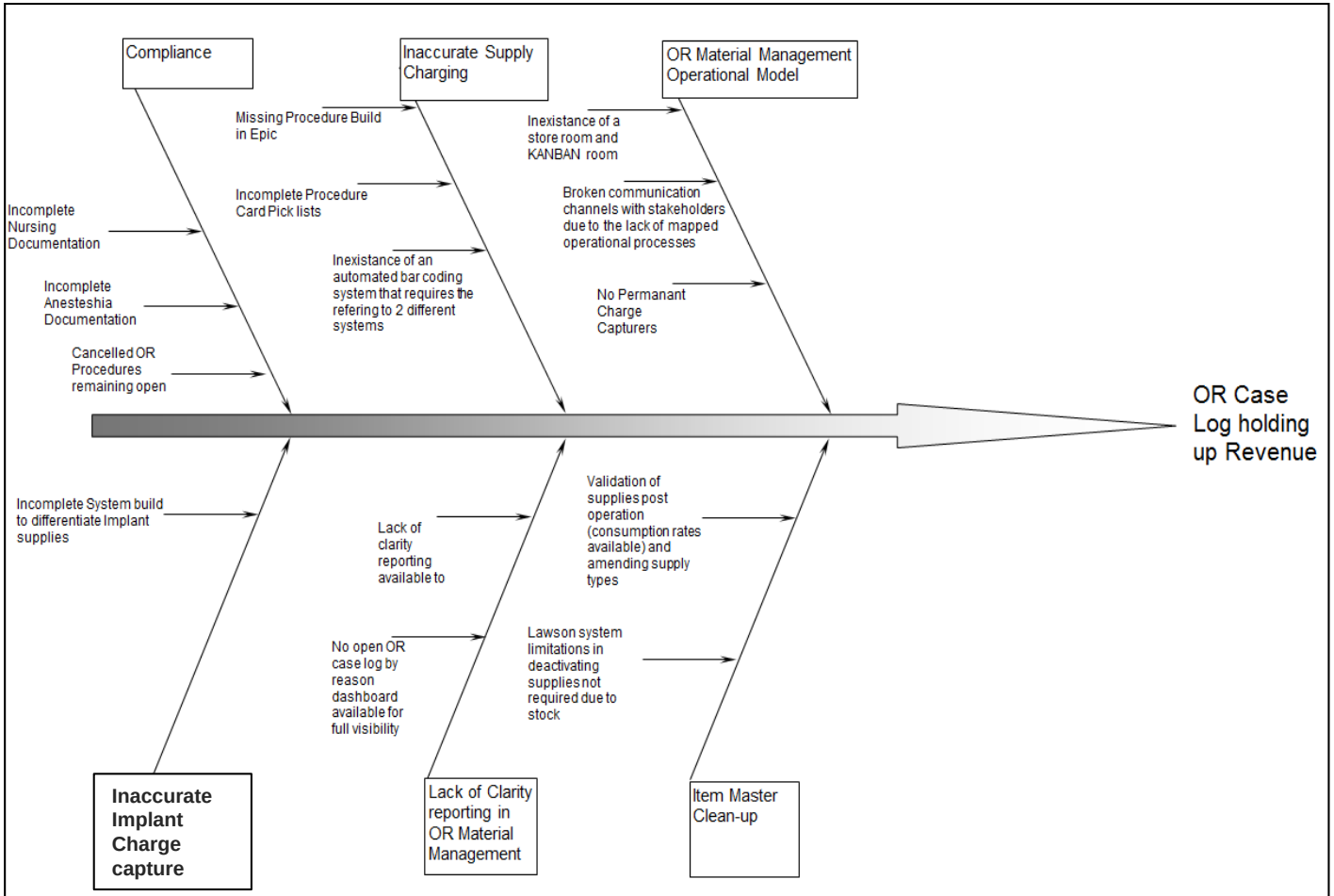


Supplies

Panel 1 Combined Pick List

Inv Loc	Bin Loc	Lesion ID	Item Name	Open	PRN
NS001		15965	WIPE INSTRUMENT WIPE	1	0
NS001		41778	VISCOT SKIN MARKER 20 COLOR MEDICATION KIT STERILE WITH DUAL TIP WATERPROOF PERMANENT MARKER & RULER	1	0
NS001		44829	VICRYL 6 DOUBLE ARMED S29 NEEDLE 38CM	1	1
NS001		16359	TRAY SURGICAL PREP PVP IODINE WET PREP PAINT STICK SCRUB CARE LATEX FREE STERILE	1	0
Comments: Dilute half and half with sterile water/saline					
NS001		19525	SYRINGE 3-PIECE 10 ML LUER LOK - CONCENTRIC WITH 62 ML SCALE	1	1
NS001		19510	SWABS ALCOHOL 70% ISOPROPYL 2PLY	0	0
NS001		26116	STERILE WATER IRRIGATION USP POUR BOTTLE 250ML	1	0
NS001		16301	SPONGES STERILE FOR DRAIN OR IV 10CM X 10CM GAZIN	10	2

High level Root Cause Analysis



Prioritizing Root Causes

- From our analysis session, it was evident that IT intervention and process optimization was needed to fix existing issues
- Top Root Causes:
  - Zero cost items (Supplies and Implants)
  - Items without HCPCS codes
  - Items which were not bought at CCAD were available for documentation (Free of cost, or bought by bypassing our Supply chain)
  - Incomplete or incorrect Preference cards
  - Supply categorization
  - Cancelled logs due to early opening of logs even before patient arrived in hospital
  - Open Anesthesia encounter or incomplete documentation

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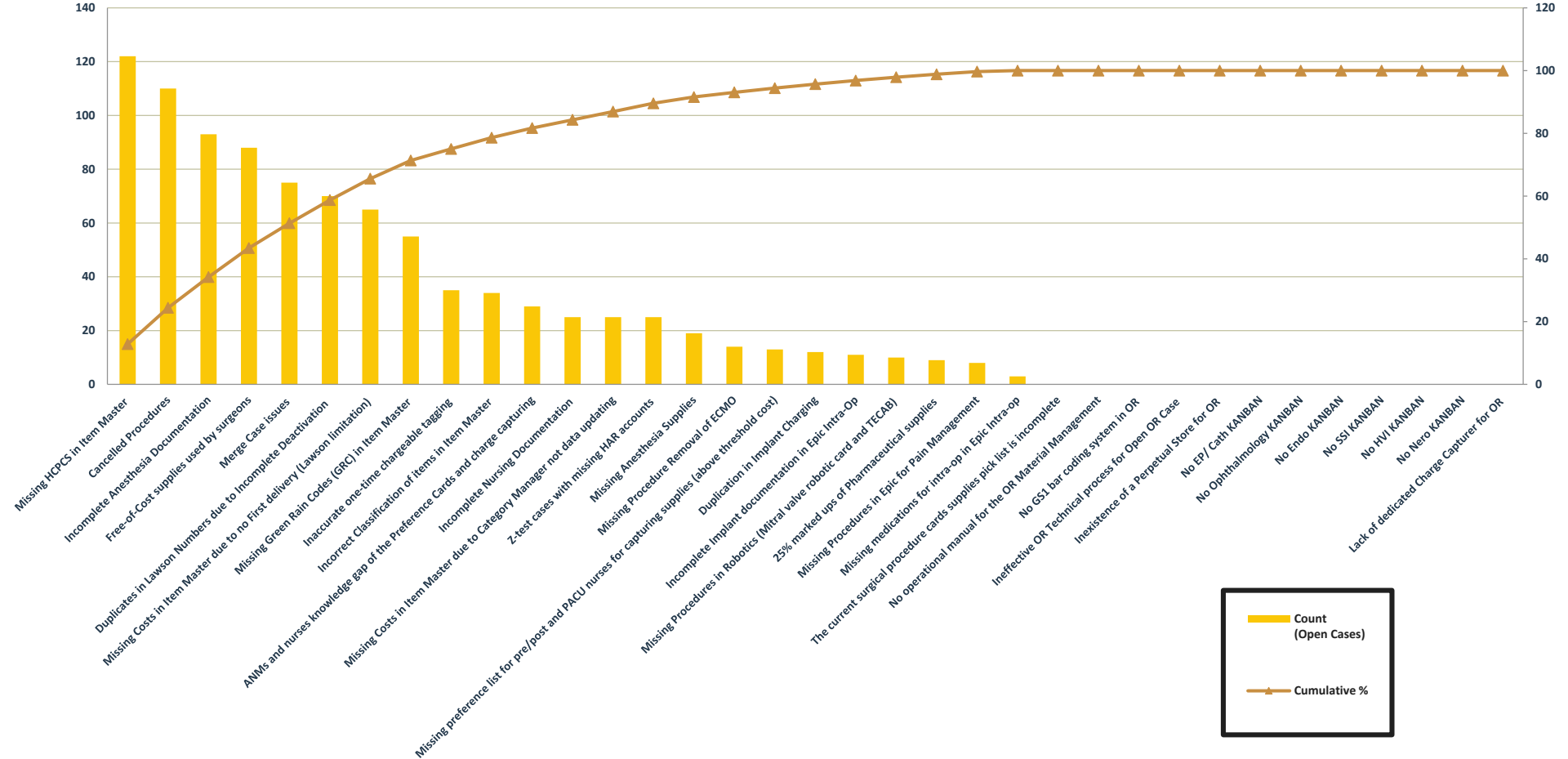
Analysis: Detailed Pareto chart showing 35 different root causes



Measure & Define: Baseline Data

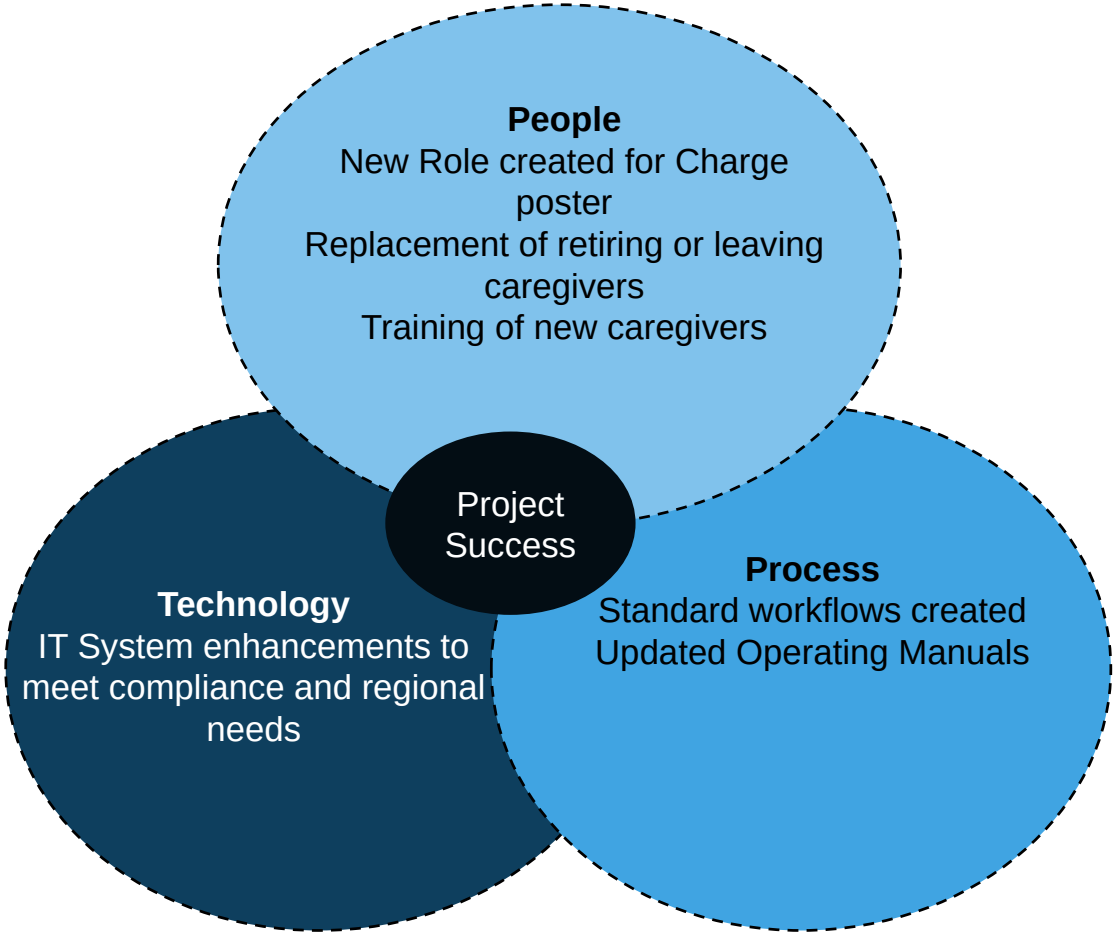
Key metrics captured as baseline data at the start of project (Oct 2015):

- Average Turnaround time for Log posting – **36 days**
- Potential uncharged revenue up to 70%
- Total unposted cases - **1166/1570**

Improve: Action Plan

- Dedicated time was slotted across all required teams for better traction
- Workgroup meetings were conducted every week with follow-up actions for each teams clearly identified
- Defined timelines for tasks and strict adherence to governance process followed
- Coordination of interdependent tasks with specific leads assigned
- Each team needed to provide updates on the tasks In Progress & Completed
- Centralized tracker for all open action items and status updates for visibility followed
- When required, smaller task forces were formed and action items were assigned
- Fortnightly updates to steering committee provided on progress

Solution Design Plan



People - Improvements

Opportunities	Solutions	Impact
No existing charge poster – was done by OR Manager	New position created and caregiver hired for charge posting	Faster and accurate posting of logs
Stewardship and succession planning across all functions	Create culture that incorporates cross development of staff to act as backups for all key functions	Better prepared to overcome challenges faced by key people leaving

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Technology - Lawson IT system improvements

Opportunities	Fix	Impact
Missing HCPCS code	Revenue Integrity team generated HCPCS codes for all items missing them (6816 items) Report sent out weekly to revenue integrity from Epic to monitor missing HCPCS codes	Claims were no longer rejected on basis of missing HCPCS codes
Zero cost and Inactive items available in Epic	Lawson - Epic interface enhanced to stop Inactive and zero cost items being sent over to Epic on nightly basis	Claims no longer rejected on basis of inactive or zero cost items Supply chain ensured alignment with system list
Items turning zero cost after stock reaches zero	System patch applied in Lawson to stop this from happening	Items no longer with zero cost for stock zero
Pharmaceutical supplies missing “GRC codes” required for billing purpose	GRC codes updated in system	Pharmaceutical items included in claims
Categorization of items into Supplies and Implants	Review committee formed led by the Nursing manager to differentiate ‘Implants’ (Prefix IM given in type in system) from ‘Supplies’	Meet documentation compliance to ensure requirements for claims submission

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Technology – Epic Improvements (1)

Opportunities	Fix	Impact
Incorrect or Incomplete Preference Card	Updated 'supplies pick list' in preference cards for surgical specialties Missing medications for intra-op identified and built in Epic	Easier, faster and more complete documentation of items
Cancelled cases for No shows	Hard Stop built to eliminate opening of Cases by the OR Nurses prior to the arrival of patients	No opened logs for cases in error prior to patient arrival
Missing Procedure Cards	New 73 procedure cards built	Easier, faster and more complete documentation of items
Missing Procedures and CPT codes	27 new procedures built with associated CPT codes	Correct charging and coding for procedures performed
Incomplete Anesthesia documentation	Inbasket messaging to Anesthesiologists for open encounters Report sent out to Chiefs for Open encounters	Prompt for documentation completion and faster turnaround for Billing with complete documentation
Ambiguity of supply location while picking supplies	Added the location column to pick list report for easier picking	Accurate and efficient picking of supplies for day of surgery

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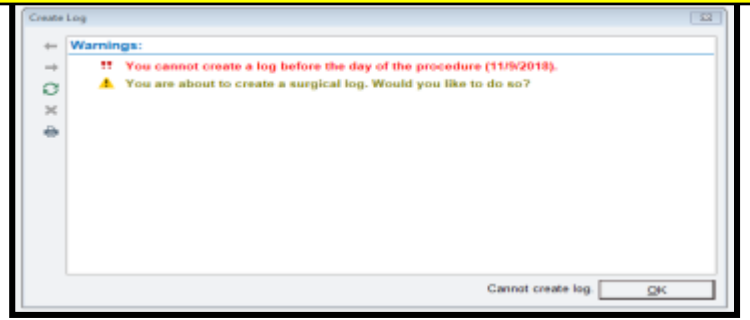
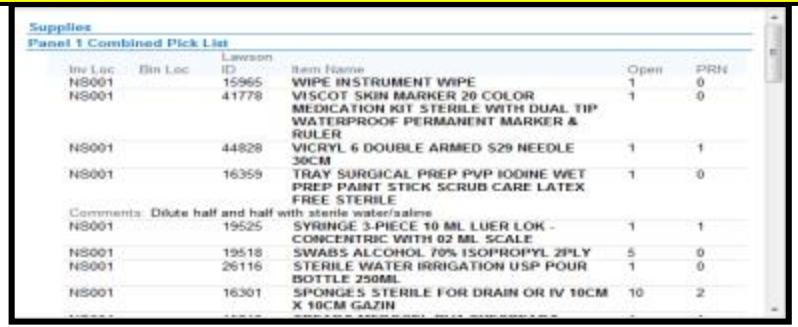
Technology – Epic Improvements (2)

Procedure card updated to reflect all supplies required.

Log opening warning to prevent nurses from opening logs before patient arrival.



Inventory Location added to pick list for accuracy and convenience



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People - Training

Opportunities	Fix	Impact
Training for the new role of OR charge poster and existing/new Peri-op nurses	Identified and defined new workflows as per scope of practice	Trained OR charge posters to review surgical charges and Peri-op nurses to document surgical charges appropriately
Current system improvements not reflected in Epic training environment for Peri-op nurses and Anesthesiologists	Epic changes in relation to project reflected in existing Epic training material	Up to date training material ensure knowledge base for processes and functionality

Process Improvements - General

Opportunities	Fix	Impact
No Operating Manuals for Material Managements	Developed operating manual for OR Material Management, establishing strong communication channels	Clear and defined process published for new and existing caregivers
No workflow for Intra-op nurse to add/substitute item in Preference card	New workflow designed for Intra-op nurse to request changes in Preference card from Intra-op navigator	Process improvements through easier addition of items to Preference cards
Substitute items enable Procedure cards	Nurse Managers trained on Process for Global substitution of supplies charge capture	Easier and complete substitution of items across specialties
Communication	Vocera/email group optimization with supply chain member and OR technicians mapped to peri-op service area	Easier and defined communication channels

Process Improvements – Material Management

Opportunities	Fix	Impact
Variances in Inventory (Physical vs System)	Cleared back-log related invoices worth 2.5 million Implemented a continuous cycle count process for OR inventory and a returned supplies process	Balancing of books Helped understand usage and return of stocks
Manual inventory depletion from Lawson leading to delay and incorrect counts	Implemented auto-depletion interface from Epic to Lawson for accurate stock inventory	Faster and more accurate count matching at end of day
OR inventory and supply chain location	Set-up specialized OR KANBANs and a two bin Perpetual store to segregate the supplies > AED183	Ensured supplies are readily available and issued by distribution center with required labels essential for charge capture
Process gaps in consignment, free of charge and management of sample supplies	Addressed process gaps by developing policies	Accurate capture of charges for these supplies

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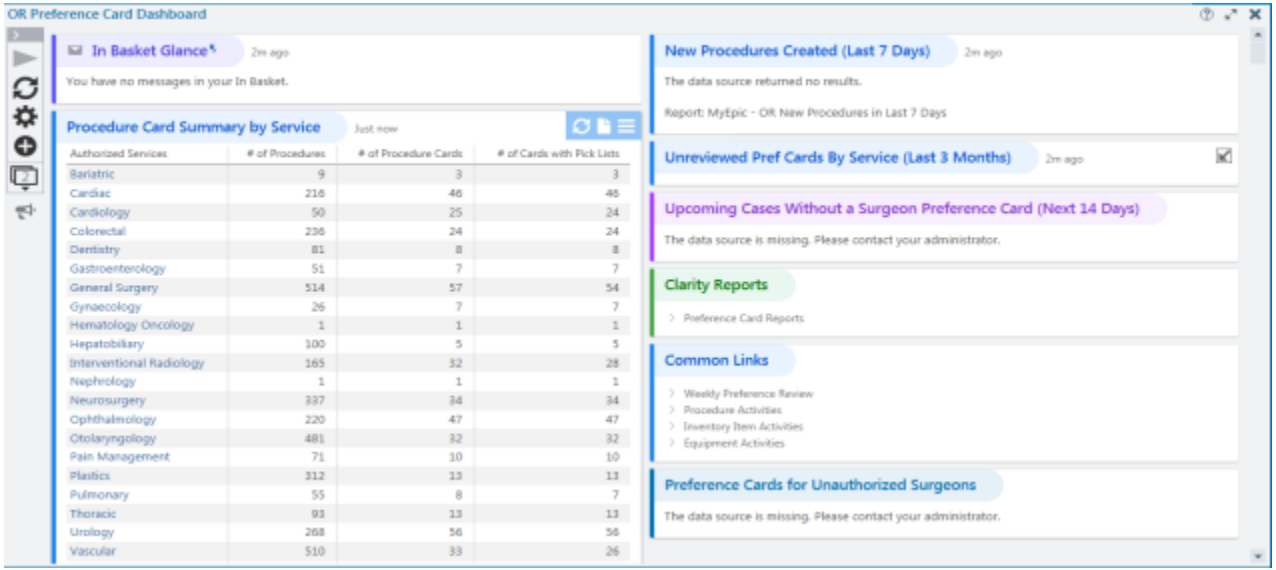
Monitoring Progress Towards Success

- New Dashboards within Epic for preference card management and update tracking
- A weekly report to look for zero cost items and ones with missing HCPCS
- A Tableau dashboard to monitor Open cases and root causes

Monitoring Progress Towards Success

- New Dashboards within Epic for preference card management and update tracking
  - To ensure regular review and updating supplies



Monitoring Progress Towards Success

- Tableau Dashboard, providing a holistic view of:
  - Posted vs Unposted cases with revenue per surgical service
  - Cause of the unposted cases

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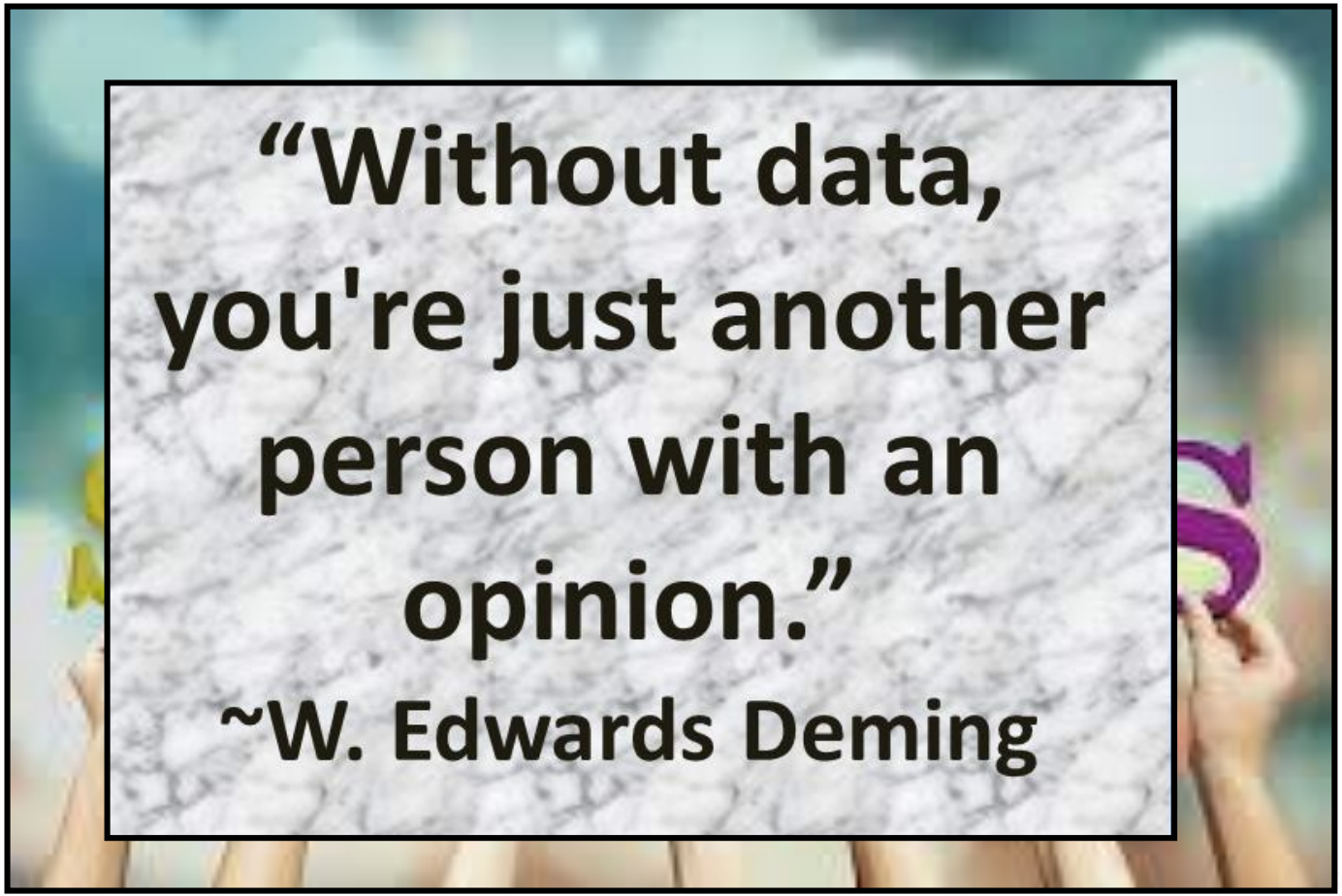
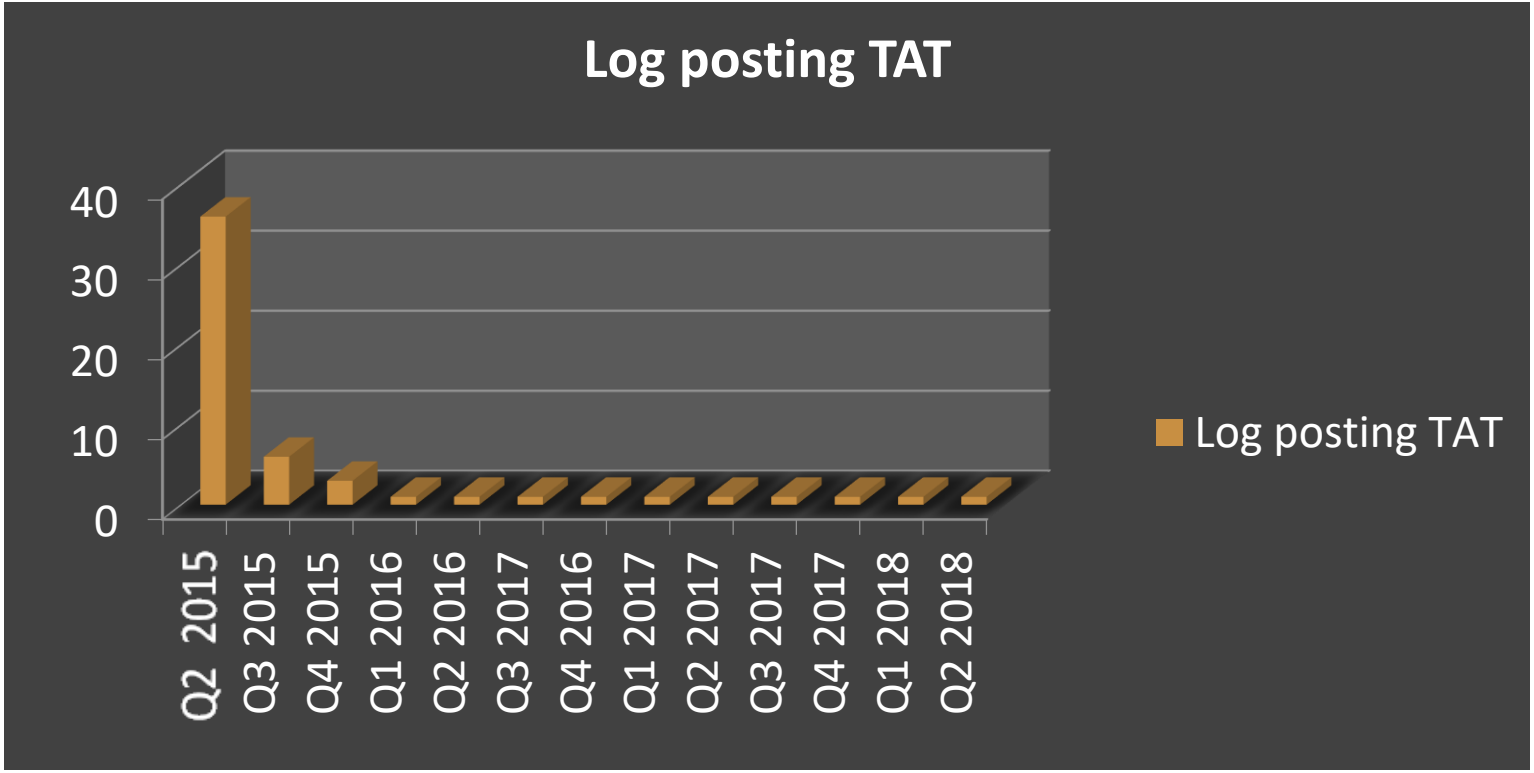
Measuring our Success

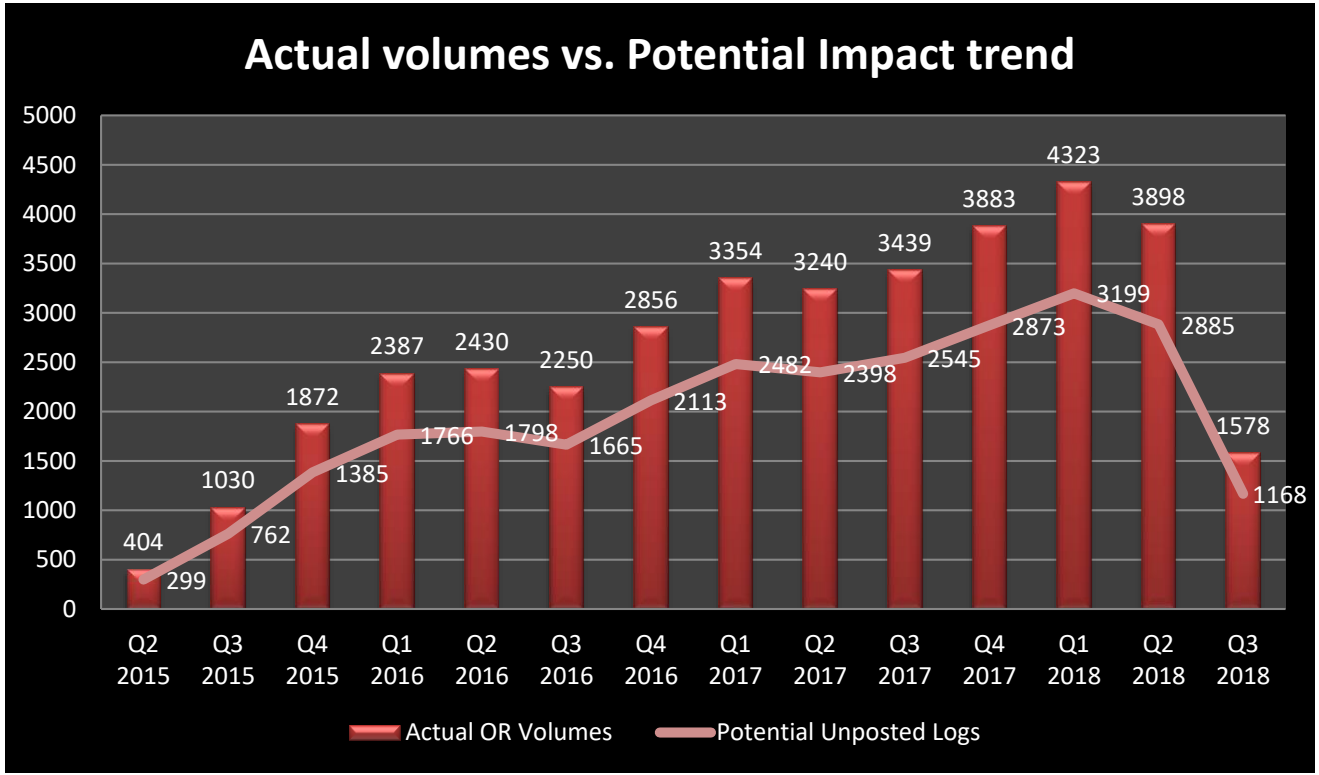


Value Derived – Turnaround Time for Log Posting

- The Log posting turnaround went down from average 36 days to 1 day (excluding weekends and holidays)

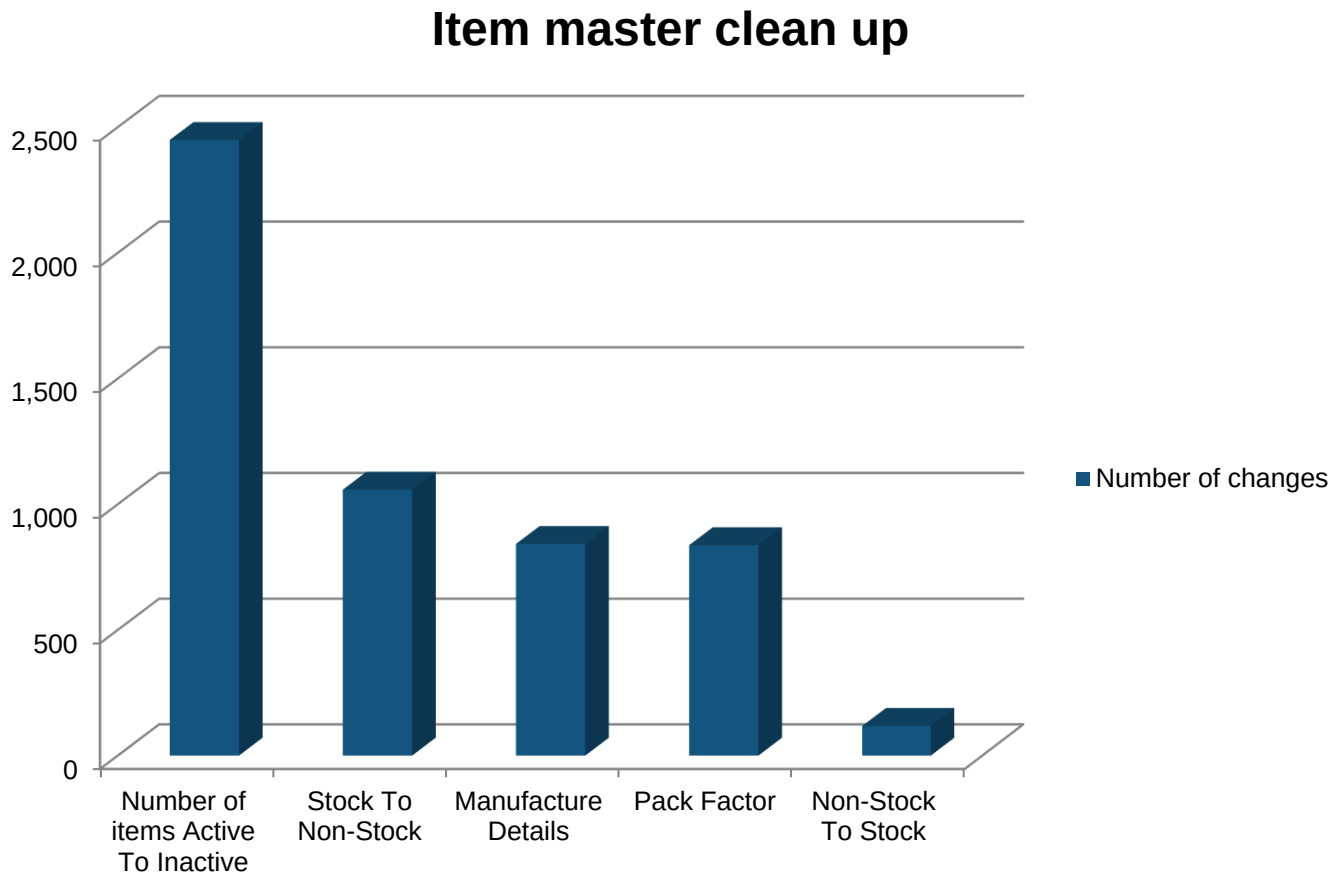


Volume of OR Cases - Actual Volumes per Quarter 2015-2018



This graph shows the growing OR volumes overtime and the potential magnitude of unposted logs if IT interventions were not implemented

Item Master Clean Up



Overall Improvements

- Reduced the charge posting time
- System Integration optimized
- Material Master list clean-up completed
- Procedure card reviewed
- New Role for Peri-op coder was recruited.
- Allowed us to increase surgical volumes

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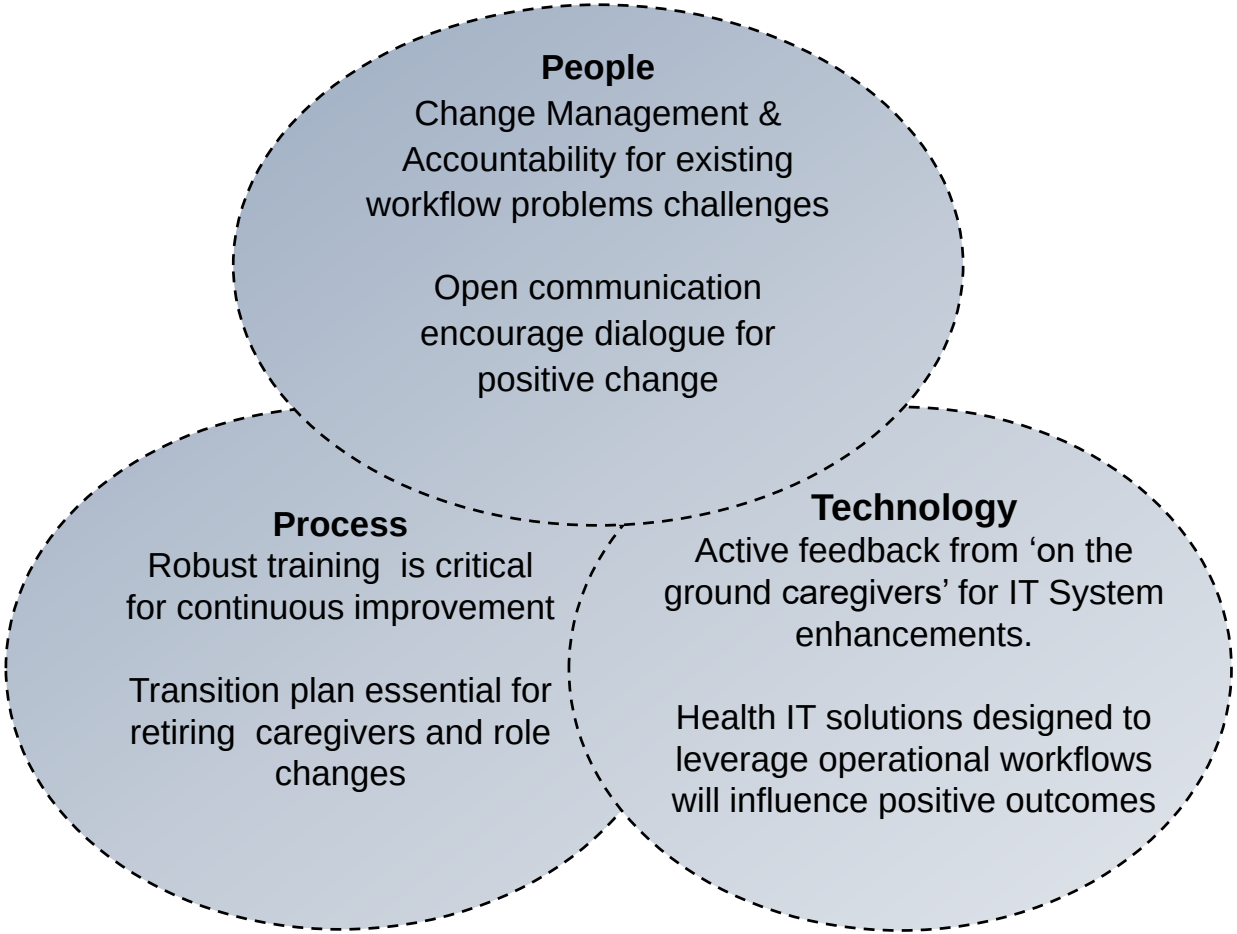
Lessons Learned



Action Plan for Continuous Improvement

- 2 way integration between Lawson and Epic
- Pilot implementation of GS1 barcoded supplies and Implants
- Epic build for Implant sets
- Epic and OR Nursing Managers continue effort of bundling procedure cards to minimize return of supplies as the pick lists will be more relevant
- Activate ‘Replace/Substitute’ functionality in Lawson.

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Summary Recap

- **Problem Statement:** Recurring existence of unposted OR cases being more than 70%, primarily due to the long turnaround time for log posting that impact timely reimbursement for cases performed

- **Solution Design and Implementation:** System enhancements in Epic and Lawson, in addition to process changes and training opportunities

- **Result:**
  - Reduced turnaround time for log posting
  - Significantly reduced unposted OR cases by >60%
  - Improved revenue growth related to OR cases.

Project Team Members

Name	Discipline	Title	Department
Inas AlKhatib	Continuous Improvement	Sr. Continuous Improvement Manager	Executive Administration
Betty Kho	Clinical and Nursing	Nurse Manager, OR	Clinical and Nursing
Cherrysse Downton	Clinical and Nursing	Nurse Manager, OR	Clinical and Nursing
Edith Jonkman	Clinical and Nursing	Assistant Nurse Manager, Periop	Clinical and Nursing
Michelle Park	Clinical and Nursing	Assistant Nurse Manager, Periop	Clinical and Nursing
Darren Parry	Clinical and Nursing	Sr. Nurse Manager, OR	Clinical and Nursing
Judy Pearce	Clinical and Nursing	Executive Clinical Director, Acute and Critical Care	Clinical and Nursing
Marie Murray	Clinical and Nursing	Executive Clinical Director, Acute Care	Clinical and Nursing
Maria Magat	Clinical and Nursing	Staff Nurse, Perioperative Coder Coordinator	Clinical and Nursing
Margaret Hartman	Clinical and Nursing	OR Business Manager	Clinical and Nursing
Juliet Rocha	Clinical and Nursing	Manager, EP Lab/Cath intervention	Clinical and Nursing
Jennifer Loucks	Clinical and Nursing	Staff Nurse, OR	Clinical and Nursing
Jennifer Loucks	Clinical and Nursing	Staff Nurse, OR	Clinical and Nursing
Linda Greaney	Clinical and Nursing	Staff Nurse, OR	Clinical and Nursing
Paula Sheena Paguia	Clinical and Nursing	Staff Nurse, Ambulatory	Clinical and Nursing
Maryam Abdi	Clinical and Nursing	Sr. Health Unit Coordinator, Ambulatory	Clinical and Nursing
Jeffrey Larson	Clinical and Nursing	EP Lab, Cath Intervention Technician	Clinical and Nursing
Carrie A Richardson	Clinical and Nursing	Nurse Manager, Endoscopy/Procedures	Clinical and Nursing
Jurate Hegarty	Clinical and Nursing	Assistant Nurse Manager, Periop	Clinical and Nursing
Sheila Ann Burns	Clinical and Nursing	Senior Manager, Case Management	Clinical and Nursing
Kelley Thornton	Clinical and Nursing	Assistant Nurse Manager, PACU/prep	Clinical and Nursing
Cynthia Edgelow	Clinical and Nursing	Nurse Manager, Ambulatory	Clinical and Nursing
Rachel Rowson	Clinical and Nursing	Nurse Manager, Acute Care	Clinical and Nursing
Diane Powell	Clinical and Nursing	Nurse Manager, PACU	Clinical and Nursing
Nuno Raposo	Clinical and Nursing	Perfusionist, Clinical and Nursing	Clinical and Nursing
Lea Melo	Clinical and Nursing	Health Unit Coordinator, Critical Care	Clinical and Nursing
Vivienne Breault	Clinical and Nursing	Perioperative Staff Nurse	Clinical and Nursing
Ralph Jean Mary	Medical	Institute, Department Administrator, Medical	Medical
Dee Eadie	Medical	Institute, Department Administrator, Medical	Medical
Roba Ghanayem	Medical	Institute, Department Administrator, Medical	Medical
Basheer Veleri	Medical	Operating Room Tech	Medical
Jason Unger	Medical	Manager, Sterile Processing	Medical

Project Team Members

Name	Discipline	Title	Department
Ela Gredig	Medical	Inventory Processor, Operations	Medical
Madeleine Mabini	Medical	Surgical Coordinator, Medical	Medical
Marwan Atrouni	Medical	Physician	Medical
Melissa LiNg	Medical	Physician	Anesthesiology Institute
Amira Siyam	Medical	Physician	Anaesthesiology Institute
Markus Haisjackl	Medical	Physician	Anaesthesiology Institute
Massimo Ferrigno	Medical	Chief, Anaesthesiology Institute, Medical	Anaesthesiology Institute
Philip Anderson	Medical	Lead Anesthesia, Respiratory Technician, Medical	Anaesthesiology Institute
Eric Matayoshi	Medical	Department Chair, General Surgery, Medical	General Surgery
Khalid Almuti	Medical	Section Head, Electrophysiology, Medical	Heart and Vascular Institute
Amit Asopa	Medical	Physician	Heart and Vascular Institute
Waleed Hassen	Medical	Physician	Surgical Subspecialty
Jason Usher	Information Technology	Epic Clarity Analyst, Info. Technology	Information Technology
Michelle Machon	Clinical Informatics	Director, Clinical Informatics	Information Technology
Makarand Rogiye	Clinical Applications	Senior Application Analyst, Info Technology	Information Technology
Rajesh Selvanathan	Clinical Applications	Senior Manager, Clinical Applications, Info Technology	Information Technology
Ajaypal Atwal	Clinical Informatics	Informatics Trainer, Info Technology	Information Technology
Vicente DeGuzman	Information Technology	Lawson SCM Analyst, Info Technology	Information Technology
Durairaj Dhamodaran	Business Applications	Supply Chain Analyst, Info Technology	Information Technology
Jithin Nambiar	Information Technology	Application Analyst II, Info Technology	Information Technology
Yagya Datt	Information Technology	Senior Integration Engineer, Info Technology	Information Technology
Azfar Agha	Information Technology	Senior PACS Admin, Info Technology	Information Technology
Benjamin Joyce	Information Technology	Epic Orders & ClinDoc SSO Analyst, Info Technology	Information Technology
Kumar Rangaraj	Information Technology	Surgical and Procedure Analyst, Info Technology	Information Technology
Karuna Ram	Clinical Applications	Senior Manager, Clinical Applications	Information Technology
Crystal Priebe	Clinical Informatics	Informatics Trainer, Info Technology	Information Technology
John Lindsay	Clinical Informatics	Informatics Trainer, Info Technology	Information Technology
Bob Thomas	Unified Cisco Network	Vocera System Administrator, Info Technology	Information Technology
Albin Abraham	Finance	Senior Revenue Integrity Analyst, Finance	Finance
Philip Lieffers	Finance	Decision Support Analyst, Finance	Finance
Maria Carreno	Patient Financial Services	Manager, Revenue Integrity	Revenue Cycle Management
Bashaier Ballool	Patient Financial Services	Sr. Revenue Integrity Specialist	Revenue Cycle Management

Project Team Members

Name	Discipline	Title	Department
Fatima Al Shamsi	Patient Financial Services	Sr. Revenue Integrity Specialist	Revenue Cycle Management
Raymond Berry	Patient Financial Services	Director, Patient Financial Services	Revenue Cycle Management
Hussam Alfakieh Alkourdi	Patient Financial Services	Senior Manager, Billing and Recovery	Revenue Cycle Management
Joshua Snowden	Patient Financial Services	Manager, Payer Network, Contracting and Pricing	Revenue Cycle Management
Shelia Schardein	HIMS	Senior Manager, Clinical Coding	Revenue Cycle Management
Rhay Gatbonton	HIMS	Sr. Coding Team Lead	Revenue Cycle Management
David McNamara	Logistics	Directors, Logistics	Supply Chain Management
Shaista Sait	SCM Business Application	Manager, Supply Chain Business Applications	Supply Chain Management
Jan Ilagan	Operations	Sr. Supply Chain Data Analyst, Operations	Supply Chain Management
Essa Al Hertani	SCM Business Application	Senior Specialist, ERP and Master Files, Operations	Supply Chain Management
Sara Hutt	Operations	Director, Planning, Operations	Supply Chain Management
Hashid Kalappurath	Operations	Category Manager	Supply Chain Management
Ashraf Urothiyil	Operations	Category Manager	Supply Chain Management
Sameena Buddha	Operations	Category Manager	Supply Chain Management
Belal Zuaiter	Operations	Category Manager	Supply Chain Management
Satheesh Nair	Operations	Category Manager	Supply Chain Management
Sivaraj Pitchaipazham	Operations	Category Manager	Supply Chain Management
Jonathan Caller	Operations	Manager, HVAC Controls, Operations	Facilities Operations and Maintenance
Parvathy Kumar	International Mobility	Senior Manager, International Mobility	Human Capital

Questions

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