

# Performance Dashboards: Do They Push the Needle on Safety?



**Peter O. Newton MD**

**Rady Children's Hospital & University of California, San Diego**

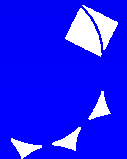


*San Diego – Orthopaedics*



# Funding Support

- **Corporate Sponsors of Setting Scoliosis Straight Foundation: DePuy Synthes, K2M, EOS Imaging, Nuvasive, Medtronic, Zimmer Biomet**
- **President: Setting Scoliosis Straight Foundation**
- **Grant: AAOS Board of Specialty Societies**



# Disclosures

- Much of this data based on Harms Study Group members
- Thank you to them for allowing me to share their outcomes
- SSSF/HSG



# HSG Strategic Goal

- **Utilize Harms Study Group databases to aid in the development of:**
  - Risk Adjusted measures of Surgeon Performance
  - Develop Best Practice Guidelines
  - Improve Safety and Quality



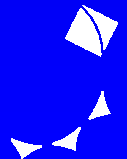
# Surgeon Performance Program AIS Quality Improvement Registry

- **Goals:**
- **Assess patient & surgeon variables associated with surgical treatment of AIS**
- **Help surgeons identify ways to improve treatment processes & patient outcomes**
- **Promote health care quality improvement**



# 2013 HSG Focus Group

- **Evaluate AIS Post-op Care Pathways**
- **Identify Best Practices**
- **Adopt a standardized Guideline**



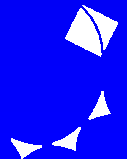
# 2013 - 4 Day Protocol

	Post-op Day 1	Post-op Day 2	Post-op Day 3	Post-op Day 4
<b>WOUND</b>	+/- drain	If drain user, drain out today.		
<b>PULMONARY</b>	IPPB spirometer	IPPB spirometer	IPPB spirometer	IPPB spirometer
<b>PAIN</b>	PCA morphine (demand only) + Ketorolac. 0.5mg/kg for 6 doses (48 hours)	Oral narcotic + valium	Oral narcotic + valium	Oral narcotic + valium
<b>MOBILIZATION</b>	PT 2x/day	PT 2x/day + 1 hour in chair	PT 2x/day + 1 hour in chair + stairs	PT 2x/day + 1 hour in chair
<b>DIET</b>	liquids	solids	solids	Solids
<b>BOWEL</b>	No NGT Colace Zofran prn Reglan prn	Colace, Zofran (anti-nausea) PRN, Reglan prn		BM not required before D/C
<b>BLADDER</b>	Foley may D/C	Must D/C		

**Fletcher ND, et al, JCO 2014**

**Clinical and economic implications of early discharge following posterior spinal fusion for adolescent idiopathic scoliosis.**

- **Accelerated discharge pathway**
- **POD1: oral pain, diet, mobilization**
- **31% reduction in LOS**



# LOH Variation by Surgeon

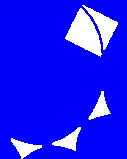
	Percent of Stays $\leq 4$ days		
SURGEON	2013	2014	2015
1	25%	90%	90%
2	27%	86%	100%
3	28%	83%	76%
4	48%	74%	71%
5	27%	20%	20%
6	21%	78%	94%
7	0%	0%	0%
8	88%	92%	100%
9	10%	100%	94%
10	81%	82%	92%
11	6%	56%	83%



## **Fletcher et al. JPO 2015**

**Use of a Novel Pathway for Early Discharge Was Associated With a 48% Shorter Length of Stay After Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis. (Emory, Atlanta)**

- **Accelerated Discharge Pathway: 2.2 days**
- **Traditional Pathway: 4.2 days**
- **Early transition to oral narcotics**
- **Early Mobilization**



**Gornitzky AL, et al, Spine Deformity 2016**  
**A Rapid Recovery Pathway for Adolescent**  
**Idiopathic Scoliosis That Improves Pain Control and**  
**Reduces Time to Inpatient Recovery After Posterior**  
**Spinal Fusion. (CHOP, Flynn)**

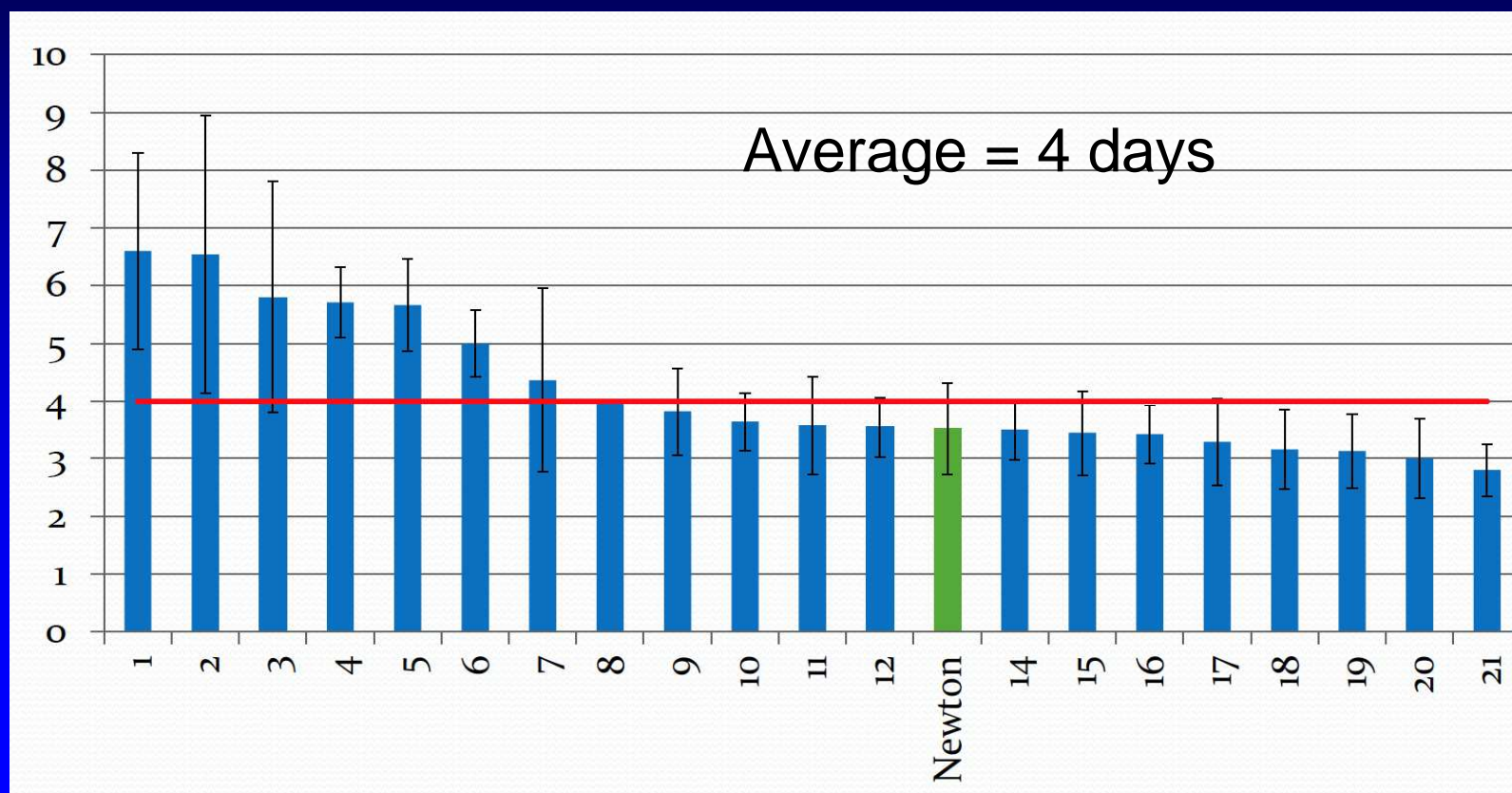
- **Rapid Recovery Pathway:**  
**multimodal pain, early ambulation**
- **31% reduction in LOS, less pain**



# HSG 2016 Revised 3 Day Pathway

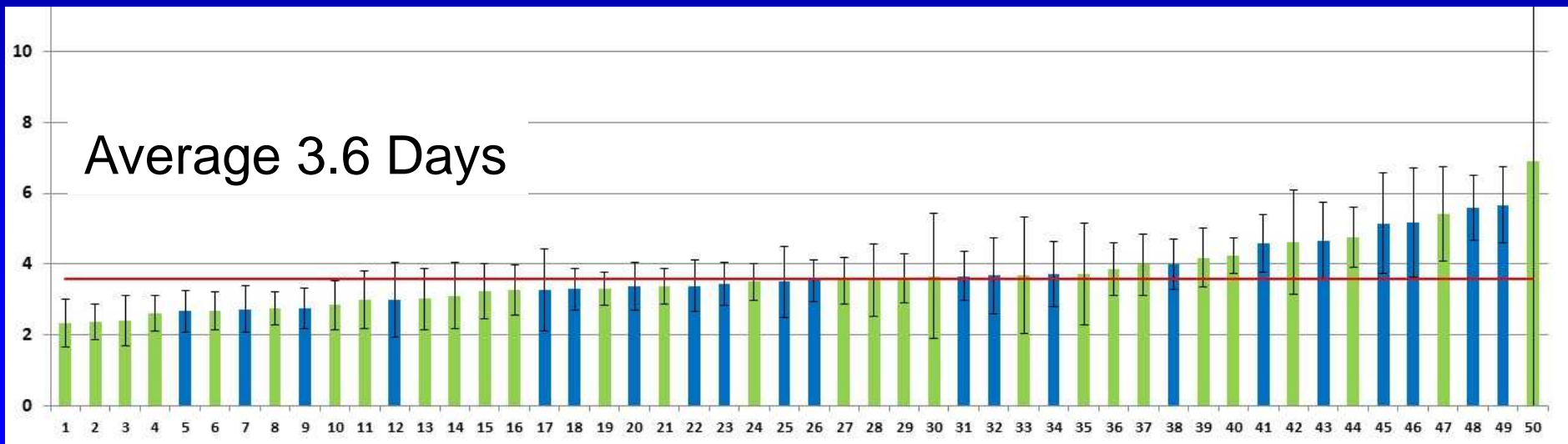
	Diet	Activity (PT)	Drain	Narcotic	Gabapentin	Ketorolac	Foley
<b>DOS</b>	Liquids	Log roll		PCA basal + demand. Epidural not necessary.	300mg qHS		Yes
<b>POD1</b>	Adv as Tolerated	OOB to walking, 1-2x w/ PT	DC	PCA demand only, begin oral narcotic	300mg qHS	0.5mg/kg q8hr	Yes
<b>POD2</b>	Reg	OOB to walking, 1-2x w/ PT		D/C PCA demand	300mg qHS	0.5mg/kg q8hr	D/C
<b>POD3</b>	Reg	stairs, DC Home	Met Delphi Consensus		300mg qHS		

# Length of Hospitalization, 2016



# Length of Hospitalization, 2018

## HSG and SSP Surgeons



**Chan CYW, et al. Spine 2017**

**Feasibility and Outcomes of an Accelerated Recovery  
Protocol in Asian Adolescent Idiopathic Scoliosis  
Patients (Malaysia)**

- **Pain management, early rehab**
- **LOS: 3.6 days**
- **No increase in complications**



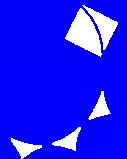
# It's about the patient!

- **Rapid Recovery means we help them recovery faster.**
- **Not about discharging “early”.**
- **Minimize narcotics, eat and out of bed early are key drivers.**



# Deep Wound Infection

- **< 90 days postop, AIS, PSF**
- **2499 patients**
- **22 Deep Surgical Site Infection**
- **Overall: 0.9% (range 0.2-1.5%)**



# Risk Factors Analysis

	Infection within 90 days?		
	No	Yes	p
Age at Surgery	14.7 $\pm$ 2	14.9 $\pm$ 2	0.6
BMI % for age	54 $\pm$ 30	74 $\pm$ 28	<b>0.002</b>
Primary Cobb	55 $\pm$ 13	53 $\pm$ 13	0.6
3D Kyphosis	7 $\pm$ 12	10 $\pm$ 12	0.3



# Risk Adjusted Infection Rates

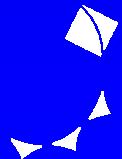
(BMI >90%, sole risk factor in AIS, 6x)

BMI % groups	No Infxn	Infxn	p<0.001
underweight	100%	0%	
normal	99%	1%	
overweight	100%	1%	
obese	95%	5%	

	% obese patients	Predicted # Events	Actual # Events	Predicted %	Actual %	Risk Adjusted Rate
<b>Site 1</b> (n=153)	8.5%	2.0	2	1.32%	1.31%	<b>0.9%</b>
Site 2 (n=133)	3.0%	1.2	2	0.88%	1.50%	1.5%
Site 3 (n=340)	5.3%	3.6	5	1.06%	1.47%	1.2%
<b>Site 4</b> (n=224)	6.7%	2.6	2	1.18%	0.89%	<b>0.7%</b>
<b>Site 5</b> (n=521)	2.3%	4.3	1	0.82%	0.19%	<b>0.2%</b>
<b>Site 6</b> (n=419)	5.0%	4.4	3	1.04%	0.72%	<b>0.6%</b>
<b>Site 7</b> (n=405)	3.0%	3.5	3	0.87%	0.74%	<b>0.7%</b>
Site 8 (n=142)	1.4%	1.1	2	0.75%	1.41%	1.7%

# 2016 Goal – Blood Loss

- **Reduce variability in Loss & Blood Product Utilization**
- **Create a Performance Measure related to Blood Loss**



# EBL 4 Years Trends – 33% Reduction

**2011 – 940 ml**

**2012 – 881 ml**

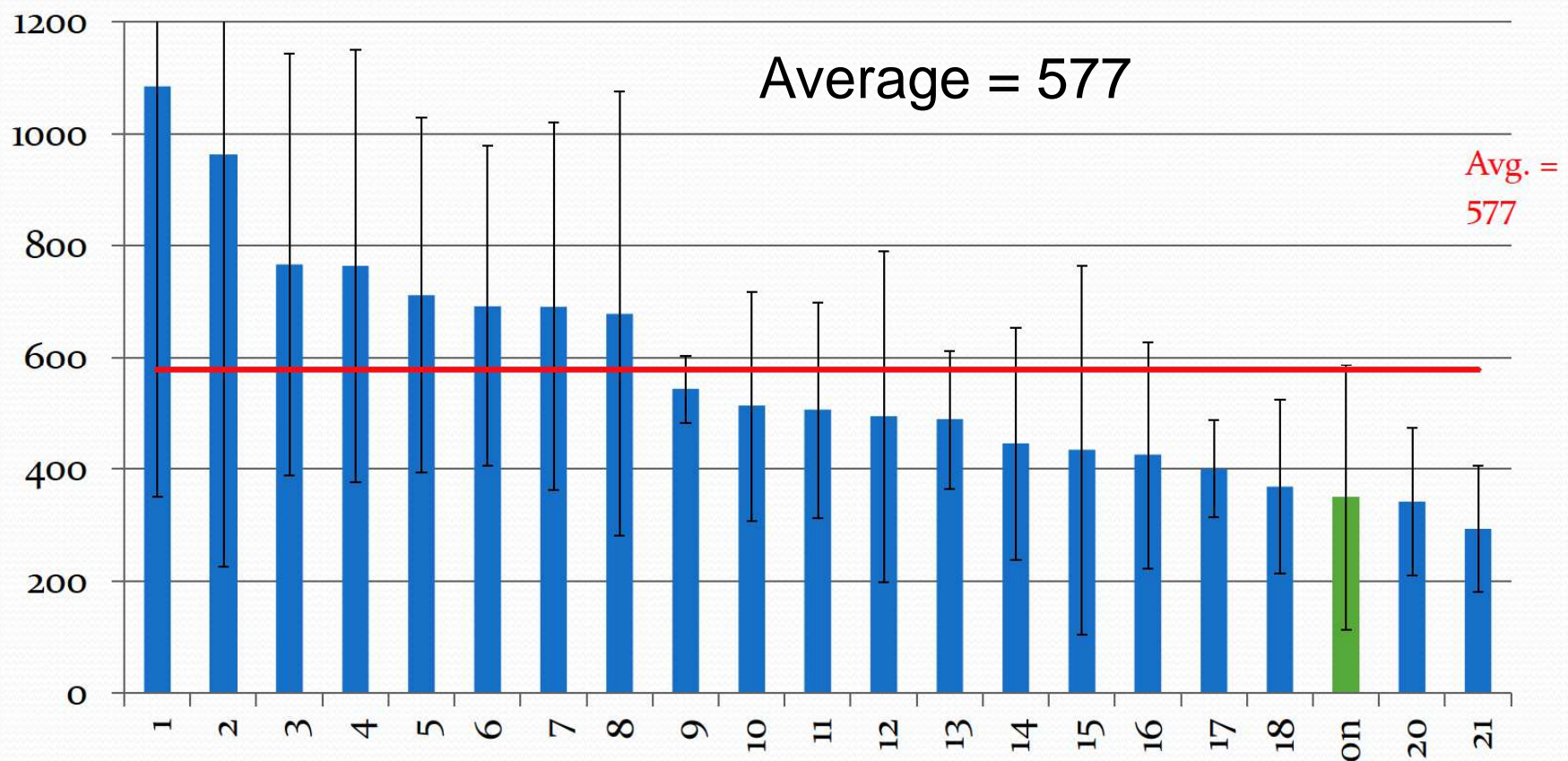
**2013 – 744 ml**

**2014 – 620 ml**

**2015 – 635 ml**

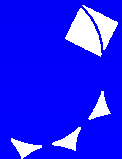
Surgeon	2011	2012	2013	2014
1	1354	1044	775	564
2	586	738	618	552
3	743	678	567	660
4	1409	1469	723	530
5	646	602	507	493
6	539	496	557	630
7	1002	707	593	650
8	668	634	490	508
9	1024	1117	1456	848
10	1427	1331	1153	766
Average	940	881	744	620

# 2016 - EBL Data



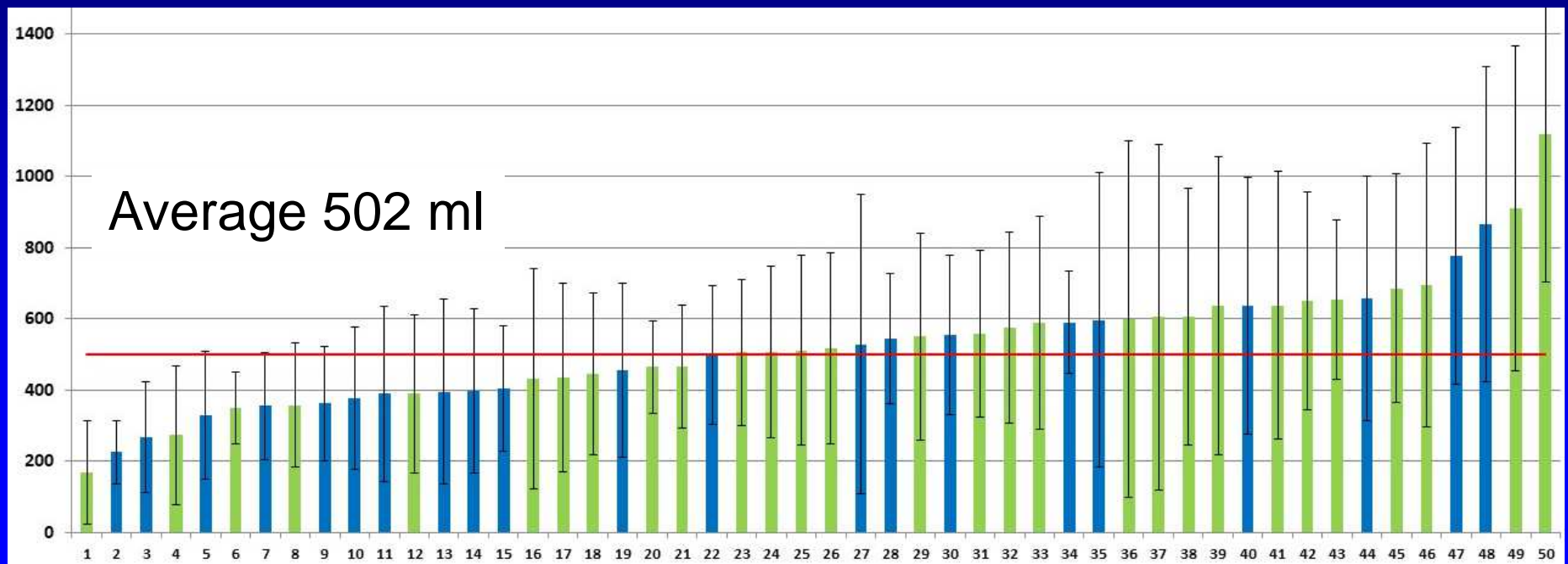
# HSG Consensus Blood BPG

- **Preop CBC**
- **T&S vs T&C**
- **Fam hx of bleeding**
- **Preop PT/PTT**
- **Transfuse Hb <7**
- **Bipolar, Ultrasonic**
- **Antifibrinolytic**
- **Cautery >40**
- **Hemostatic sponge**
- **Target BPs**



# Estimated Blood Loss

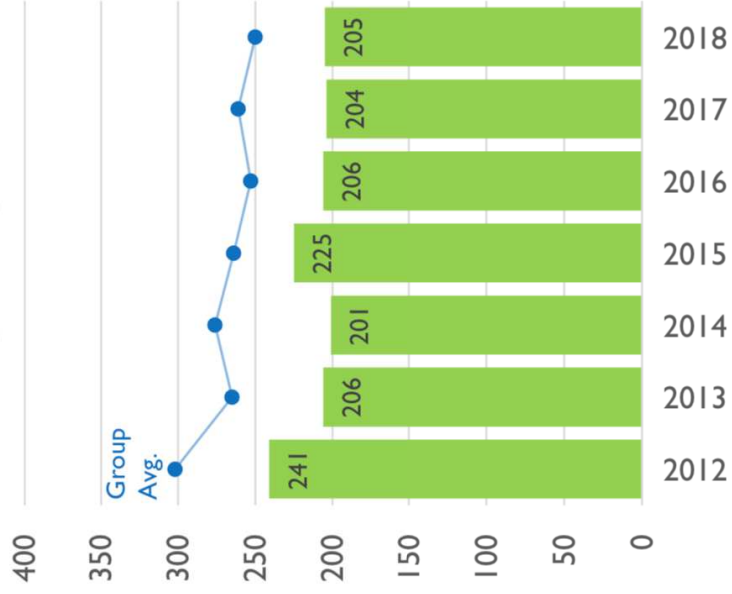
## 5 Fold Variation



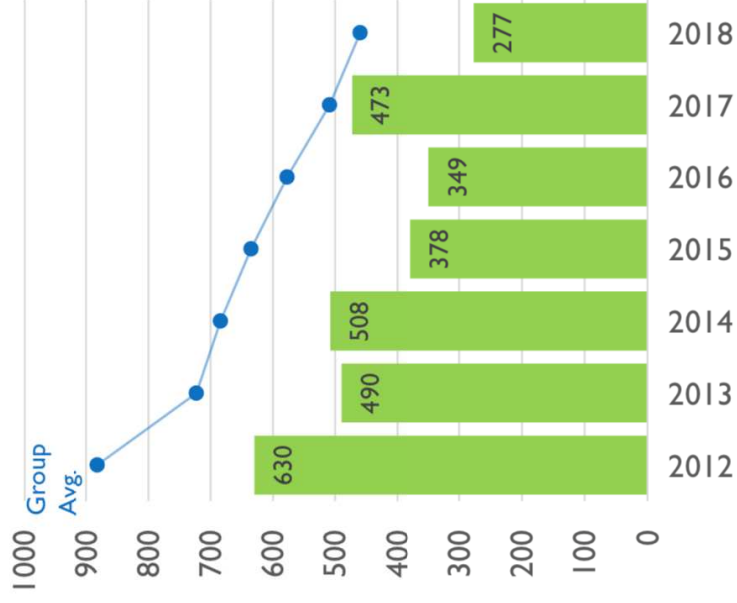
# Trends Over Time



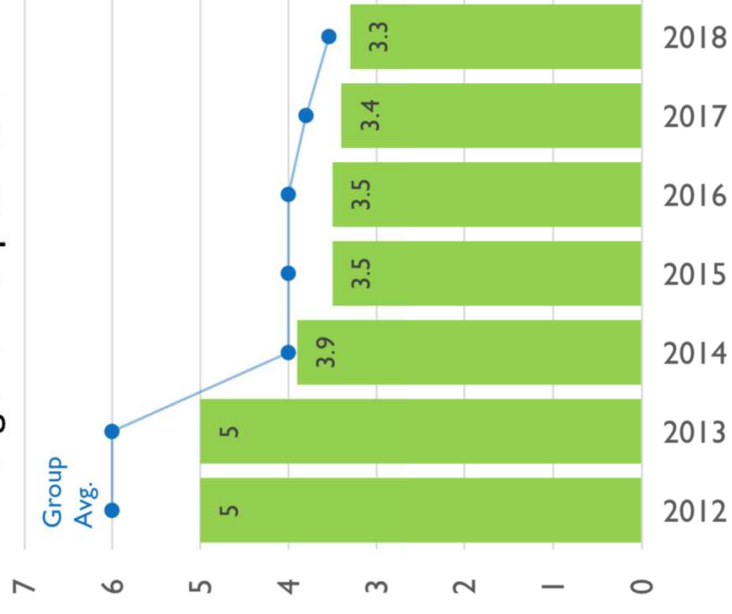
OR Time



EBL



Length of Hospitalization



# Set realistic goals

- Use data to identify opportunities
- Set meaningful goals
- Measure your progress
- Ask for advice, tips, a coach...



# Metrics Matter

## YOU (all pts)

	Pre-Op Curve	Post-Op Curve
Avg	55	16
StdDev	12	7
Min	40	4
Max	93	34

## GROUP (all pts)

	Pre-Op Curve	Post-Op Curve
Avg	58	19
Smallest Avg	50	11
Largest Avg	71	29

### LEADERBOARD RANK

240 / 2,136

### TOTAL OUTPUT

534 kj

### DISTANCE

15.92 mi

### CALORIES

662 kcal

### AVG OUTPUT

198 watts

### AVG CADENCE

84 rpm

### AVG RESISTANCE

50 %

### AVG SPEED

21.2 mph

DISCOVER YOUR

## POWER ZONES

WITH MATT

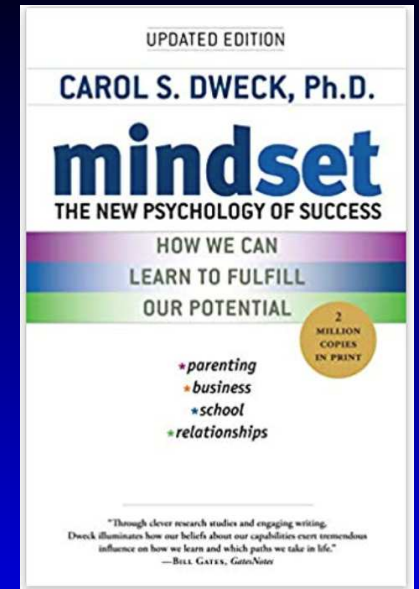


# Mindset

## The New Psychology for Success

- **Fixed mindset:** believes you have what have for talent/intelligence
- **Growth mindset:** believes talent can be developed w/ effort, coaching...

## Adopt a growth mindset



# Setting Scoliosis Straight Surgeon Performance Program

- Designed for surgeons
- Safety and Outcomes Improve
- Simple Data Entry – Mobile, Web-based
- 90 day outcomes
- ABOS – MOC

