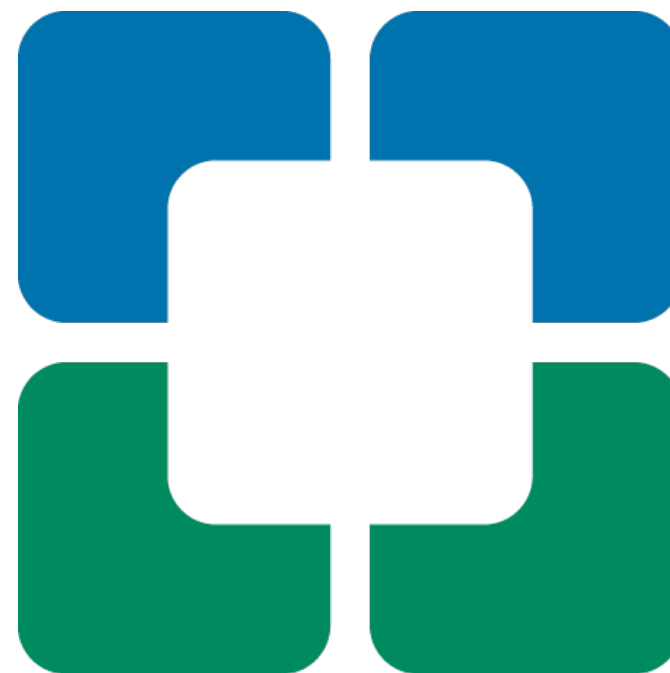


HIMSS Davies – OR Charge Posting Process Optimization

02 October 2018



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Case Study: OR Charge Posting Process Optimization

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Who We Are



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



Our Mission and Vision Statements

Mission

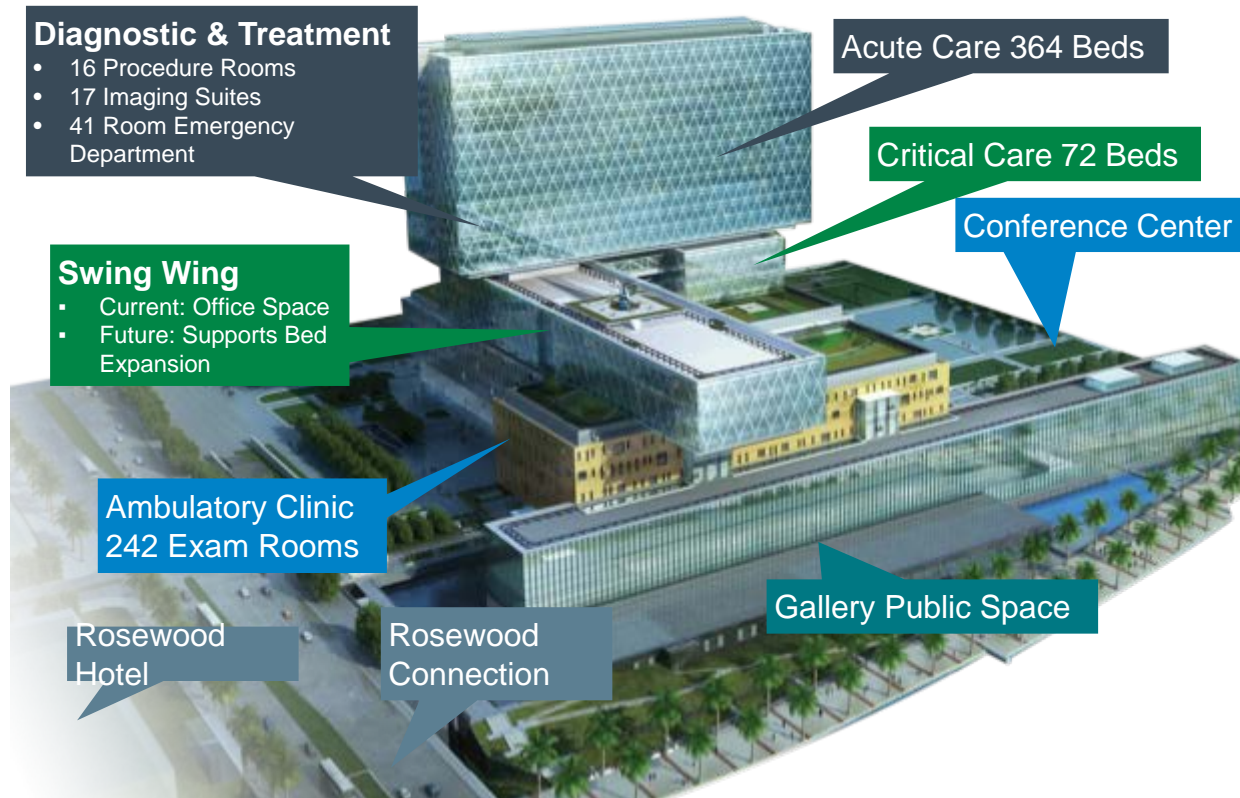
The mission of Cleveland Clinic Abu Dhabi is to provide better care of the sick, investigation into their problems, and further education of those who serve

Vision

Striving to be the world's leader in patient experience, clinical outcomes, research and education in a fiscally responsible manner



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



Complex & Critical Care

 **13** INSTITUTES INCLUDING **5** CENTERS OF EXCELLENCE

MEDICAL SPECIALTIES
 **+30** MEDICAL & SURGICAL SPECIALTIES
 **+60** SUB SPECIALTIES



Heart & Vascular Institute



Digestive Disease Institute



Respiratory & Critical Care Institute



Surgical Sub-specialties Institute



Anesthesiology Institute



Pathology & Laboratory Medicine Institute



Neurological Institute



Eye Institute



Medical Sub-specialties Institute



Emergency Medicine Institute



Imaging Institute



Quality & Patient Safety Institute



Our Caregiver Diversity



77
Nationalities
Represented

35+
Languages
Spoken

**618 UAE
Nationals
(18%
Emiratization)**



3,459 +

Clinical & Non Clinical Caregivers

373
Physicians

1,834
Nurses & Allied
Health
Professionals

1,252
Non Clinical
Caregivers



Our Unique Offerings

Patient
Experience

Outcomes &
Performance
Metrics

Innovative
Model
of Care

State-of-the
Art Technology



Patients First

Patient-Centered Institute Model Offering coordinated, multidisciplinary care
Specialist Physicians Available 24/7 at the hospital
Integration with Cleveland Clinic Main Campus Promoting knowledge transfer across all hospital functions
Office of Patient Experience Monitoring every step of the patient journey
Electronic Medical Records Supporting a seamless and integrated recovery plan
Cleveland Clinic's Globally-Recognized Standard of Care Adapted to cater to regional and cultural expectations

- The Patients First philosophy is the core of CCAD
- Patient Experience levels continuously measured
- DOH 'People's Choice Award' winner.



Clinical Firsts

**UAE's
1st Heart Transplant**



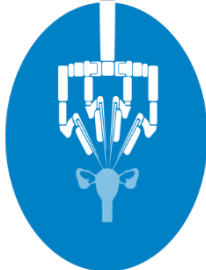
**Cardioband
Mitral Valve Repair**



**UAE's
1st Liver
Transplant**



**UAE's 1st Robotic
Hysterectomy**



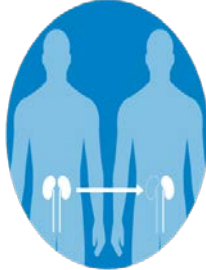
**UAE's
1st Lung
Transplant**



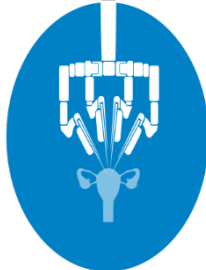
**1st Endoscopic Sleeve
Gastroplasty**



**11 Kidney
Transplants**



**UAE's 1st Robotic
Myomectomy**



CCAD Accomplishments (1)

- DoH designated Teaching and Research Hospital
- Performing the UAE's first and second double lung transplants, and third liver transplant
 - 11 total kidney transplants; 6 living related and 5 cadaveric
- Leading the way in the Department of Health (DoH) survey:
 - CCAD ranked first for overall patient satisfaction in the outpatient and ED
 - ED received the highest score in the most recent DoH audit and is the only ED in Abu Dhabi with 0 deficiencies
- Offering new services in Al Ain:
 - Al Ain achieved licensure to provide Neurology, Pulmonology, Urology and Sleep Medicine
- Distribution of the 2017 State of Clinic report
- Performing the 300th Bariatric operation

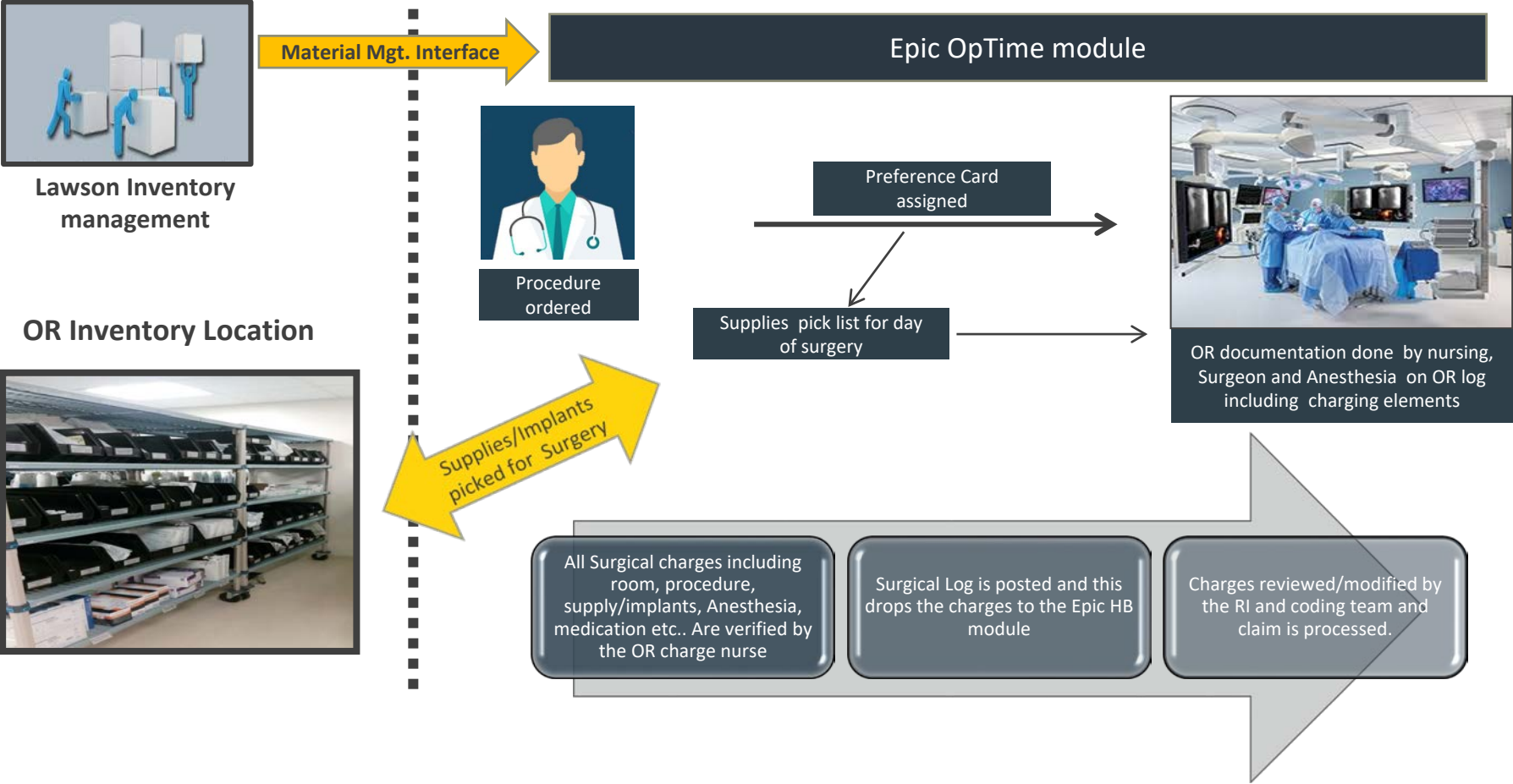


CCAD Accomplishments (2)

- Attaining Arab Board accreditation to begin physician residency programs:
 - Offering physician residency programs in Internal Medicine, General Surgery and Ophthalmology
- Regionally novel remote heart monitoring system installed in the Heart and Vascular Institute:
 - CCAD to become the first hospital in the region to adopt this technology



OR Charge Process: Overview



Local Problem

Issues:

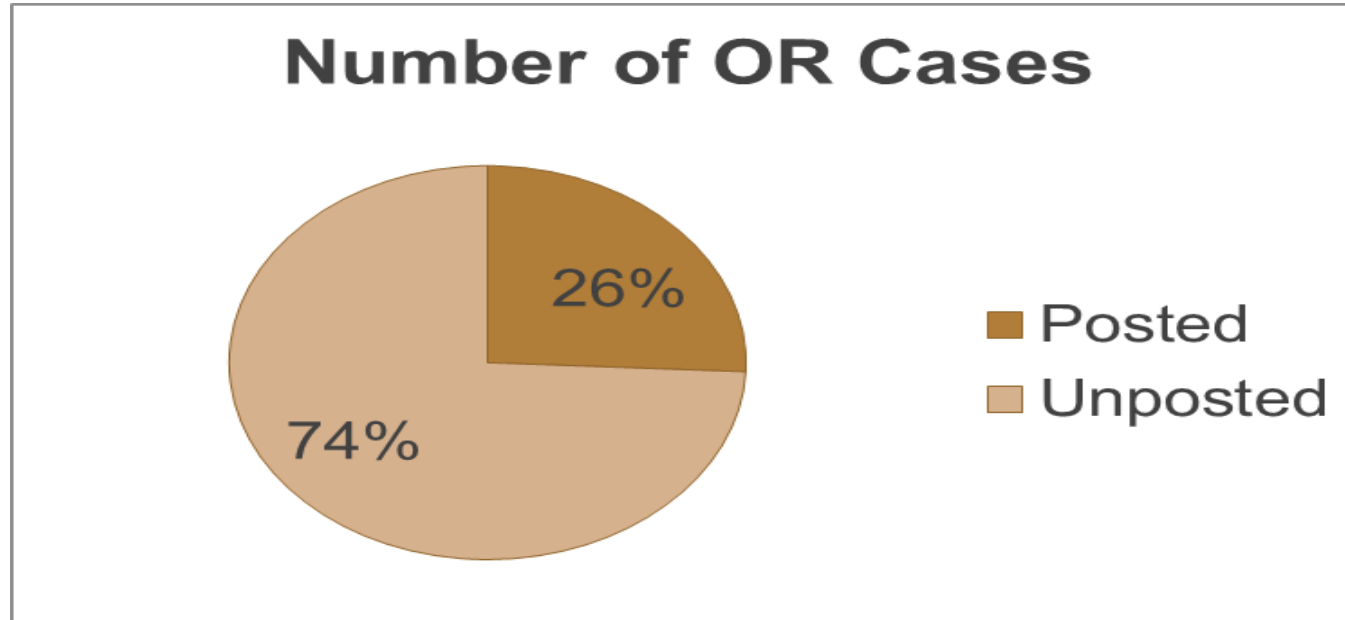
74 % of OR case logs were not posted in under 30 days in the first nine months of opening, resulting in a potential loss of revenue up to 70%

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

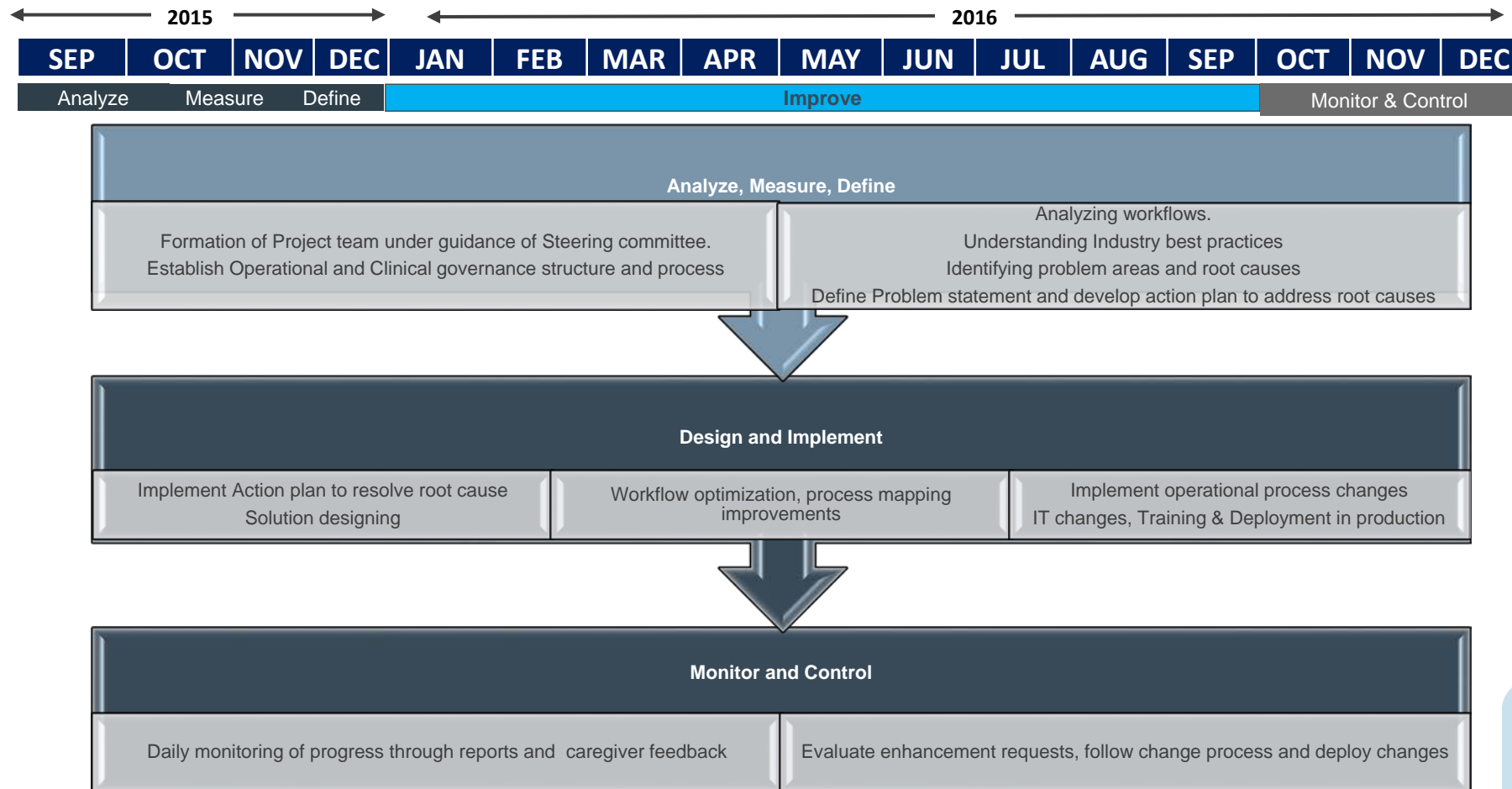
Primary Objective: Eliminate root causes for delay in log posting and reduce percentage of open logs from > 70% to < 5% within a year

Other Objectives:

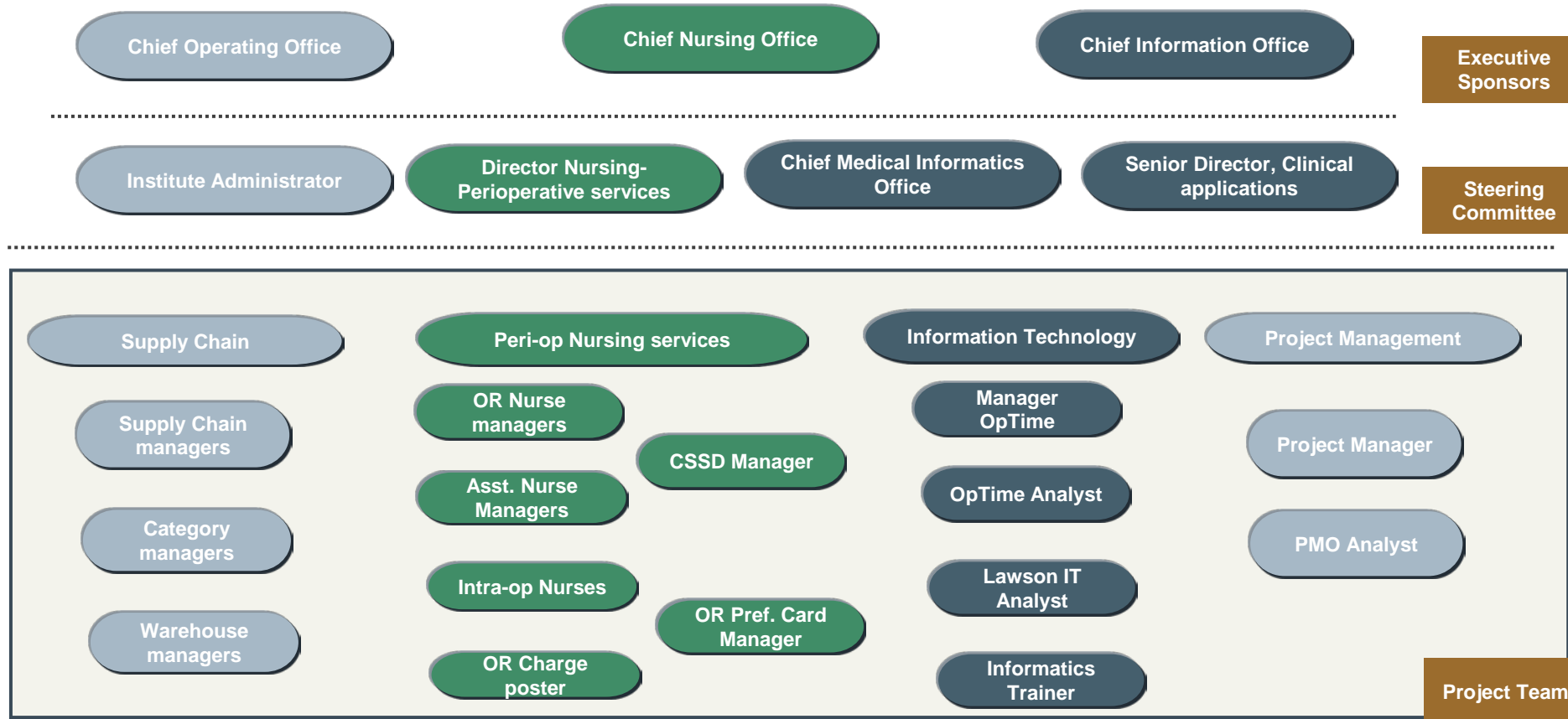
- Reduce turnaround time for log posting from average 36 days to < 2 days
- Develop an integrated OR Technical Charging process, to allow for effective charge capturing/claim submission for revenue reimbursement
- Implement effective monitoring mechanisms



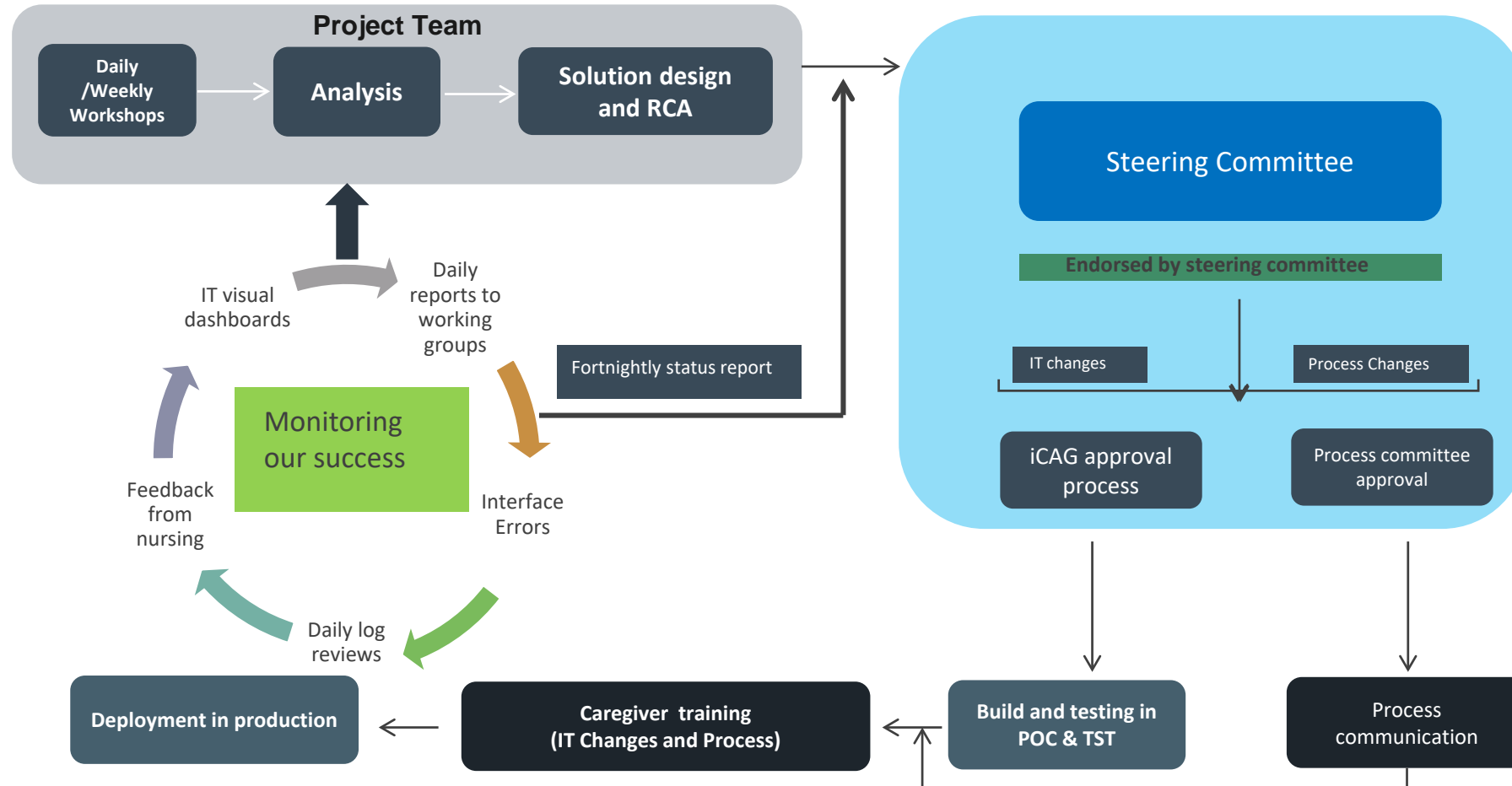
Project Plan



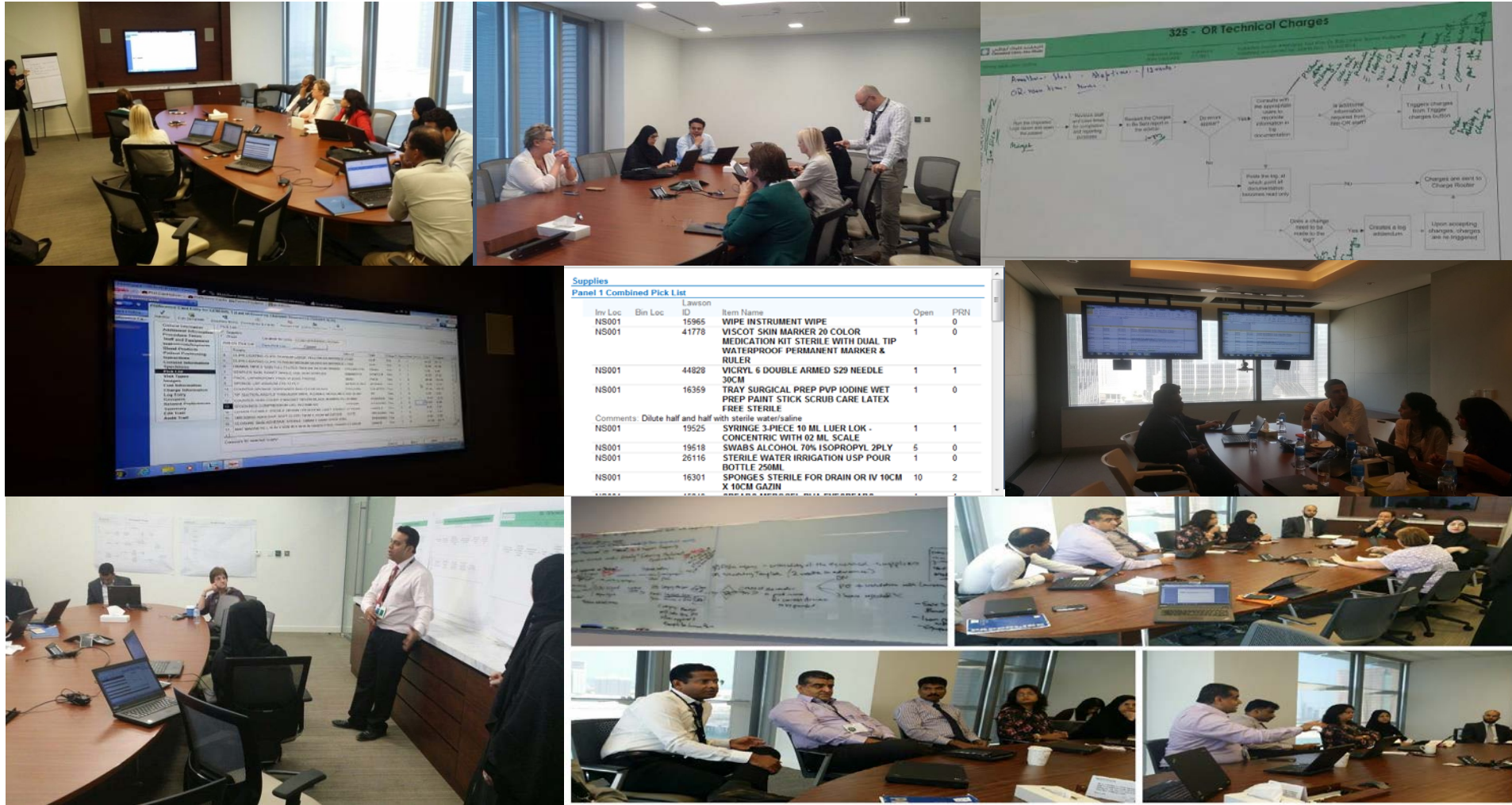
Project Sponsors and Team



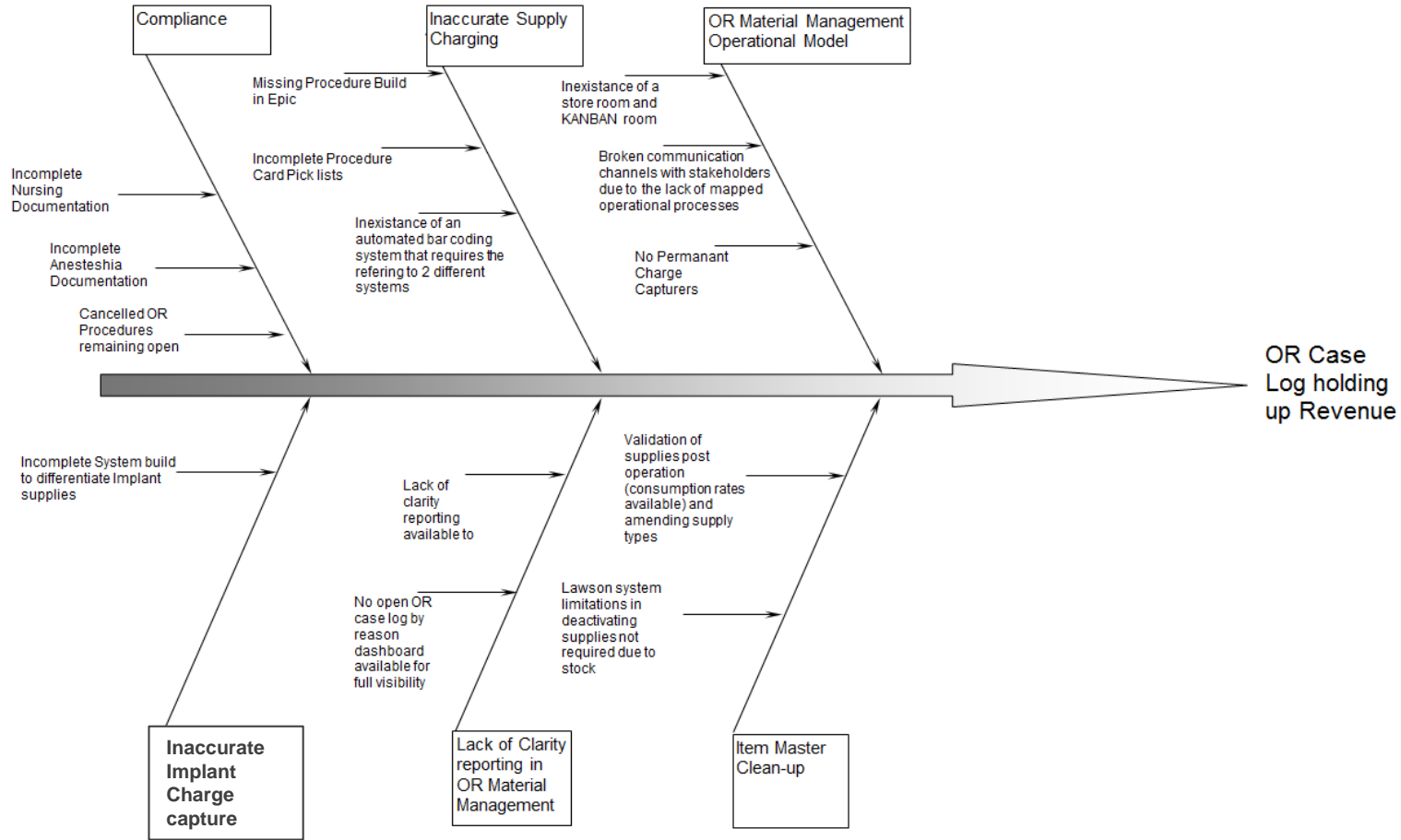
Project Governance



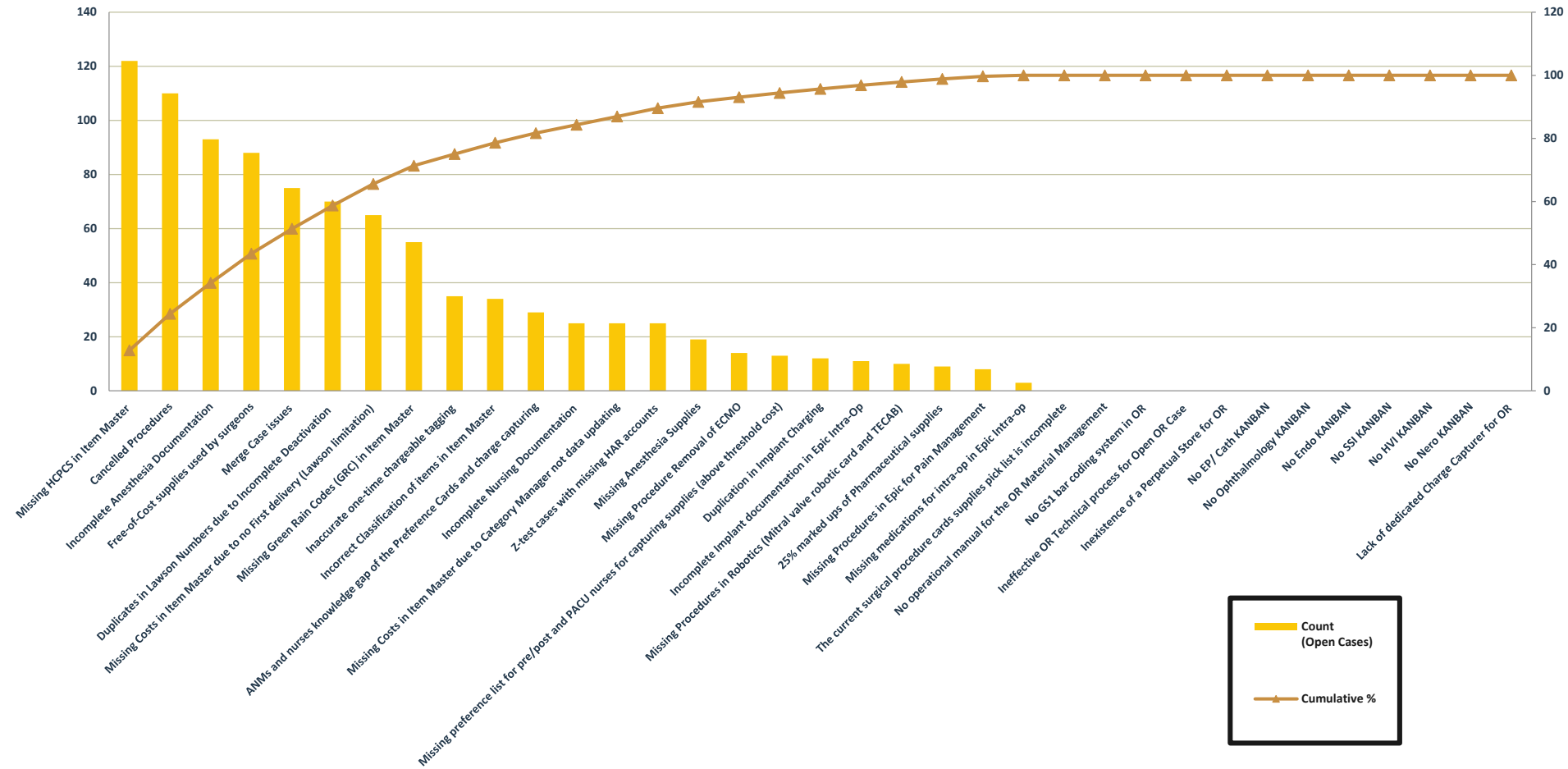
Analyze, Define and Measure



High level Root Cause Analysis



Analysis: Detailed Pareto Chart showing 35 different root causes



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



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**

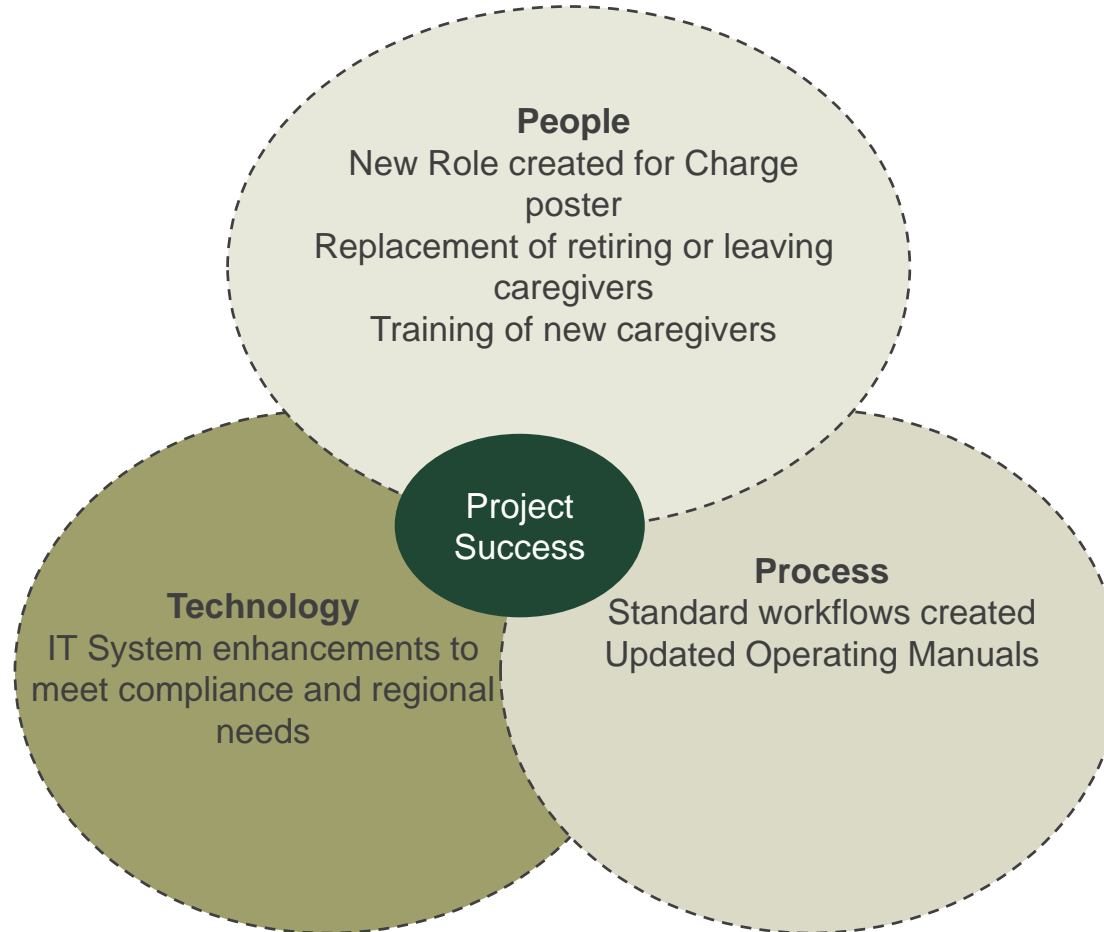


Improve: Action Plan

- 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



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



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



Technology - Epic improvements (2)

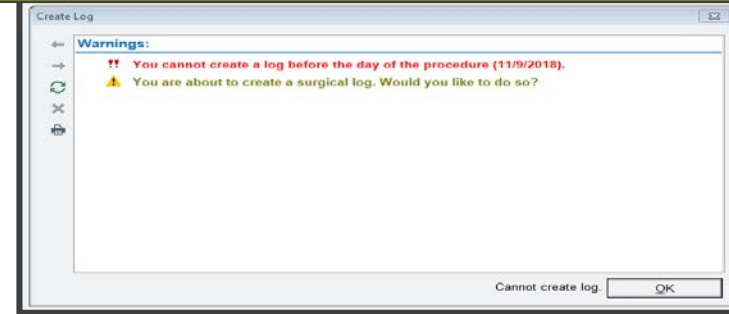
Procedure card updated to reflect all supplies required.

Preference Card Entry for ANAL MINOR CASES (Last reviewed by Betty Kho, RN on 11/10/2017 10:47)

View next at location: CCAD OPERATING ROOMS

Supply	MRN ID	Type	Charge?	Open PRN	Inv Lo	Cost	Prepares	U of C
1 UNIVERSAL MASK	BEV700 MASK	Yes	1	0	22.00	00.00		
2 LINER BOWAL RING BASHI SZ 20IN X 20IN INCLUDES RING BASHI LINER AND CSR WRAP	DYNM83 LINER	Yes	1	0	19.96	24.83		
3 NEEDLE COUNTER 20 COUNT 40 CAPACITY NARROW SHALLOW NEEDLE COUNTER FOAM STRIPS	20-0822 COUNTER	Yes	1	0	5.75	0.44		
4 BLADE 18 SHARP 180-DEGREE CARBON STEEL SURGICAL STERILE DISPOSABLE	208 BLADE	Yes	1	0	3.83	0.35		
5 BLADE 17IN 127IN CLEAN WITH 0.02INX0.02IN HOLE AND 0.02INX0.02IN SPACABLE DRUGS USE STERILE	1018020 BLADE	Yes	1	0	13.20	16.25		
6 GOWN SURGICAL LARGE STD WRAP AROUND STR	1801QP GOWN	Yes	1	0	13.75	17.19		
7 GOWN SURGICAL LARGE STD WRAP AROUND	1806AP GOWN	Yes	1	0	17.45	21.03		
8 ELECT ESG 2 MV FT RETURN REM & LONGER CORE	ES707 DE ELECTRODE	Yes	1	0	41.30	58.00		
9 ELECTRODE SURGICAL 4BOIN OUTF STERILE LATEX FREE	1848AP ELECTRODE	Yes	1	0	39.38	35.48		
10 COVER GLOVE BUTTERFLY 9F POUCH 30 X 44 STERILE	1839AP GLOVE	Yes	1	0	17.90	21.25		
11 TRAY PREP SKIN WET GSH PREOPERATIVE 1 OZ 4% VUPH 1.0Z 1.0% PVPJ	114283M TRAY	Yes	1	0	33.50	41.08		
12 SYRINGE 3-PIECE 20 ML LUERLOK CONCENTRIC WITH 1.0 ML SCALE	30663 SYRINGE	Yes	2	0	1.16	1.45		
13 VISCOT SKIN MARKER 25 COLOR MEDICATION KIT STERILE WITH DUAL TIP WATERPROOF PERMANENT MARKER & RULER	VIMK25 MARKER	Yes	1	0	18.95	23.09		
14 SPONGE LAF 20X30CM CTRL 12 PLY	1612210 SPONGE	Yes	2	0	6.52	6.52		

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



Inventory Location added to pick list for accuracy and convenience

Supplies

Panel 1 Combined Pick List

Inv Loc	Bin Loc	Lawson 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		44828	VICRYL 6 DOUBLE ARMED S29 NEEDLE 30CM	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 02 ML SCALE	1	1
NS001		19518	SWABS ALCOHOL 70% ISOPROPYL 2PLY	5	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

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 40 % back-log related invoices worth & 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



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

OR Preference Card Dashboard

In Basket Glance⁵ 2m ago
You have no messages in your In Basket.

Procedure Card Summary by Service Just now

Authorized Services	# of Procedures	# of Procedure Cards	# of Cards with Pick Lists
Bariatric	9	3	3
Cardiac	216	46	46
Cardiology	50	25	24
Colorectal	236	24	24
Dentistry	81	8	8
Gastroenterology	51	7	7
General Surgery	514	57	54
Gynaecology	26	7	7
Hematology Oncology	1	1	1
Hepatobiliary	100	5	5
Interventional Radiology	165	32	28
Nephrology	1	1	1
Neurosurgery	337	34	34
Ophthalmology	220	47	47
Otolaryngology	481	32	32
Pain Management	71	10	10
Plastics	312	13	13
Pulmonary	55	8	7
Thoracic	93	13	13
Urology	268	56	56
Vascular	510	33	26

New Procedures Created (Last 7 Days) 2m ago
The data source returned no results.
Report: MyEpic - OR New Procedures in Last 7 Days

Unreviewed Pref Cards By Service (Last 3 Months) 2m ago

Upcoming Cases Without a Surgeon Preference Card (Next 14 Days)
The data source is missing. Please contact your administrator.

Clarity Reports
> Preference Card Reports

Common Links
> Weekly Preference Review
> Procedure Activities
> Inventory Item Activities
> Equipment Activities

Preference Cards for Unauthorized Surgeons
The data source is missing. Please contact your administrator.

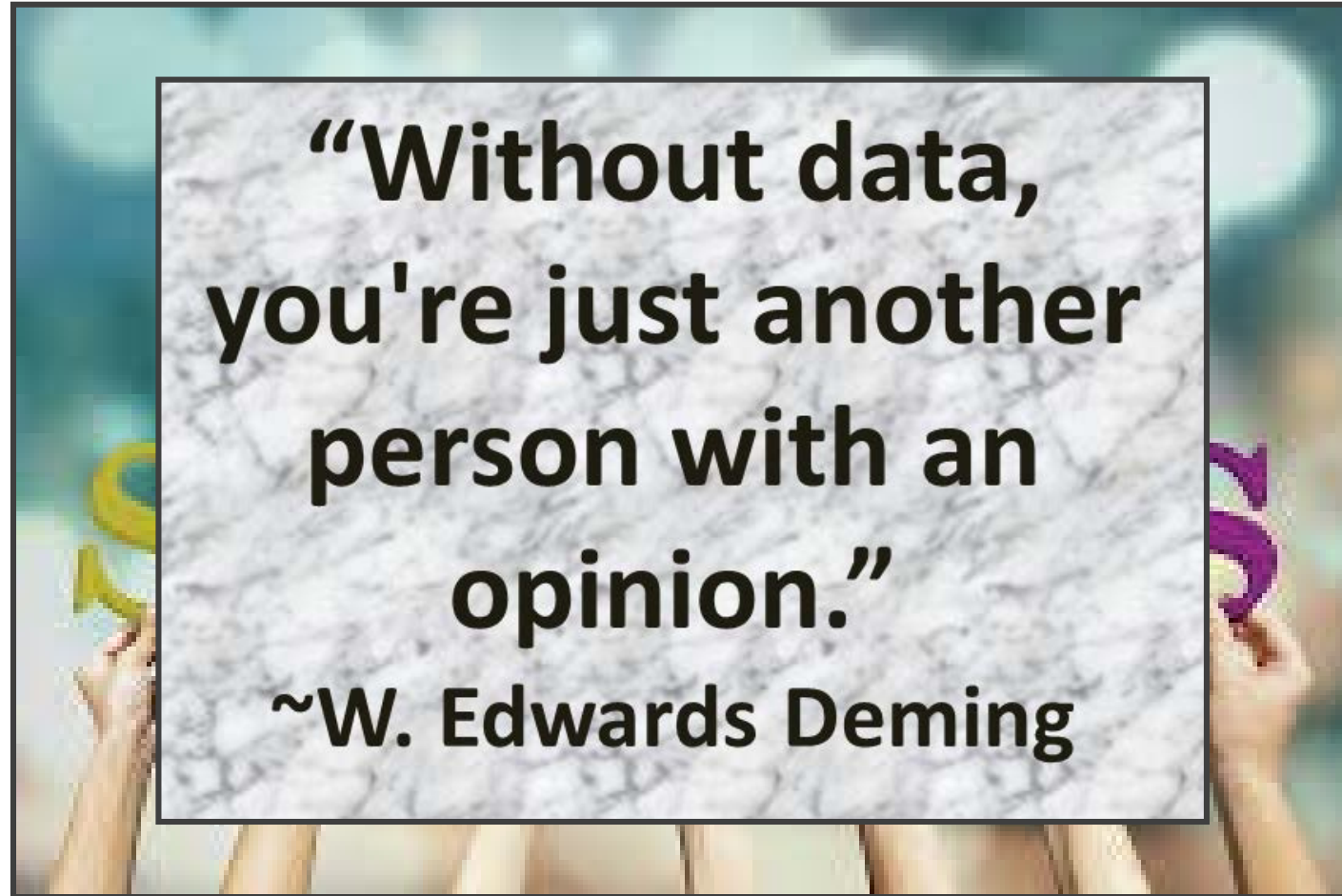
Monitoring Progress Towards Success

Tableau Dashboard, providing a holistic view of:

- Posted vs Unposted cases with revenue per surgical service
- Cause of the unposted cases

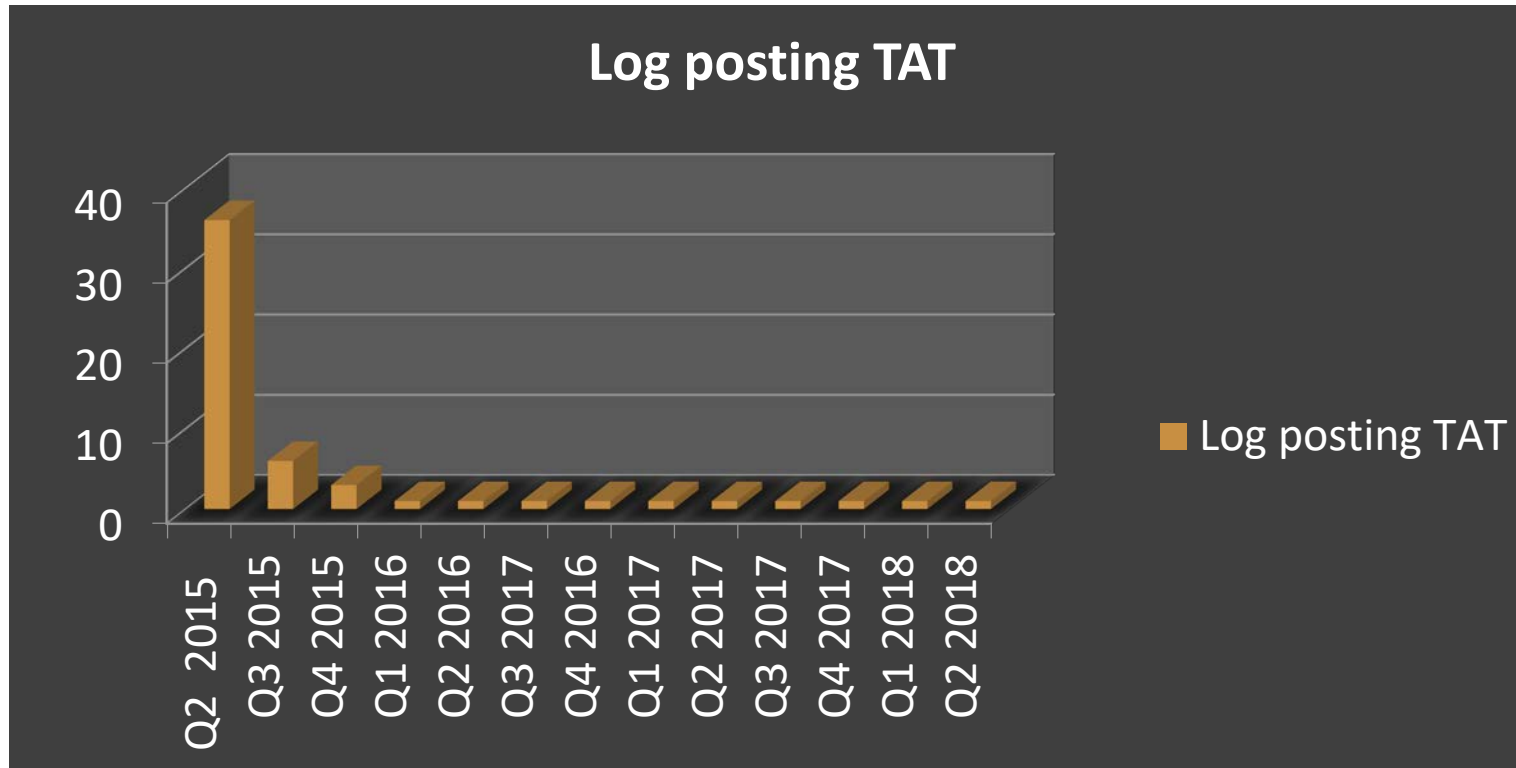


Measuring our Success

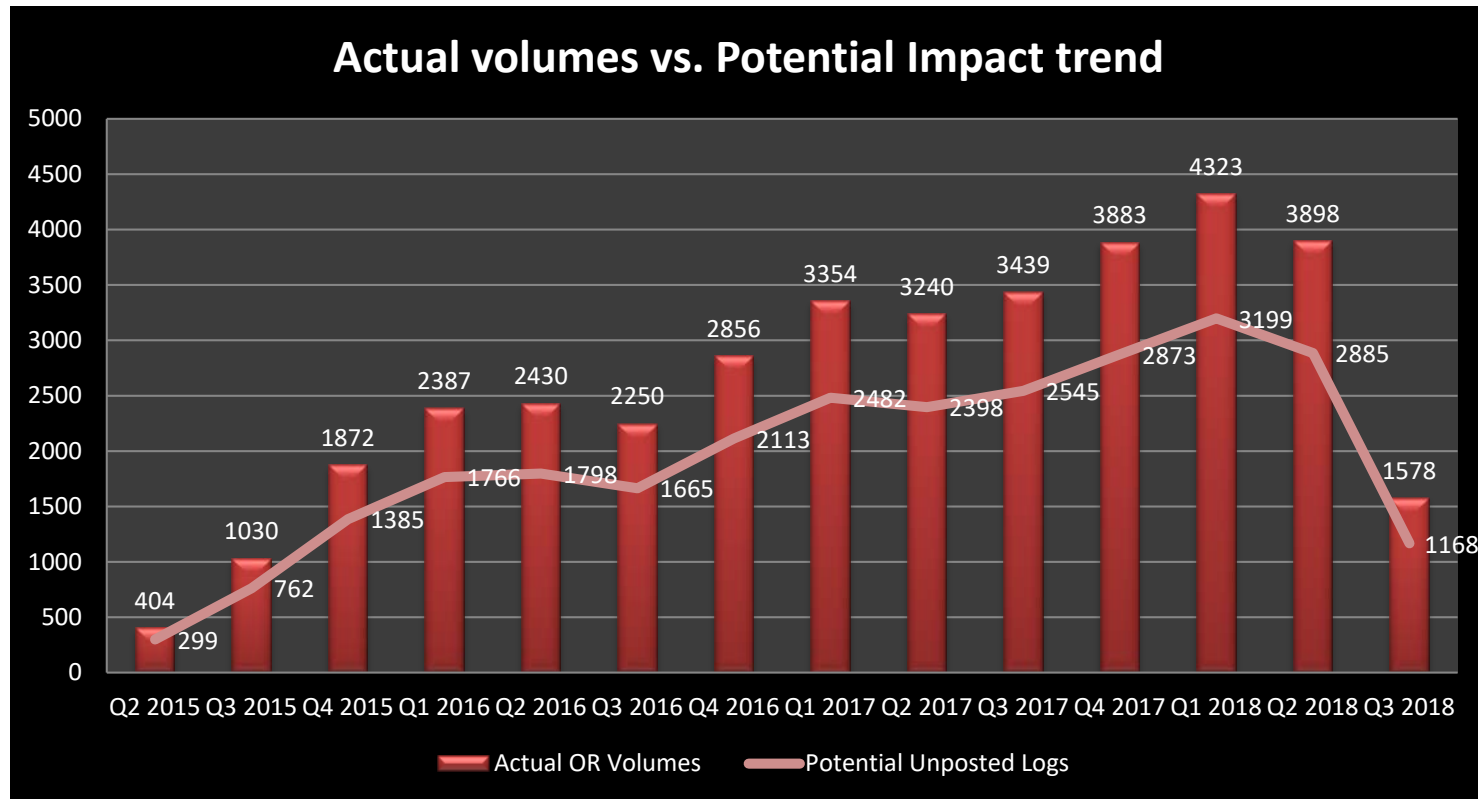


Value Derived – Turnaround Time for Log Posting

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

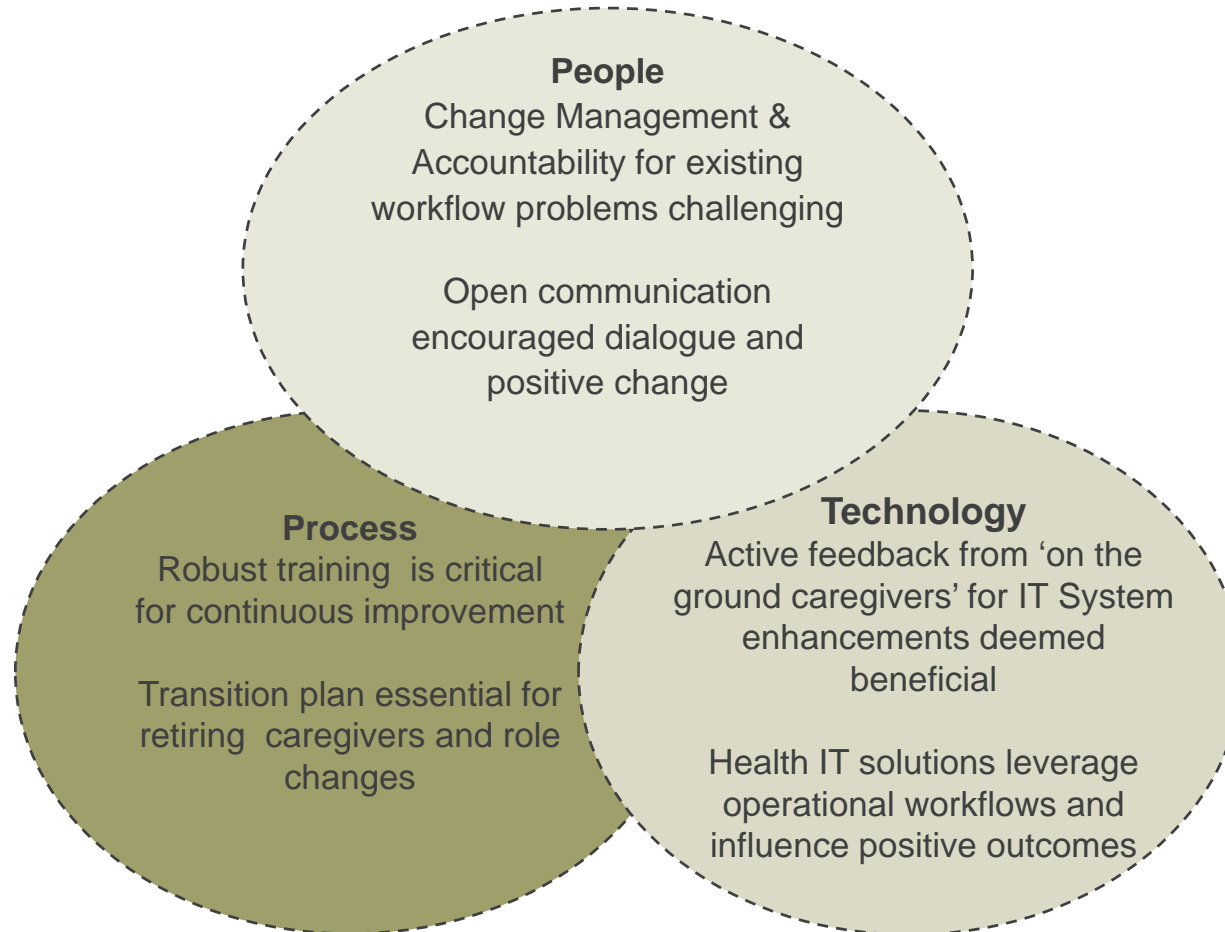


Overall Improvements

- Reduce the charge posting time
- System Integration
- Material Master list clean-up
- Procedure card review
- New Role for Peri-op coder
- Allowed us to increase surgical volumes



Lessons Learned



Action Plan for Continuous Improvement

- 2 way integration between Lawson and Epic for item master was recommended. Supply depletion interface was implemented for a live feed from Epic to Lawson reconcile consumed items against the issued items. The information is triggered as and when a log is posted in Epic.
- Pilot implementation of GS1 barcoded supplies and Implants for Heart & Vascular Institute - Initial results show faster and minimal documentation errors in supply charging. Plan is to implement this across the hospital
- Epic build for Implant sets especially for Neuro services for accurate and convenient documentation of implants.
- 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 and reflect the supplies contracts in the system

Summary Recap

Problem Statement: 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%.

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



OR Charge Posting Process Optimization

Case Speaker Profiles (1)

Joanne Bruton

Title: Director, Perioperative Services

Role: Responsible for ensuring safety and quality of care for the surgical and procedural patients in collaboration with the multidisciplinary team including surgeons, anaesthesiologists and technicians

Rajesh Selvanathan

Title: Manager, EMR IT

Role: Manage the OpTime, Ambulatory and ASAP Epic clinical application teams and responsible for delivery of enhancement requests, post-go live support and strategic IT projects for Periop, ED and Outpatient clinical area

Shaista Sait

Title: Manager, Supply Chain

Role: Manage the ERP Lawson team in Supply Chain. Responsible for system enhancements, end-user support, master data management, reporting and analytics

OR Charge Posting Process Optimization Case Speaker Profiles (2)

Alex Downs

Title: *Manager, Informatics*

Role: *Responsible in providing training and support of Epic application and other integrated systems*





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