Improving Perioperative Performance: The Use of Operations Management, Communication and the Electronic Health Record.

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Children's Health System of Texas (CHST) Surgical Services

- 60 surgeons/proceduralists with a primary practice at Children's
- 50 anesthesiologists
- 300+ perioperative staff members

- 32 ORs at 4 locations
- 29,308 cases in 2015

Rewind the Clock (2006)

Opportunities in the Main OR Suite

- 16 operating rooms

A. 14%: Case Cancellations
12%: On Time Starts
47%: Block Utilization
5%: Open Time



CMC Dallas 2006

A. Operative Cases and Revenue

Main OR(MOR) Suite	13,545	$78 M
System	19,148	$116 M

B. Problem – Multiple poor processes and metrics

- Data - manual reporting, inaccuracies
  - data rich, information poor
  - healthy skepticism of the data
- Culture – silos, sacred cows, "me centered"

C. Consequences – systemic inefficiency
- increased costs
- lack of satisfaction: families, physicians, and staff

Perioperative Vision

To be One of the Top 5 Programs Nationally

- Recruit new department chiefs
- New programs
- Case volume growth
- Increase research efforts

To achieve these goals OR function had to improve

OR Collaborative Redesign: 2007

85 People

- Surgeons, Anesthesiologists, Nurses, Techs, Circulators, Scheduling Coordinators, Central Supply

16 Areas of Focus

- Case Scheduling, Block Assignments, Preoperative Clinic, Case Cancellation Supply Chain, Data, EHR Implementation

AIM:

To Improve OR Productivity…Culture

HOW:

- Implementation and Use of EHR – Data
- Principles of Operations Management

METRICS:

- OR Functionality & Stewardship
  - *Case Cancellations, First Case On Time Starts, Block Utilization*
- Case Volume, Growth outside of the Main OR
- Financial Metrics

Data…Is it Meaningful?

Data - with an EHR, an overabundance

Petabyte (PB)

235 TB – Library of Congress
1 PB – 4 X that
1 PB – 20 million 4 drawer filing cabinets
25 PB – Google processing in 1 day
1300 PB – U.S. Healthcare data in 2014



children'shealth

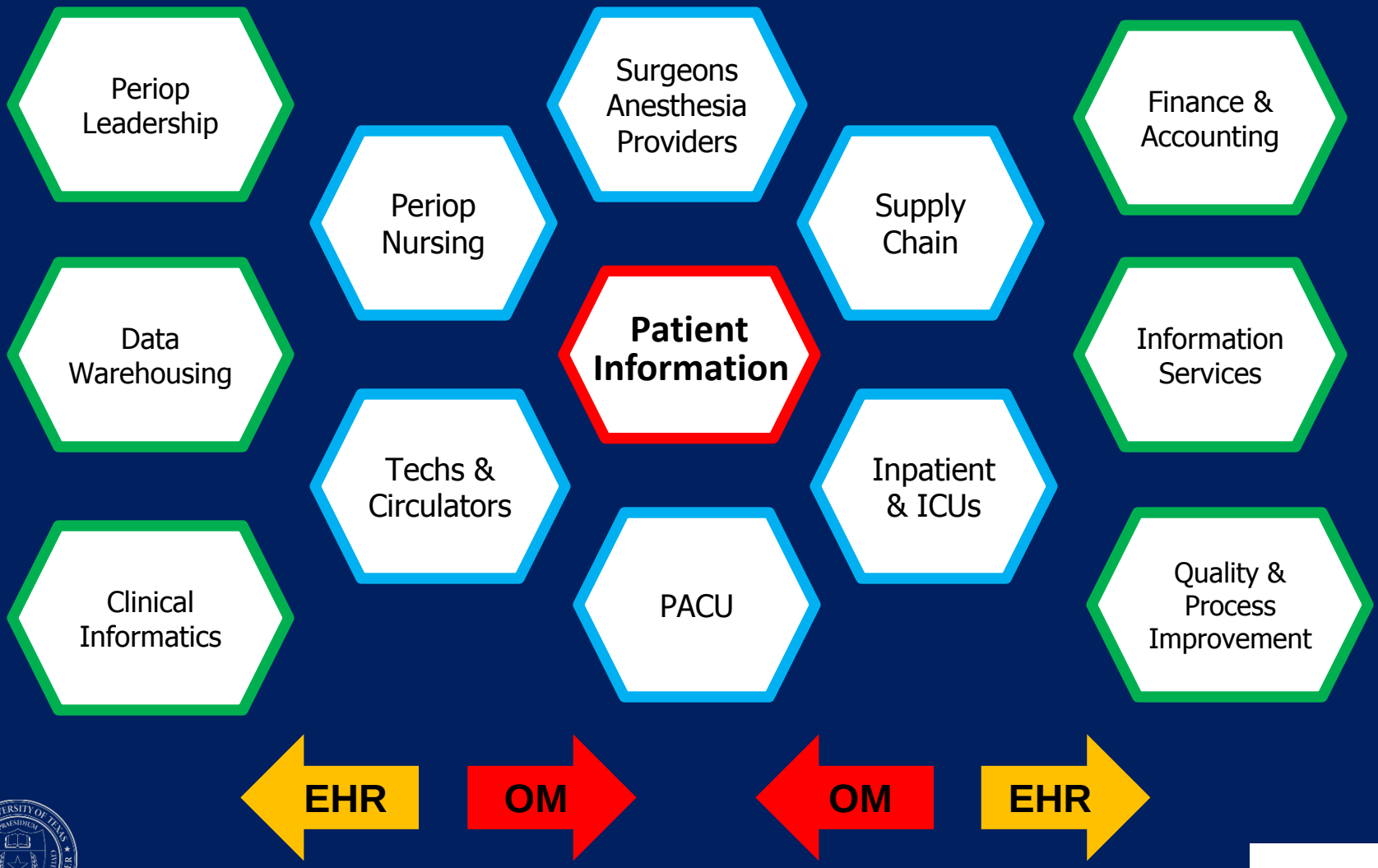
Data ≠ Information

- To assess an area of focus (a problem)
- To effect change
- To influence behavior

Dilemma: DOA vs. MI

Data Overload by Asphyxiation
Meaningful Information

Focus On the Patient and Information



Case Cancellations

1. Preoperative Clinic

a. For whom?
   - Big Cases
   - Comorbidities
   - Others

b. What's Done
   - Full History & Physical Exam
   - Anesthesiology Evaluation & Informed Consent
   - Lab/Radiology information
   - Consultative Letter
   - Insurance Screening

c. 600 Patients/Month

Case Cancellations

2. Improved Preop (NPO) Phone Calls

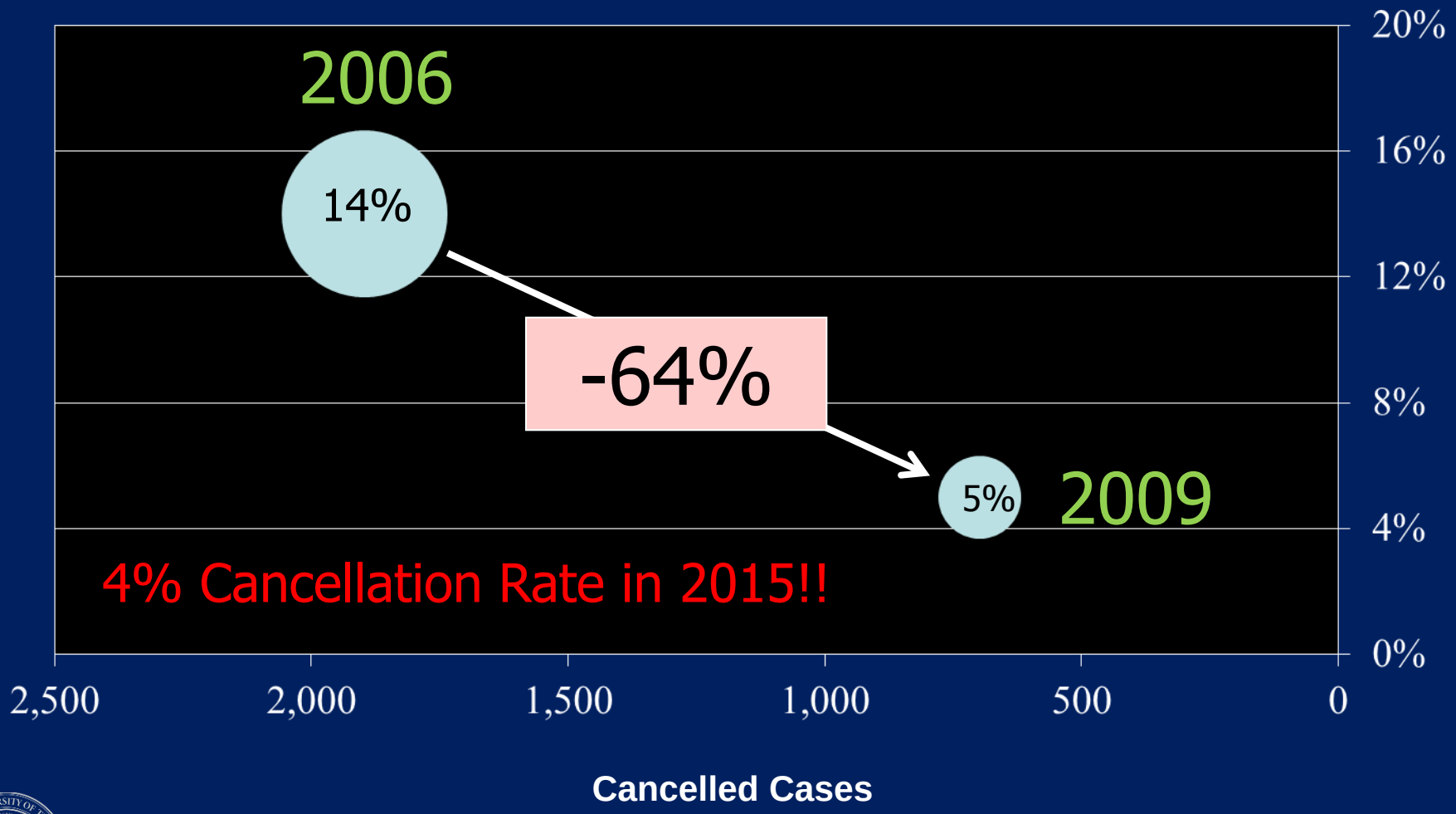
a. Better Screening
- How is your child doing?
- Has the patient had a high fever, illness, new medication?
- Any urgent visits to the doctor or ED?

b. 48 hours prior to surgery

If the case is cancelled:

1) communicate to the surgeon
2) time to rearrange the OR schedule

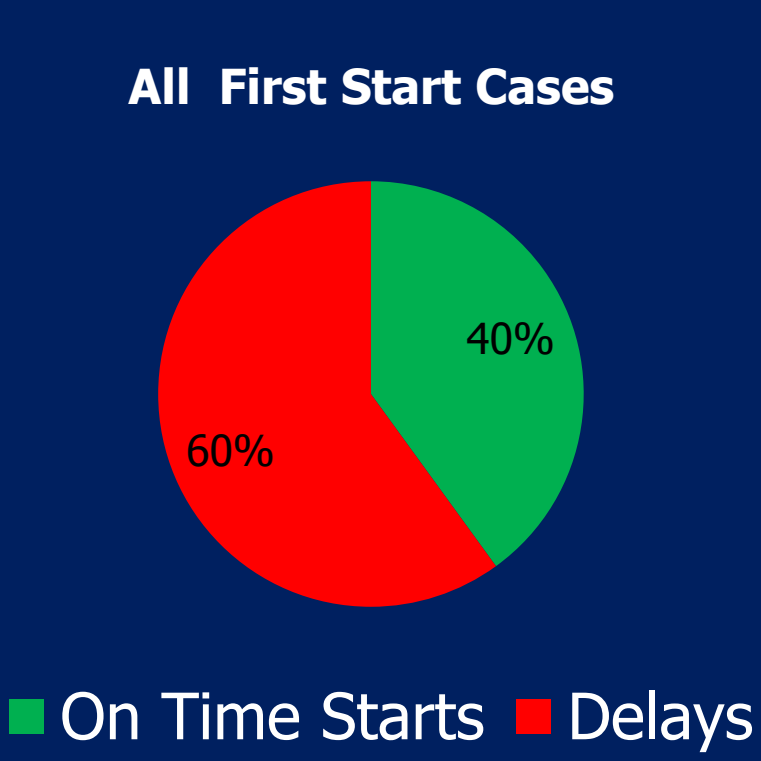
Case Cancellations

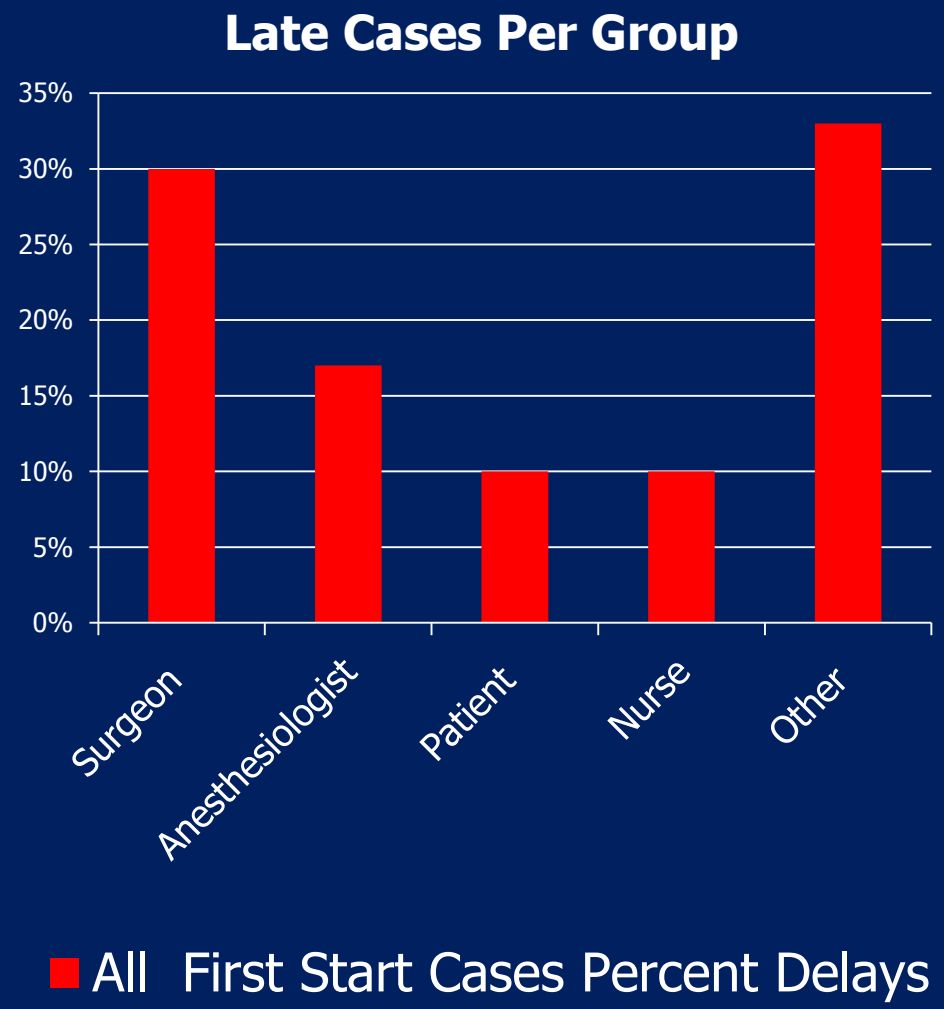


First Case On Time Starts (FOTS)

- Poor performance can create multiple bottlenecks, increase staffing costs, and decrease customer satisfaction
- 2006 Baseline: 12% on time
- 2009 After Implementation of Preoperative Clinic and NPO Phone Calls: 30% on time

EHR Data Reporting: April 2010

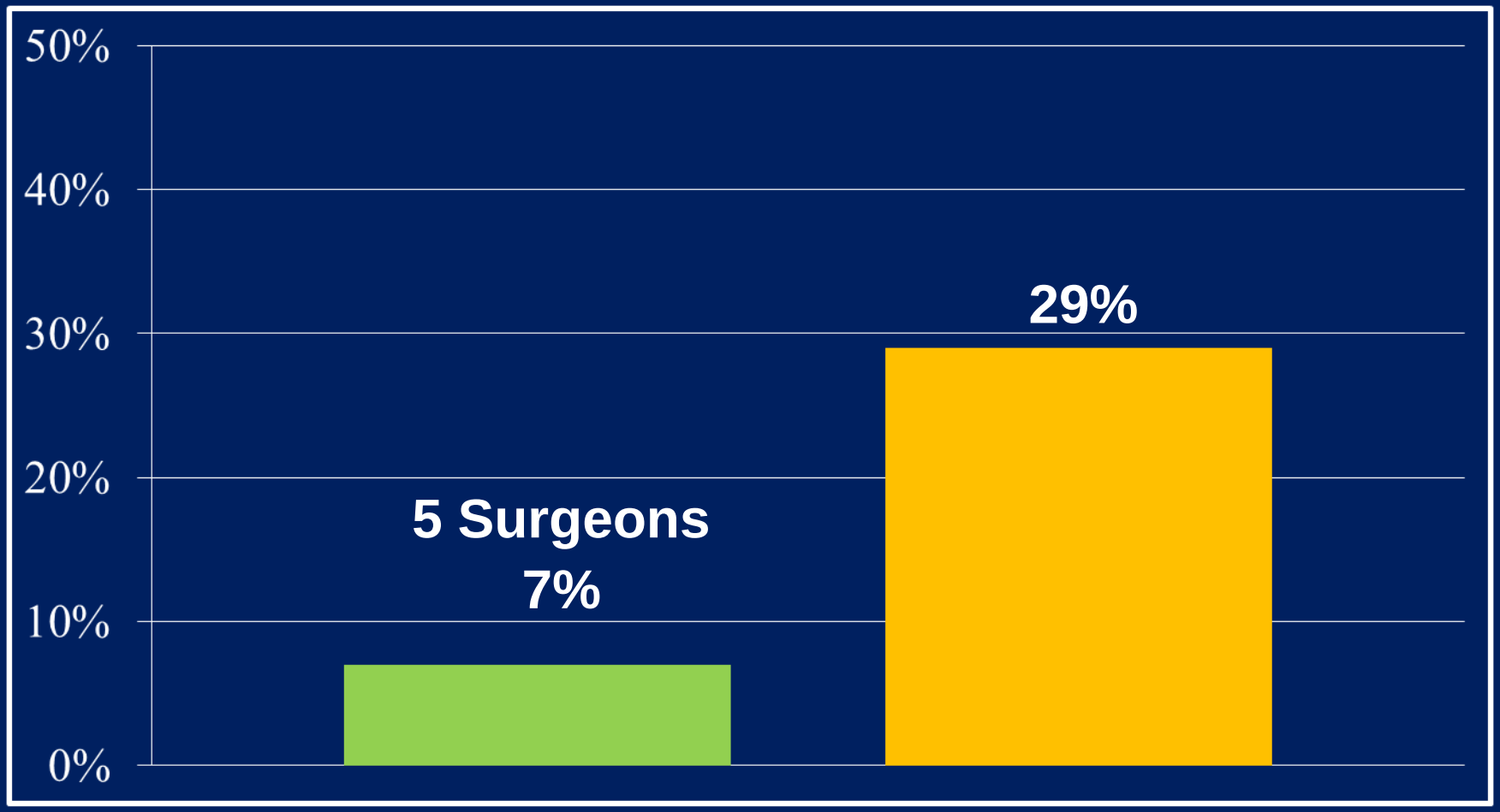




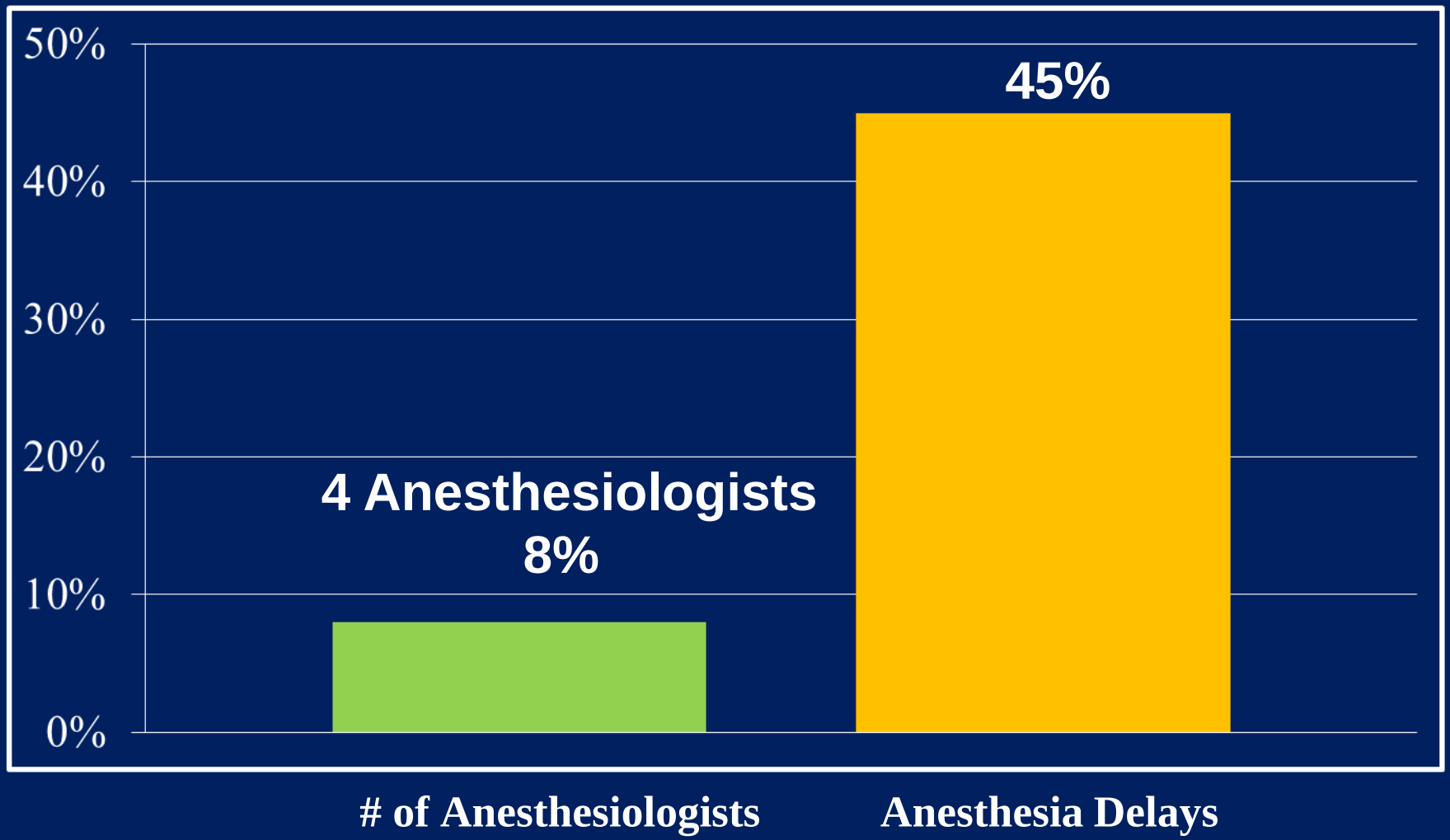
Delay by Service and Reason

Surgeon	Anesthesiologist	Nursing	Patient	Other
- Late to OR - Incomplete or No Consent - Incomplete or No H&P	- Late to OR - Late Ordering Pre-Op Medication - Additional Tests, etc. - Equipment Set-up	- Nurse Not Available - Medication Given Late - Transport	- Late Arrival - NPO Violation	- Room Setup - Supplies - Labs - Interpreter Needed

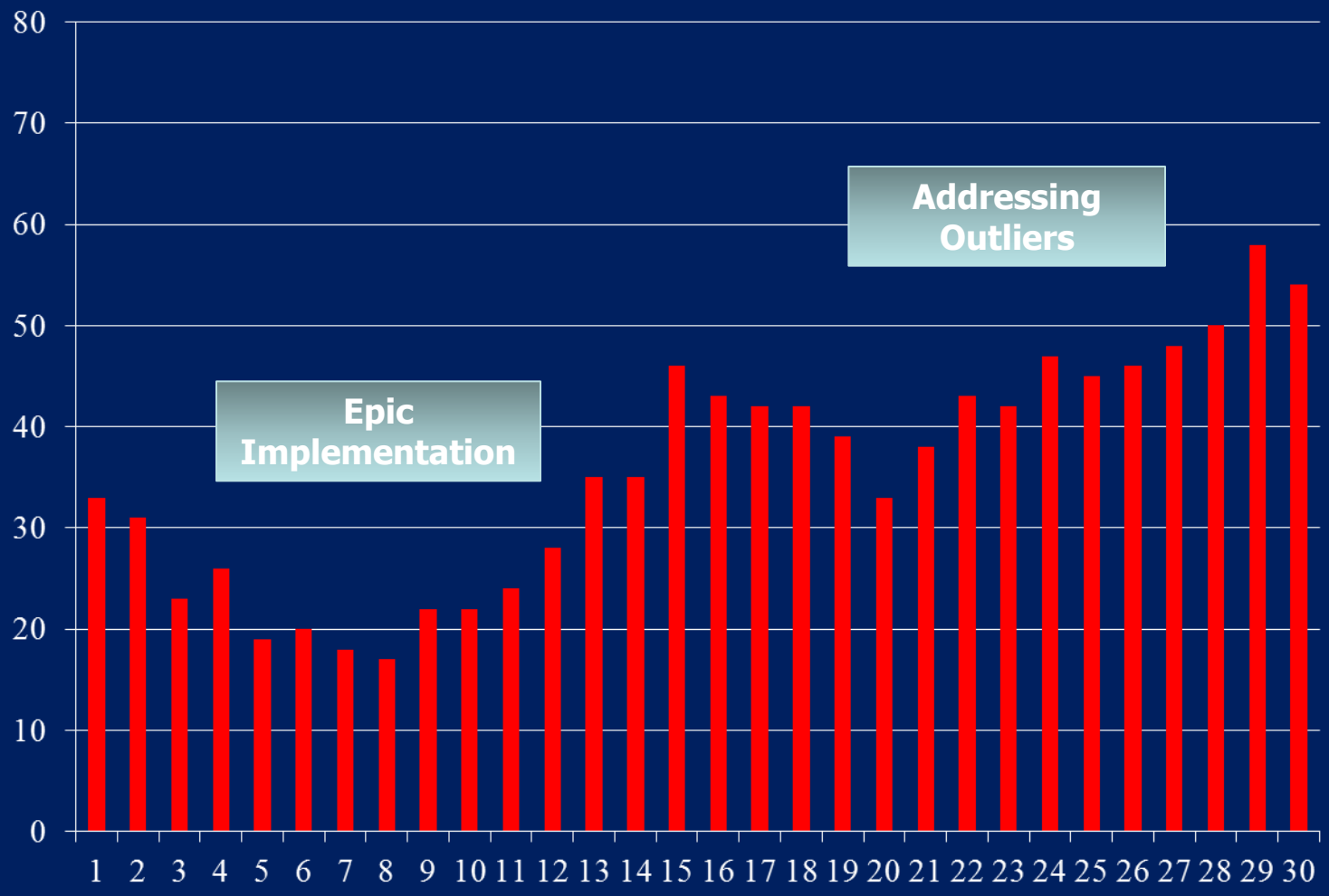
Delays by Surgeon



Delays by Anesthesiologist



FOTS Improvement: Apr'09-Oct'11



Information Sharing

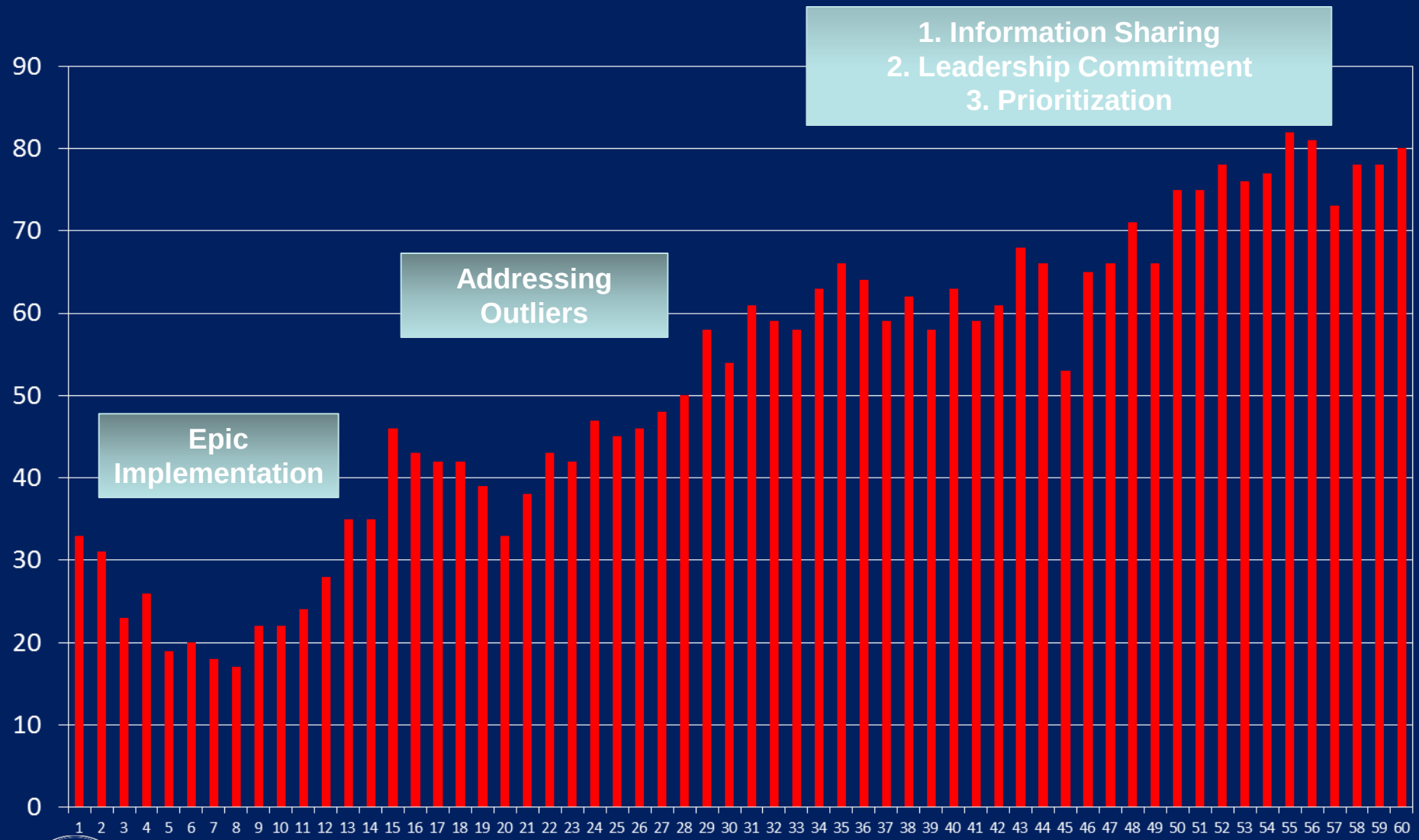
1. Consistent Communication to Chiefs & Surgeons

    a) Weekly OR executive meeting
    b) OR committee meetings
    c) Emails to surgeons and anesthesia
    d) Real time email query regarding case delay

2. Data Socialization - Showcase Data

3. Reward Top Performers

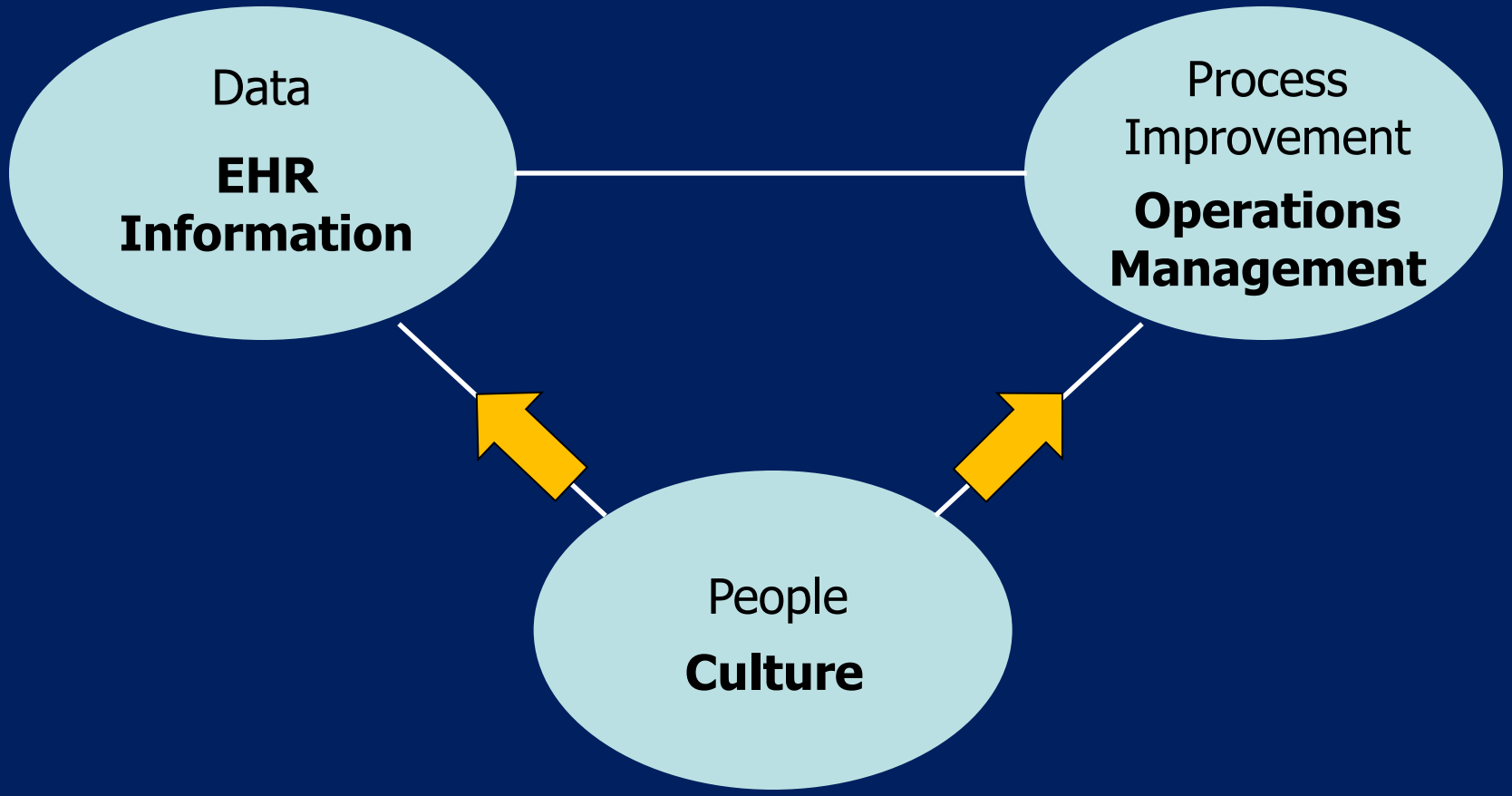
FOTS Improvement: Apr' 09-Mar' 14



Perioperative Performance Improvement (PPI)

- The orchestration of a multidisciplinary team and resources working over a protracted period of time to achieve a series of sustainable, successful outcomes.

- Information – EHR data
- Operations Management - processes
- Culture - people



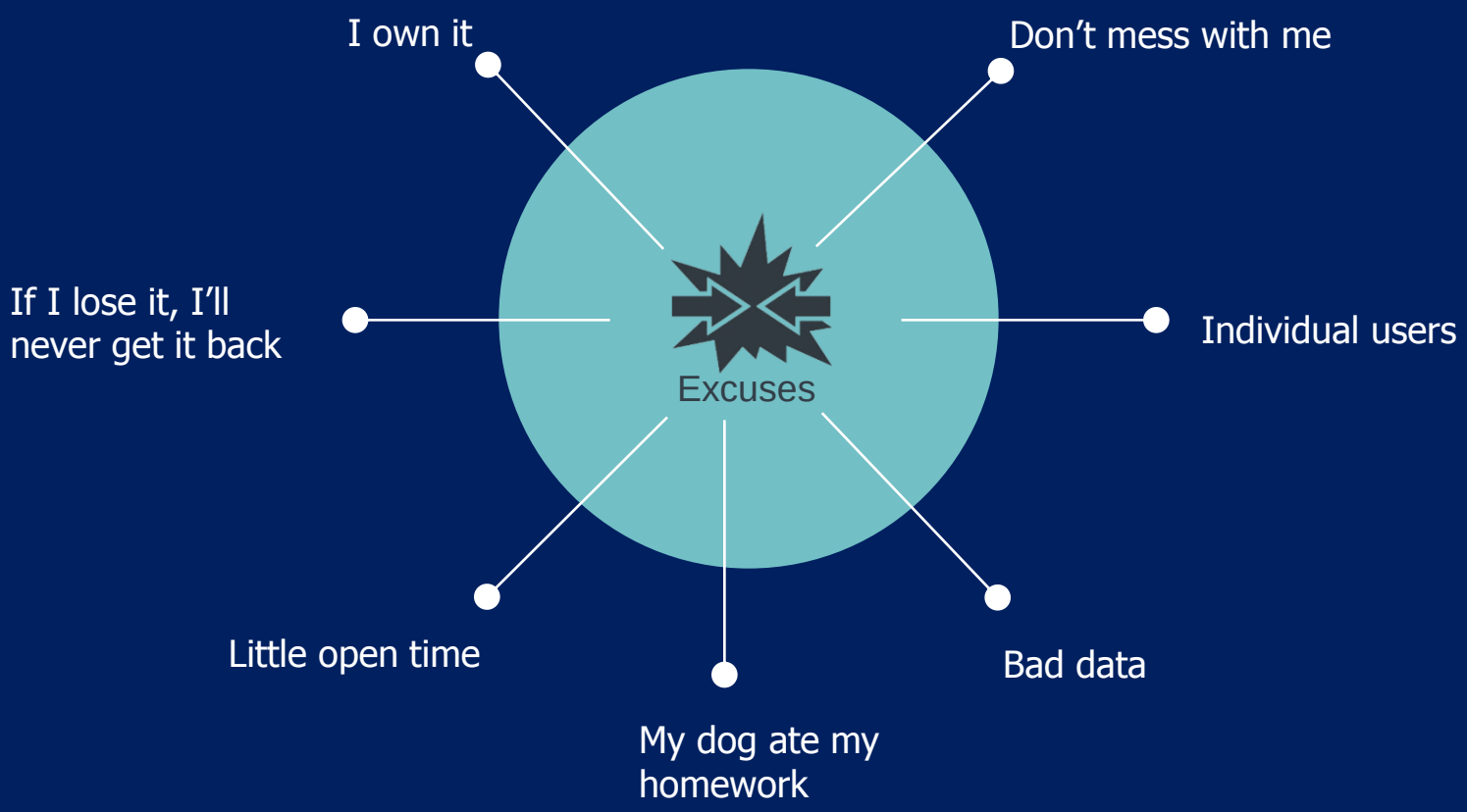
Passive…..Active
Feedback loop

Initiatives

1. Operations Management
2. Smoothing functions
3. Decant low acuity ambulatory cases to other sites
4. Spend dollars on perioperative improvements
    - e.g. preop, PACU, waiting room, lounge, interpreters
5. Quality improvement
6. Avoid building more ORs

Impediments

History of Excuses



Processes and Culture

- Every system is perfectly designed to achieve the results it gets

  Berwick

- Culture trumps strategy, every time

  Merchant, Harvard Business Review Blog Network 2011

- All that invisible stuff that glues organizations together

  Caldwell

- A set of habits that allows a group of people to cooperate by assumption rather than by negotiation

  Merchant



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Block Utilization

Block Utilization – assignment of OR time to service or individual during normal work hours Monday-Friday.

e.g. Otolaryngology – 2 rooms, Monday - Friday; 0730-1530

A. Main OR – 14,000 cases annually

B. 2007 – 2012 – Had achieved significant improvement

C. Early 2013, block utilization plateaued to 59%

Going Forward

1. Blocks for services vs. individual surgeons

2. Sufficient OR time for add-ons, emergencies, trauma - 20-24% of cases

   - Differentiate Cases - 18 hours prior
     30 minutes prior

3. Block Reallocation

   - May reallocate if utilization is ≥ 10% below the OR mean for 3 months

4. Share / socialize the data promptly and clearly

Block Management: Little Open Time

		Monday		Tuesday		Wednesday		Thursday		Friday	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
OR 1	week 1	CMC Dental (0730-1700)		Garza (730-1200)	Kuba 1230-1700	Harrington (0730-1200)	CMC DENTAL (1230-1700)	Kuba (845-1200)	WILSON (1230-1700)	MORGAN (0730-1500)	
	week 2	CMC Dental (0730-1700)		CMC DENTAL (730-1200)	WILSON (1230-1700)	Harrington (0730-1700)		CMC DENTAL (0845-1730)		BAREFIELD (0730-1200)	Morgan (1230-1500)
	week 3	CMC Dental (0730-1700)		BAREFIELD (730-1200)	Kuba 1230-1700	COLLINS (0730-1200)	Harrington (1230-1700)	GARZA (0845-1230)	WILSON (1230-1700)	Harrington 0730-1200-	MORGAN and ASSOC. (1230-1500)
	week 4	CMC Dental (0730-1700)		BAREFIELD (730-1200)	WILSON (1230-1700)	HILL (730-1200)	CMC DENTAL- (1230-1700)	MORGAN (0845-1830)		MORGAN and ASSOC. (0730-1500)	
	week 5	CMC Dental (0730-1700)		CMC Dental (0730-1700)		CMC Dental (0730-1700)		CMC Dental (0845-1700)		CMC DENTAL (0730-1700)	
OR 2	week 1	ENT 1 (0800-1700)		ENT 4 (730-1700)		ENT 9/10 (730-1700)		ENT 14 (845-1730)		ENT 7/19/20 (0730-1500)	
	week 2	ENT 1 (0800-1700)		CARDER (0730-1030)	Leach 1100-1700	ENT 9/10 (730-1700)		ENT 18 (845-1730)		ENT 22 (0730-1700)	
	week 3	ENT 1 (0800-1700)		ENT 4 (0730-1700)		ENT 9/10 (730-1700)		ENT 14 (845-1730)		ENT 7/19/20 (0730-1500)	
	week 4	ENT 1 (0800-1700)		CARDER (0730-1030)	ENT 0 (1100-1700)	ENT 9/10 (730-1700)		ENT 18 (845-1730)		ENT 22 (0730-1700)	
	week 5	ENT 1 (0800-1700)		ENT 4 0730-1700		ENT 9/10 (730-1700)		ENT 18 (845-1730)		ENT 7/19/20 (0730-1500)	
OR 3	week 1	ORAL (0730-1500)		ENT 3 (0730-1300)	ENT 2 (1300-1700)	ENT 5 (0730-1700)		ENT 16/17 (0845-1730)-Dr. Sumer to use		ENT 21 (0730-1700)	
	week 2	Leach(ENT) (0730-1700)		ENT 3 (0730-1300)	ENT 2 (1300-1700)	ENT 5 (0730-1700)		ENT 16/17 (0845-1730)		ENT 21 (0730-1700)	
	week 3	ORAL (0730-1500)		ENT 3 (0730-1300)	ENT 2 (1300-1700)	ENT 5 (0730-1700)		ENT 16/17 (0845-1730)		ENT 21 (0730-1700)	
	week 4	ORAL (0730-1500)		ENT 3 (0730-1300)	ENT 2 (1300-1700)	ENT 5 (0730-1700)		ENT 16/17 (0845-1730)		ENT 21 (0730-1700)	
	week 5	ORAL (0730-1500)		ENT 3 (0730-1300)	ENT 2 (1300-1700)	ENT 5 (0730-1700)		ENT 16/17 (0845-1730)		ENT 21 (0730-1700)	
OR 4	week1	Plastics (0730-1500)		Craniofacial (0730-1700)		PEDI SURG (0730-1500)-In September start ENT block 0730-1700		Plastics (0845-1500)		PEDI SURG (0730-1500)	
	week 2	Plastics (0730-1500)		Craniofacial (0730-1700)		PEDI SURG (0730-1500)-In September start ENT block 0730-1700		Plastics (0845-1500)		PEDI SURG (0730-1500)	
	week 3	Plastics (0730-1500)		Craniofacial (0730-1700)				Plastics (0845-1500)			
	week 4	Plastics (0730-1500)		Craniofacial (0730-1700)		PEDI SURG (0730-1500)-In September start ENT block 0730-1700		Plastics (0845-1500)		PEDI SURG (0730-1500)	
	week 5	Plastics (0730-1500)		Craniofacial (0730-1700)		PEDI SURG (0730-1500)-In September start ENT block 0730-1700		Plastics (0845-1500)			
OR 5	week 1	CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0815-1500)		CARDIAC 05 (0730-1500)	
	week 2	CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0815-1500)		CARDIAC 05 (0730-1500)	
	week 3	CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0815-1500)		CARDIAC 05 (0730-1500)	
	week 4	CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0815-1500)		CARDIAC 05 (0730-1500)	
	week 5	CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0730-1500)		CARDIAC 05 (0815-1500)		CARDIAC 05 (0730-1500)	
OR 6	week 1	Closed for Heart Center construction		Closed for Heart Center construction		Closed for Heart Center construction		Closed for Heart Center construction		Closed for Heart Center construction	
	week 2	Closed for Heart Center construction		CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0730-1615)		Closed for Heart Center construction	
	week 3	CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0730-1615)		CARDIAC (0730-1700)	
	week 4	CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0815-1700)		CARDIAC (0730-1700)	
	week 5	CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0730-1700)		CARDIAC (0815-1700)		CARDIAC (0730-1700)	
OR 7	week 1	GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0845-1730)		GEN SURG URGENT (0730-1700)	
	week 2	GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0845-1730)		GEN SURG URGENT (0730-1700)	
	week 3	GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0845-1730)		GEN SURG URGENT (0730-1700)	
	week 4	GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0845-1730)		GEN SURG URGENT (0730-1700)	
	week 5	GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0730-1700)		GEN SURG URGENT (0845-1730)		GEN SURG URGENT (0730-1700)	
OR 8	week 1	PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0900-1700)		PEDI SURG (0730-1700)	
	week 2	PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0900-1700)		PEDI SURG (0730-1700)	
	week 3	PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0900-1700)		PEDI SURG (0730-1700)	
	week 4	PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0900-1700)		PEDI SURG (0730-1700)	
	week 5	PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0730-1700)		PEDI SURG (0900-1700)		PEDI SURG (0730-1700)	

OR Block Utilization

Block ID	Block Name	Block Specialty	Day of Week	Weeks of Month	Start Time	End Time	OR	Location	Q1 Avg	Q2 Avg	Q3 Avg	Q4 Avg
113	CMC ORTHO	Ortho	1 - Monday	1,2,3,4,5	7:30	15:00	14	Main OR	DNE	DNE	DNE	DNE
108	ORTHO TRAUMA	Ortho	1 - Monday	1,2,3,4,5	8:00	17:00	15	Main OR	53%	81%	49%	45%
114	CMC ORTHO	Ortho	2 - Tuesday	1,2,3,4,5	7:30	15:00	14	Main OR	48%	44%	57%	50%
109	ORTHO TRAUMA 2	Ortho	2 - Tuesday	1,2,3,4,5	8:00	17:00	15	Main OR	50%	59%	50%	56%
115	CMC ORTHO	Ortho	3 - Wednesday	1,2,3,4,5	7:30	12:00	14	Main OR	33%	90%	47%	26%
110	ORTHO TRAUMA 3	Ortho	3 - Wednesday	1,2,3,4,5	8:00	17:00	15	Main OR	38%	55%	35%	52%
144	CMC ORTHO	Ortho	3 - Wednesday	1,3	7:30	12:00	14	Main OR	22%	104%	DNE	DNE
116	CMC ORTHO	Ortho	4 - Thursday	1,2,3,4,5	8:45	17:00	14	Main OR	63%	59%	58%	70%
111	ORTHO TRAUMA 4	Ortho	4 - Thursday	1,2,3,4,5	8:45	17:30	15	Main OR	66%	76%	66%	68%
117	CMC ORTHO	Ortho	5 - Friday	1,2,3,4,5	7:30	12:00	14	Main OR	25%	83%	39%	40%
112	ORTHO TRAUMA 5	Ortho	5 - Friday	1,2,3,4,5	8:00	17:00	15	Main OR	44%	52%	55%	49%

Block Schedule

Block Utilization

- by service/month
- full, half day

How helpful is this?

1. Services saw the data 3 months after
2. Was the usage homogeneous?
3. Labor intensive to examine block use by individual day or surgeon.

Actually, 18 different block lengths

e.g. finish at 15:00, 15:30, 16:00,…. 19:00, 19:30

Block Schedule

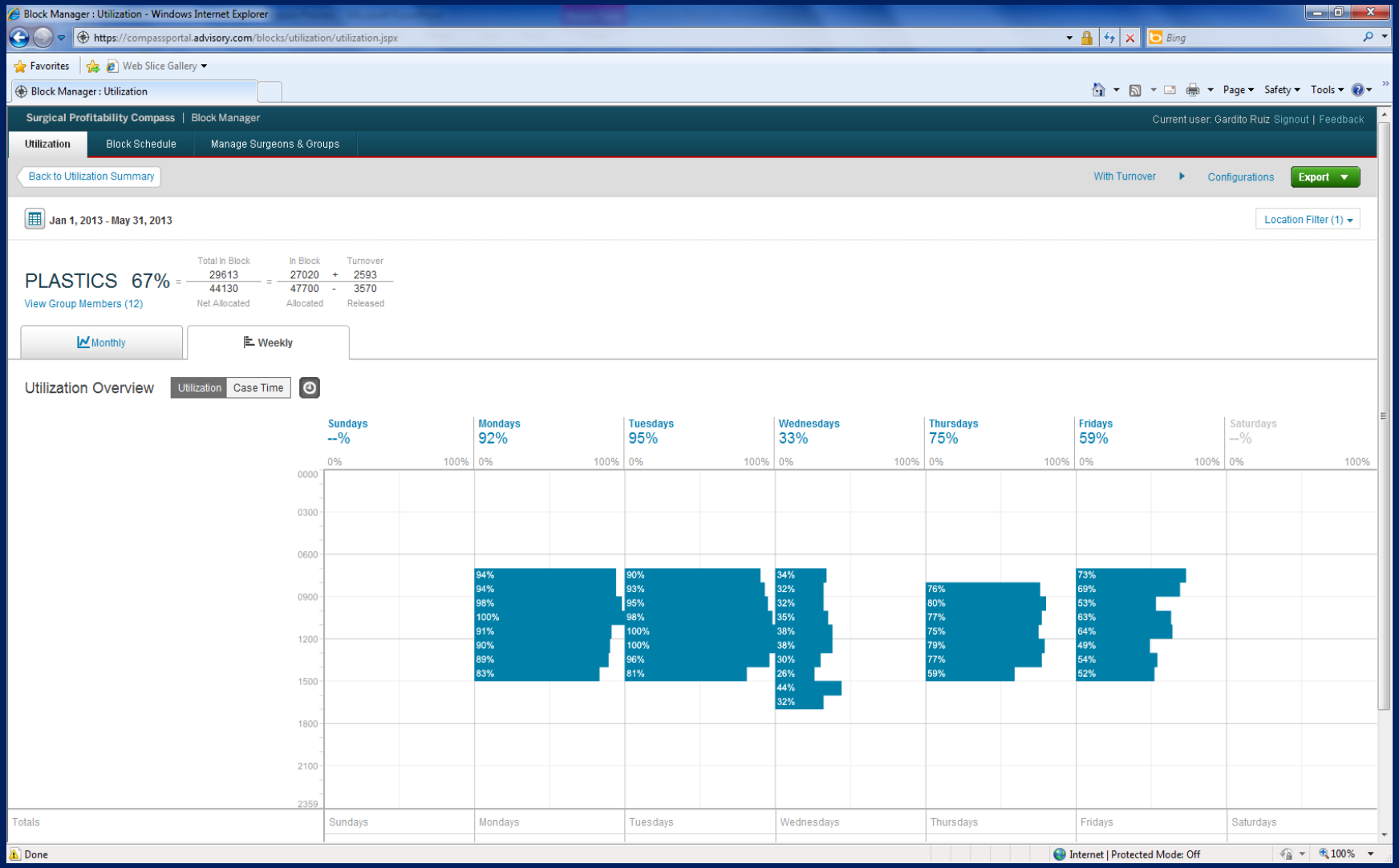
How well is the block used each day?

Opportunities to improve:

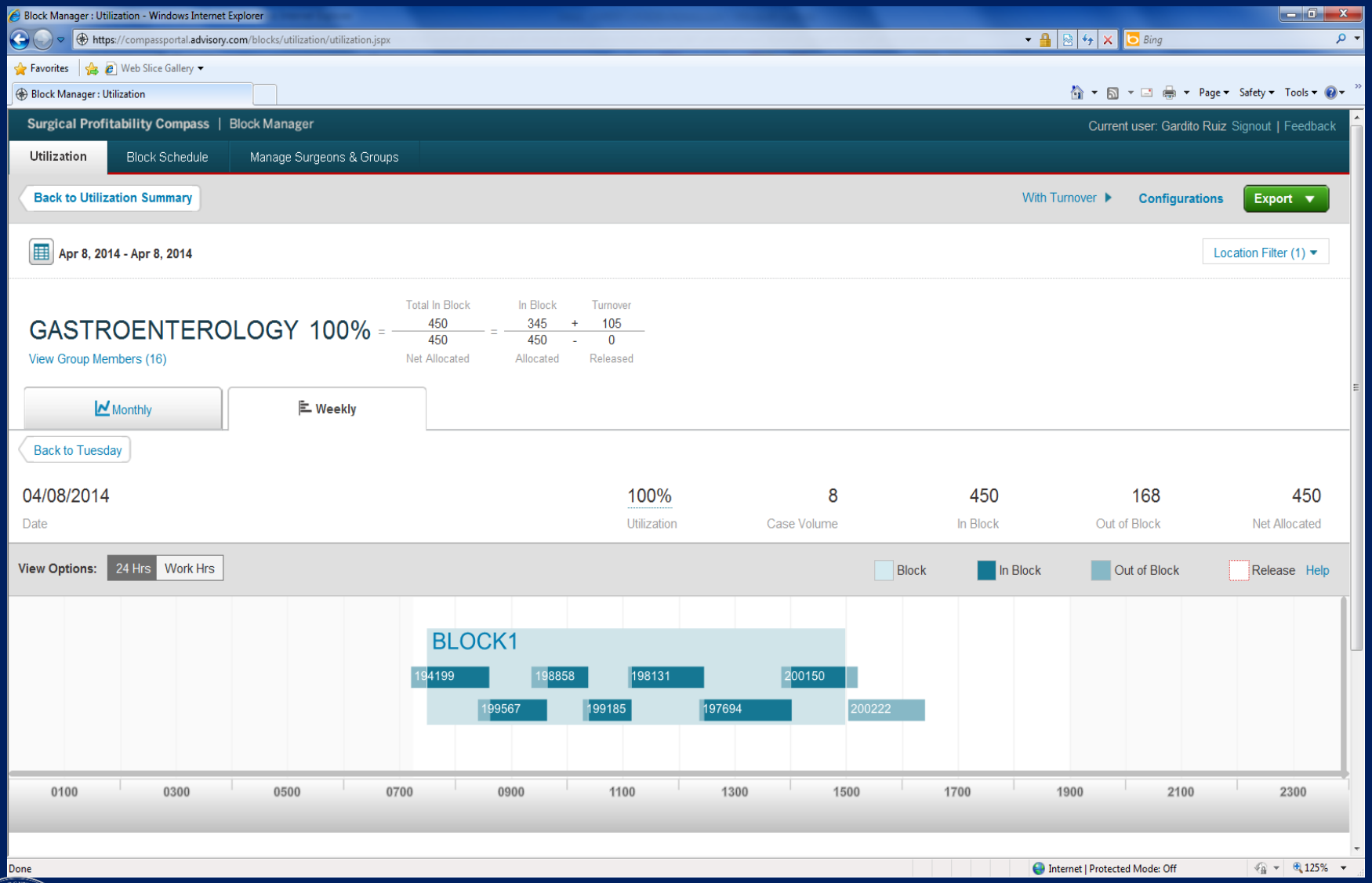
- Change or shorten blocks
- Change staffing
- Unused blocks released

- ➢ Meaningful information
- ➢ Elasticity
- ➢ Change Culture – siege mentality

Plastic Surgery Block Utilization by Day of Week and Hour
Date Range: Jan-May 2013



GI Block Scheduling Slide



Main Block Utilization: October 2012 – March 2013



Block Utilization Thresholds:

Green: ≥70%
Yellow: 55-69%
Red: <55%
White: Open Time

Service C

Review of Block Utilization By Hour

Monday		Tuesday		Wednesday		Thursday		Friday	
800	84%	800	42%	800	66%				88%
900	83%	900	43%	900	75%	900	81%	900	88%
1000	77%	1000	42%	1000	78%	1000	84%	1000	86%
1100	79%	1100	44%	1100	73%	1100	74%	1100	86%
1200	83%	1200	45%	1200	73%	1200	79%	1200	84%
1300	79%	1300	39%	1300	75%	1300	78%	1300	85%
1400	79%	1400	34%	1400	73%	1400	78%	1400	80%
1500	75%	1500	31%	1500	61%	1500	62%	1500	77%
1600	64%	1600	27%	1600	53%	1600	53%	1600	72%
1700	61%	1700	21%	1700	36%	1700	43%	1700	63%
				1800	27%	1800	39%		
				1900	22%	1900	29%		
						1930	19%		

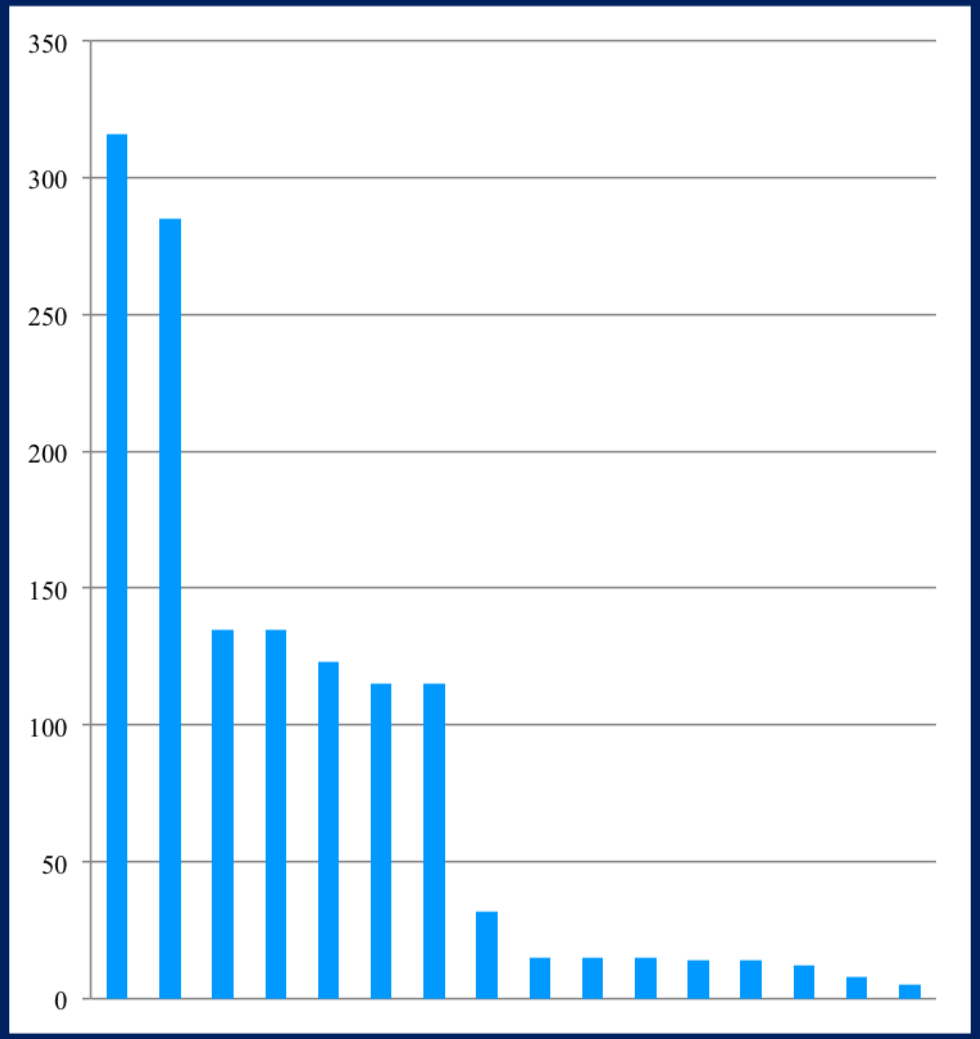
Blocks not Used Not Released (NUNR)

- Expectation of a service releasing a block if it wasn't going to be used

- Service practices varied greatly
  - I own it; I may use it
  - If I give it up, I won't be able to do those new cases

  - There are often anecdotal reasons for behaviors (actions)

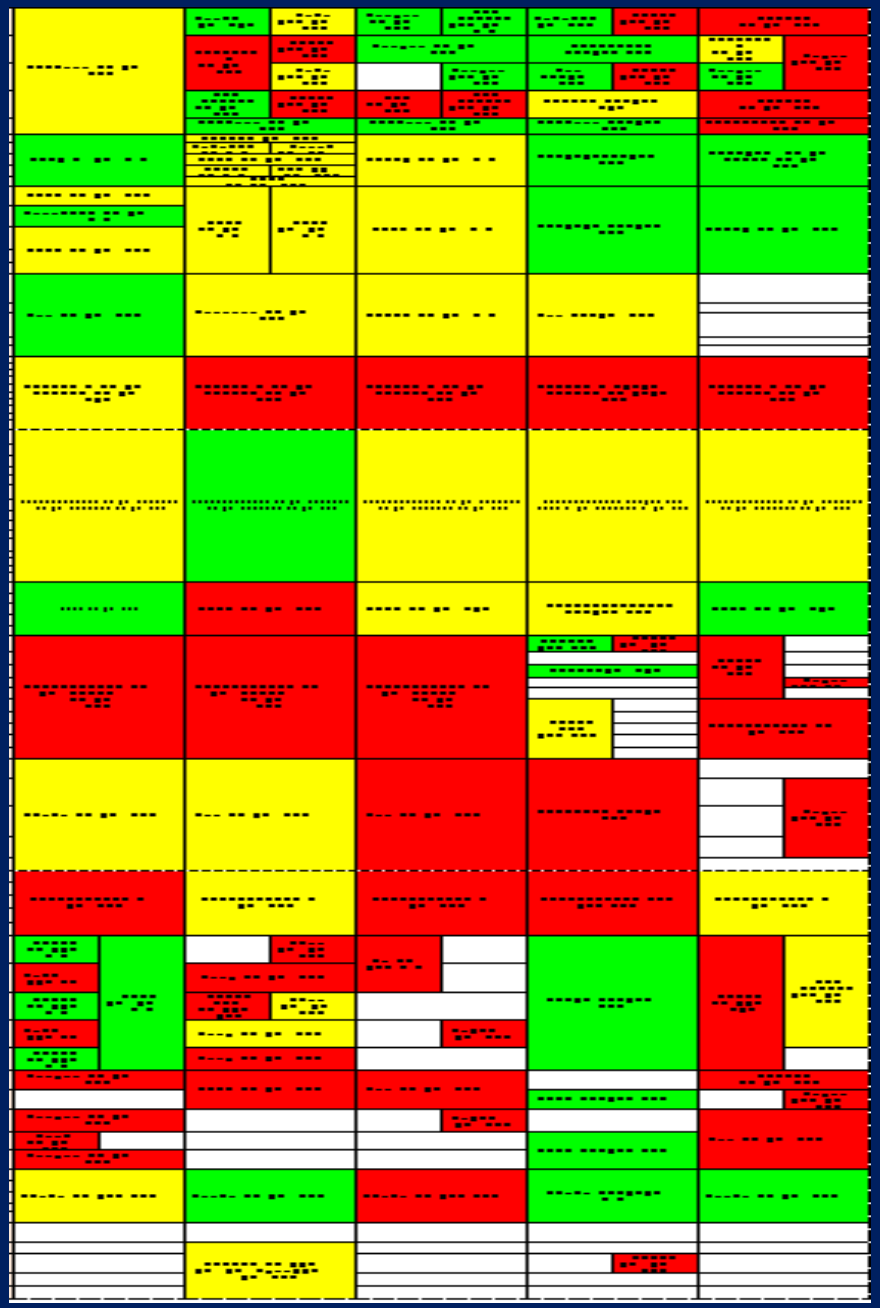
Main OR Block Hours Not Used-Not Released (NUNR): Feb-Jul 2013



Block-holder	# NUNR	Block Length	Total Block Hours	Releases
[redacted]	47	3.75-8.5	316	1
[redacted]	29	9.5-11.5	285	0
[redacted]	18	7.5	135	8
[redacted]	29	4-9.5	135	0
[redacted]	22	4.5-7.5	123	1
[redacted]	28	2-9.5	115	10
[redacted]	15	6.75-9	115	4
[redacted]	8	4	32	0
[redacted]	6	2.5	15	1
[redacted]	2	7.5	15	1
[redacted]	6	2.5	15	1
[redacted]	3	4.5	14	0
[redacted]	3	4.5	14	0
[redacted]	4	3	12	0
[redacted]	2	4	8	0
[redacted]	1	4.5	5	2

Hours NUNR by Block-holder

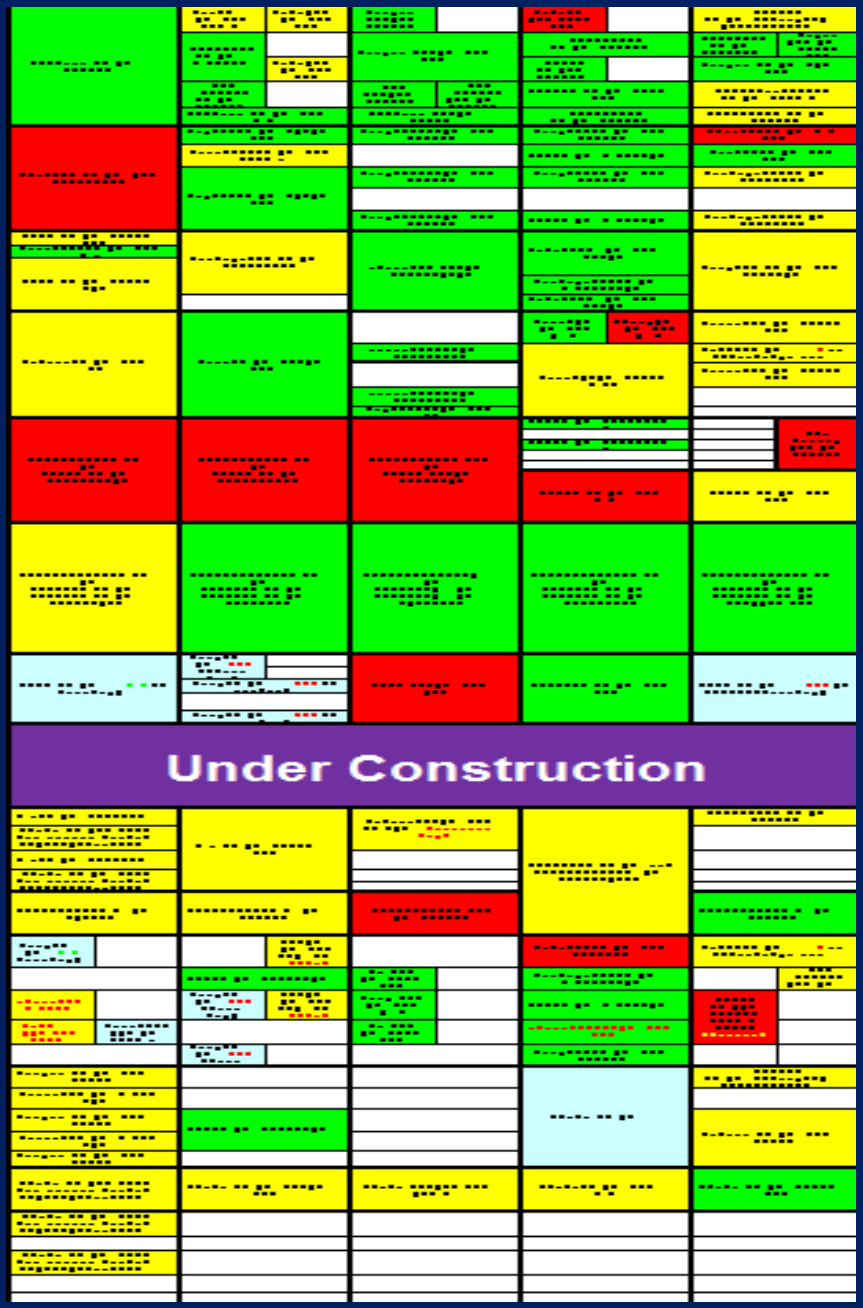
Oct 2012 – Mar 2013



Aug 2013 – Jan 2014



Apr 2014 – Sep 2014



Feb – Jul 2015

CMC Dental (0730-1500) 77% (81%)	Garza (730-1200) 74% R (100%) Kuba (1230-1700) 68% R (83%) BAREFIELD (730-1200) 75% 4R (72% R) Kuba (1230-1700) 68% R (83%) CMC DENTAL to Kerins? No July cases Wilson 1230-1700 33% (R but used AM) CMC Dental (0730-1700) 77% (N/A)	Harrington (0845-1230) 78% (82%) HILL (845-1230) 93% (R) CMC DENTAL- (1230-1700) 70% (30%) CMC Dental (0845-1500) 70% (30%)	Kuba (730-1230) 67% (R) OB+IB Morgan 1230-1600 NEW CMC DENTAL (0730-1700) 83% (77%) GARZA (0730-1230) 86% (69%) Morgan 1230-1600 NEW MORGAN (0730-1600) 80% (86%) CMC DENTAL (0730-1700) 82% (77%)	MORGAN (0730-1500) (using OR 1-17) 79% 3R (85% R) BAREFIELD (0730-1200) 94% (85%) Morgan (1230-1500) 70% 3R (65% R) Harrington (0730-1700) 82% (+High GOB Thurs (71%) MORGAN (0730-1500) 79% 3R (85% R) CMC DENTAL (0730-1500) 73% (85%)
Shah ENT (0730-1700) 76% R (86% R)	Berg ENT 730-1700 74% 2R (69% R) Leach 1100-1700 74% in 4 mo Berg ENT 730-1700 74% 2R (69% R)		Ulualp ENT 730-1700 81% 2R (85%) Weinberger ENT 830-1500 65% (89%) Ulualp ENT 730-1700 81% 2R (85%) Johnson ENT 745-1700 77% (R) Ulualp ENT 730-1700 81% 2R (85%)	Lee ENT 730-1700 56% R (90%) Back from accident- Strong last 3 months Weinberger ENT 830-1500 78% (91%) Kuhn ENT 730-1700 89% (BUT 73% OOB) + 70% R Weinberger ENT 830-1500 78% (91%)
Oral 1300-1500 76% (50%) Leach ENT 730-1700 79% (91%) ORAL (0730-1500) 76% 4R (50% R) Swanson 8th YEAR Oral 1230-1500 76% (50%) ORAL (0730-1500) 76% 4R (50% R) Swanson 8th YEAR	Weinberger ENT 0830-1700 64% 2R (90%)	Johnson-ENT 0845-1600 87% 5R (69% R) Continued Overuse	Mitchell ENT (800-1700) 74% 3R (82% R) Weinberger ENT 830-1500 65% (89%) Mitchell ENT (800-1700) 74% 3R (82% R)	Ulualp-ENT 0730-1700 82% 7R (70%)
Derderian 730-1700 69% 5R (59%) Seaward 730-1700 74% (78%) High OOB time Derderian 730-1700 69% 5R (59%)	Kane 730-1700 72% 5R (65%)	Isaacson ENT 845-1600 82% 2R (87%) High OOB time Isaacson ENT 845-1600 82% 2R (87%) High OOB time Berg ENT 845-1600 19% (R)	Kane 845-1300 77% (82%) Cheng 1300-1700 82% 3R (100%) Kane 815-1700 77% 8R (82%)	Seaward 730-1700 96% 3R (100%) High OOB Time Kuhn ENT 730-1700 89% (BUT 73% OOB) + 70% R Seaward 730-1700 96% 3R (100%) High OOB Time
GEN SURG URGENT (0730-1600) PEDI SURG (0730-1600) PEDI SURG (0730-1500) 75% 3R (87% 2R)	GEN SURG URGENT (0730-1600) PEDI SURG (0730-1600) PEDI SURG (0730-1500) 76% TR (72% 3R)	GEN SURG URGENT (1000-1700) PEDI SURG (1000-1700) PEDI SURG (1000-1700) 79% 0R (84% R)	GEN SURG URGENT (0730-1600) PEDI SURG (0730-1600) PEDI SURG (0730-1600) 70% 9R (80% R)	GEN SURG URGENT (0730-1600) PEDI SURG (0730-1600) PEDI SURG (0730-1500) 74% 12R (76% R)
UT GU (0730-1700) 81% TR (81% R)	Urology 730-1130 83% TR (83%) Urology 730-1700 83% TR (83%) Urology 730-1130 83% TR (83%) Urology 730-1700 83% TR (83%)	UT GU (0845-1700) 83% R (91%)	UROLOGY (0730-1700) 81% 6R (87% 2R)	UT GU (0730-1700) 65% 6R (81%)
NEURO ON CALL (0730-1600) NEURO (0730-1600) 58% 4R (58% R)	NEURO ON CALL (0730-1600) NEURO (0730-1600) 52% 4R (69% R)	NEURO ON CALL (0845-1700) NEURO (0845-1700) 68% R (70%)	GYN 730-1500 79% 2R (87% R) GYN 730-1500 79% 2R (87% R) NEURO (0730-1600) 36% (25%)	Ortho Oncology 1230-1700 57% 11R (54% 3R) Note: 8/19 cases on Monday NEURO (0730-1600) 83% (70%) Massive OOB
Smartt 730-1700 58% 3R (69%) Schlomer 730-1300 85% (65%) 4 mo Smartt 730-1700 58% 3R (69%) Merritt (730-1130) 67% 2R (85%) * 2 mo	Smartt (0730-1700) 65% 3R (62%)	Derderian 845-1700 75% 3R (87% R)		CMC DENTAL (0730-1500) 75% (85%) High OOB Morgan 1230-1700 79% 3R (95% R)
ORTHO TRAUMA (0800-1400) 46% (48%)	ORTHO TRAUMA (0800-1400) 59% (52%)	ORTHO TRAUMA (0845-1500) 60% (72%)	ORTHO TRAUMA 800-1400 72% First 4 months with 1-room	ORTHO TRAUMA (0800-1400) 61% (72%)
	Wilhiton 1300-1700 55% (24%) OB+IB ENT 730-1700 78% (82%) Urology 730-1130 83% TR (83%) Wilhiton 1300-1700 55% (24%) OB+IB ENT 730-1700 78% (82%) Urology 730-1130 83% TR (83%) Transplant (0730-1700) 46% (R) 92% OOB, 49% R	EYE (He, Wang) (0845-1700) 87% (73%) DERRUIS-OB+IB	ENT 730-1500 68% (88%)	CMC DENTAL (1230-1700) 75% (82%) EYE UT (0730-1130) 75% 3R (100% R) OB+IB
Derderian 730-1700 69% 5R (59%) Seaward 730-1700 74% (78%) High OOB time	Oral 730-1500 95% (89%) 2 months ENT 730-1700 78% (82%) Transplant (0730-1700) 46% (R) 92% OOB, 49% R		ENT 730-1500 68% (88%)	MORGAN (0730-1500) (using OR 1-17) 79% 3R (85% R) Derderian (0730-1700) 69% 3R (91%)
GI Endo (0730-1500) 63% Starting in April	GI Endo (0730-1500) 46% Starting in April	GI Endo (0845-1630) 32% Starting in April	GI Endo (0845-1630) 60% Starting in April	GI Endo (0730-1500) 54% Starting in April

Block Metrics

1. Utilization
   -- In Block
   -- Out of Block
   -- Overall
   -- Non Prime Time

2. Allocated Time
   -- Time Allocated
   -- Time Released
   -- Turn over

3. Capacity

Main OR Block Utilization Jan-Dec 2015

Blockholder	A In Block	B Turnover	C=A+B Total In Block	D Allocated	E Released	F=D-E Net Allocated	G % Of Time Released	H=C/F Block Utilization	I Total Out of Block
Service A	5,902	1,775	7,677	10,350	1,350	9,000	13%	85%	2,855
Service B	36,198	5,599	41,797	51,060	450	50,610	1%	83%	15,960
Service C	125,762	43,129	168,891	254,910	37,170	217,740	15%	78%	80,361
Service D	8,864	1,947	10,811	16,920	2,970	13,950	18%	77%	21,598
Service E	202,012	51,017	253,029	363,990	35,820	328,170	10%	77%	167,901
Service F	69,551	11,697	81,248	133,830	26,370	107,460	20%	76%	31,025
Service G	15,739	3,508	19,247	29,040	3,255	25,785	11%	75%	10,542
Service H	6,896	1,155	8,051	11,280	225	11,055	2%	73%	21,259
Service I	9,086	2,935	12,021	20,220	3,630	16,590	18%	72%	22,983
Service J	84,805	8,937	93,742	169,560	39,720	129,840	23%	72%	44,414
Service K	12,310	3,460	15,770	24,840	2,100	22,740	8%	69%	5,014
Service L	101,418	16,096	117,514	206,010	11,130	194,880	5%	60%	45,095
Service M	44,843	10,744	55,587	97,260	3,150	94,110	3%	59%	58,806
TOTAL	**723,386**	**161,999**	**885,385**	**1,389,270**	**167,340**	**1,221,930**	**12%**	**72%**	**527,813**

Main OR Block Utilization Jan-Dec 2015

Blockholder	A In Block	B Turnover	C=A+B Total In Block
Service E	202,012	51,017	253,029

Main OR Block Utilization Jan-Dec 2015

Blockholder	A In Block	B Turnover	C=A+B Total In Block	D Allocated	E Released	F=D-E Net Allocated	G % Of Time Released
Service E	202,012	51,017	253,029	363,990	35,820	328,170	10%

Main OR Block Utilization Jan-Dec 2015

Blockholder	A In Block	B Turnover	C=A+B Total In Block	D Allocated	E Released	F=D-E Net Allocated	G % Of Time Released	H=C/F Block Utilization
Service E	202,012	51,017	253,029	363,990	35,820	328,170	10%	77%

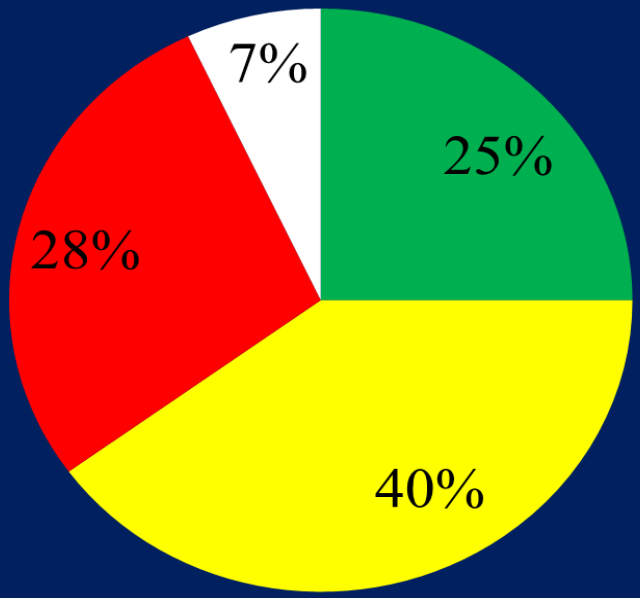
Main OR Block Utilization Jan-Dec 2015

Blockholder	A In Block	B Turnover	C=A+B Total In Block	D Allocated	E Released	F=D-E Net Allocated	G % Of Time Released	H=C/F Block Utilization	I Total Out of Block
Service E	202,012	51,017	253,029	363,990	35,820	328,170	10%	77%	167,901

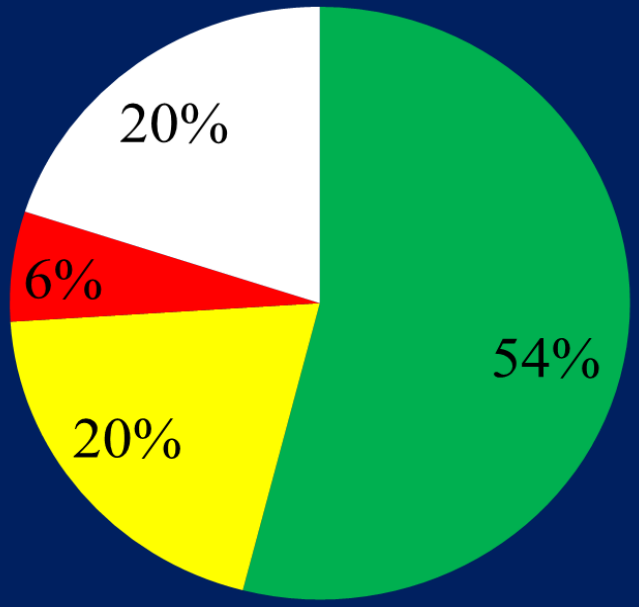
Main OR Block Utilization Jan-Dec 2015

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TOTAL	**723,386**	**161,999**	**885,385**	**1,389,270**	**167,340**	**1,221,930**	**12%**	**72%**	**527,813**

October'12-March'13



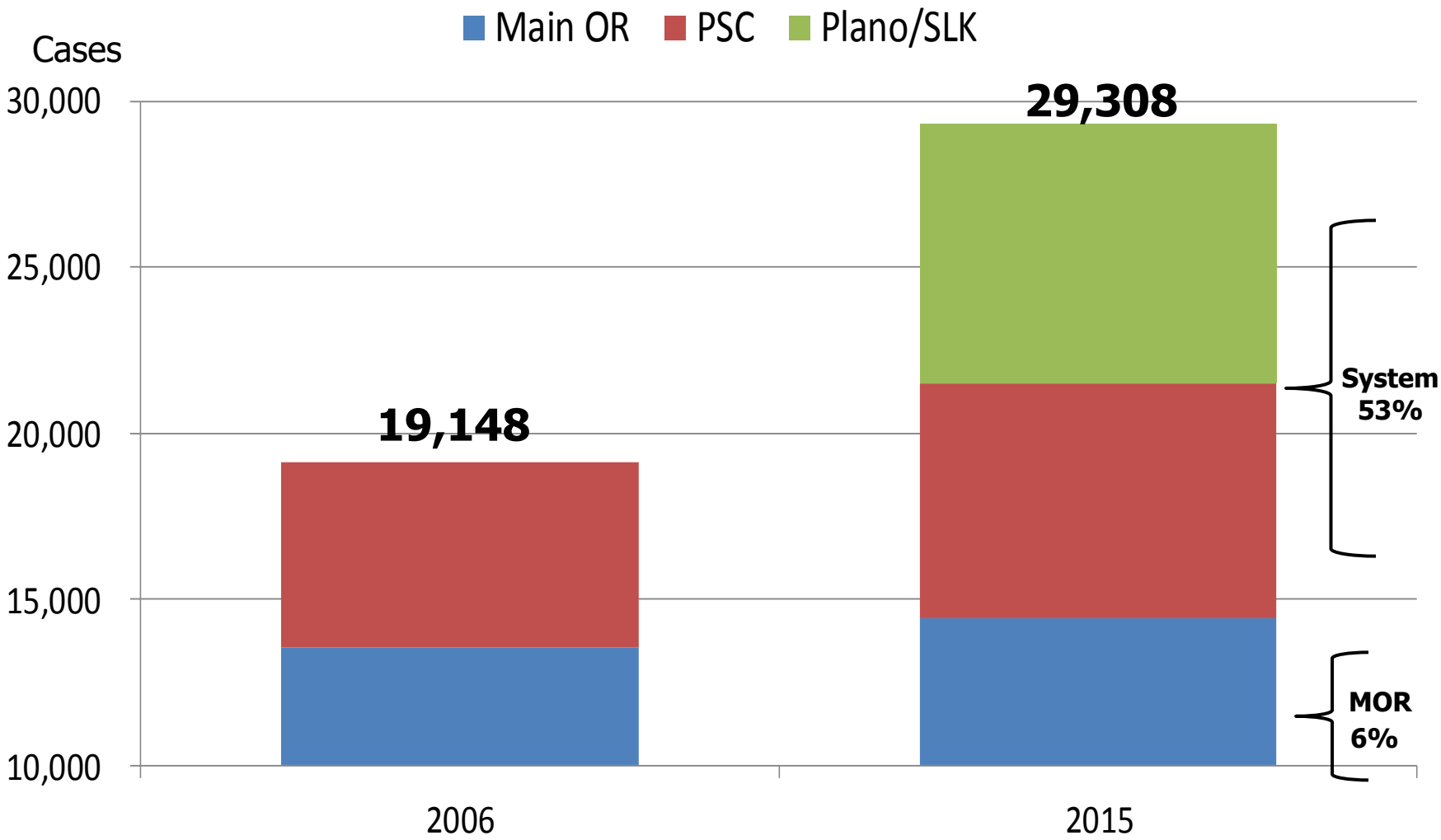
February-July'15



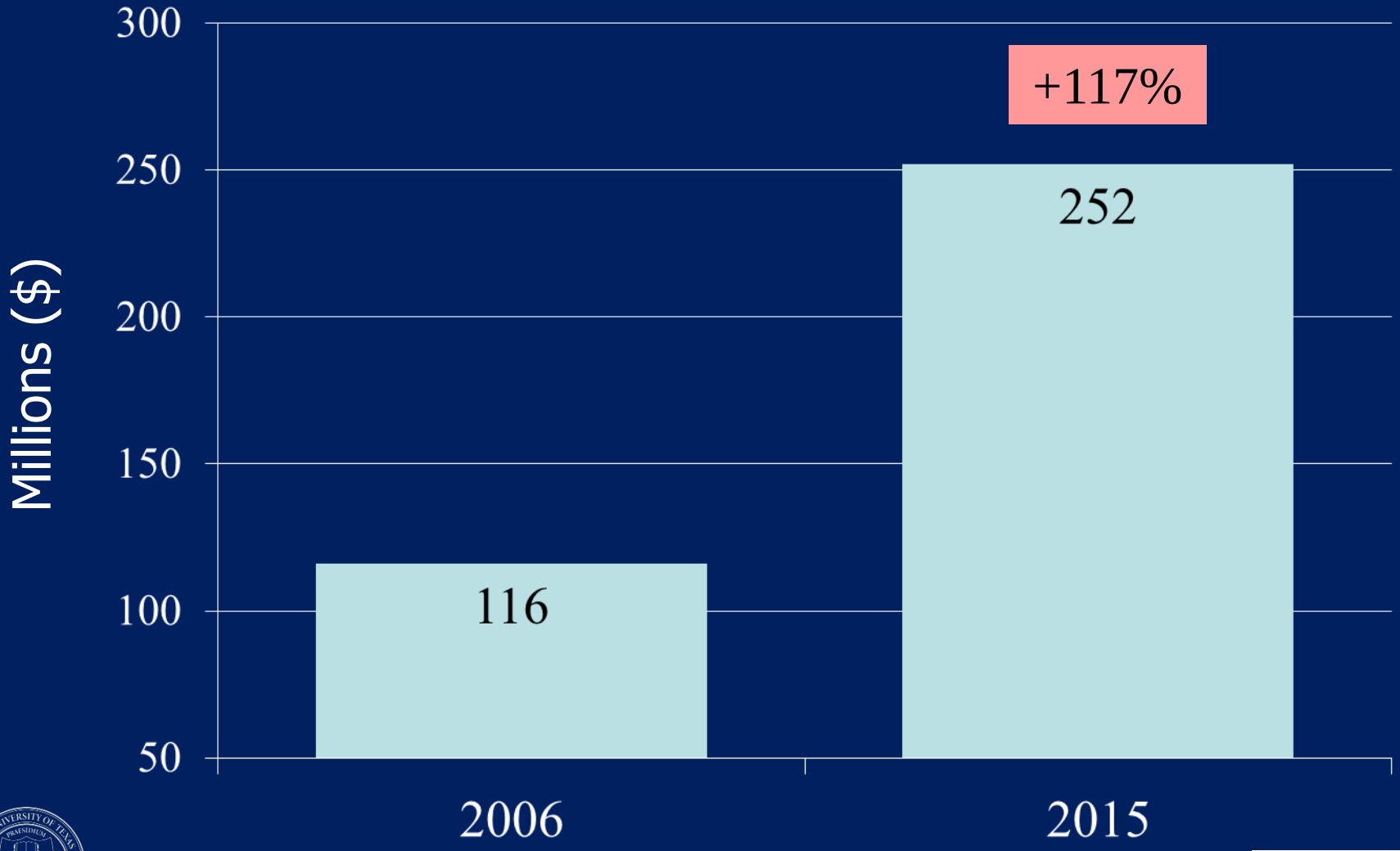
Block Utilization Thresholds:

Green: ≥70% **Yellow: 55-69%** **Red: <55%** **White: Open Time**

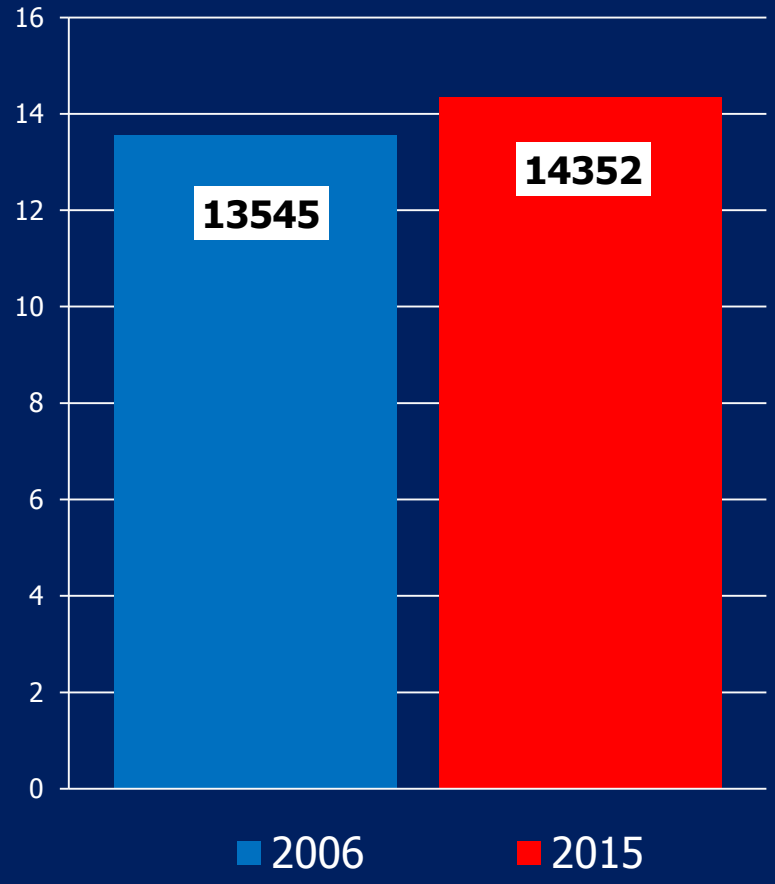
CHST Case Volume



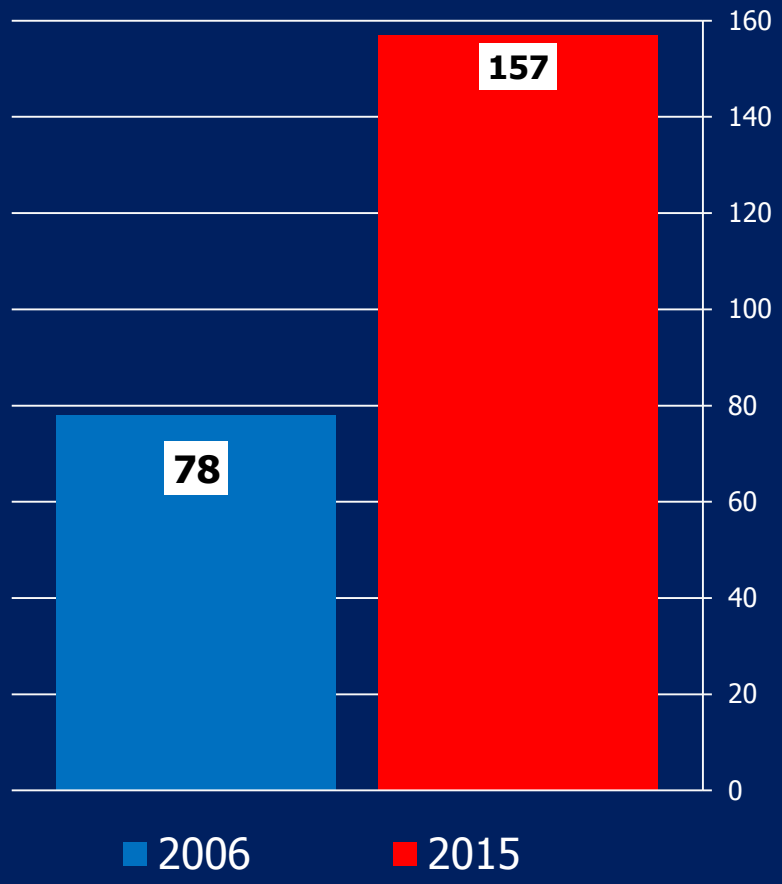
CHST Gross Revenue



Main OR Volume & Revenue



+6%



+101%

Conclusions

1. Case cancellations decreased 71%.
2. FOTS increased to 80%.
3. Block Utilization improved to 72%. (+22%)
4. Open Time increased threefold to 20%.
5. Main OR case volume increased 6%; but had a disproportionate 101% gross revenue increase.
6. Culture change in the surgeons.

Lessons Learned

A. Meaningful Information

B. Prompt Communication

C. Operations Management

D. Discussion & Setting goals

E. Benefits to Users – Surgeons and Staff

F. Patients and Families

January – June 2016

Case Volume - + 1,126 (+8%)

Block Utilization @ 76% (+29%)



Next Steps

1. Cost management – supplies – users by quartile
2. Decant low acuity cases further
3. Improve turn over time
4. Optimize release time
5. Implement at other sites
6. Add ons
7. Nights and weekends