INCORPORATING ROBOTICS INTO YOUR PRACTICE:

A Health System Leader's Perspective

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System Chief, Bariatrics, Northwell
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DISCLOSURES

SPEAKER FOR:
GORE
MEDTRONIC
STRYKER

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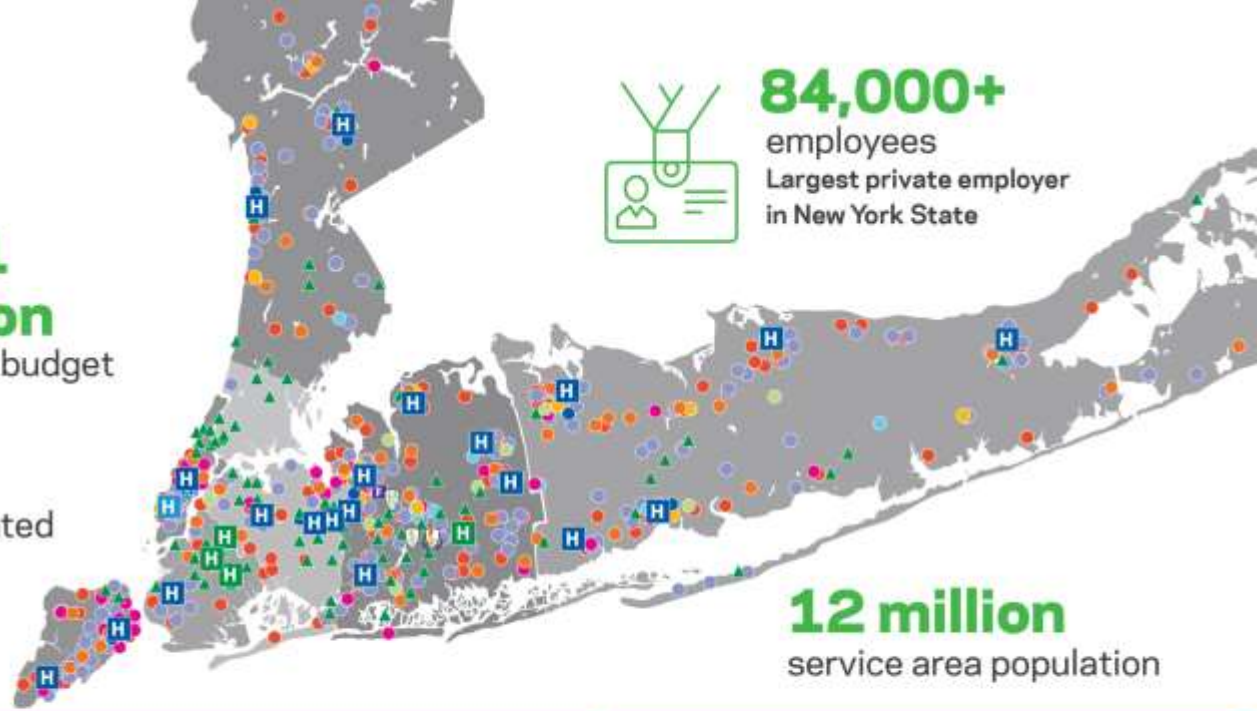
ECONOMIC IMPACT

$16.5 billion annual operating budget

$1.1 billion capital budget

21 hospitals } **10** magnet-designated

890+ ambulatory facilities



84,000+ employees
Largest private employer in New York State

12 million service area population

CAREGIVERS

12,000+ credentialed physicians

4,900+ employed physicians
Largest Physician Group in the New York Area

3,500+ advanced care providers

18,000+ nurses

1,900+ residents & fellows in 160 programs

5,000 volunteers

OPERATING STATISTICS

5.5 million patients encounters
— 2 million patients treated annually

37,000+ births

1 million home health visits

850,000+ emergency visits*

250,000+ ambulatory surgeries*

1,000+ active clinical research studies

250+ principal investigators

*2022 budgeted

COMMUNITY IMPACT

$485 million in education & research

$465 million in health improvement services & building

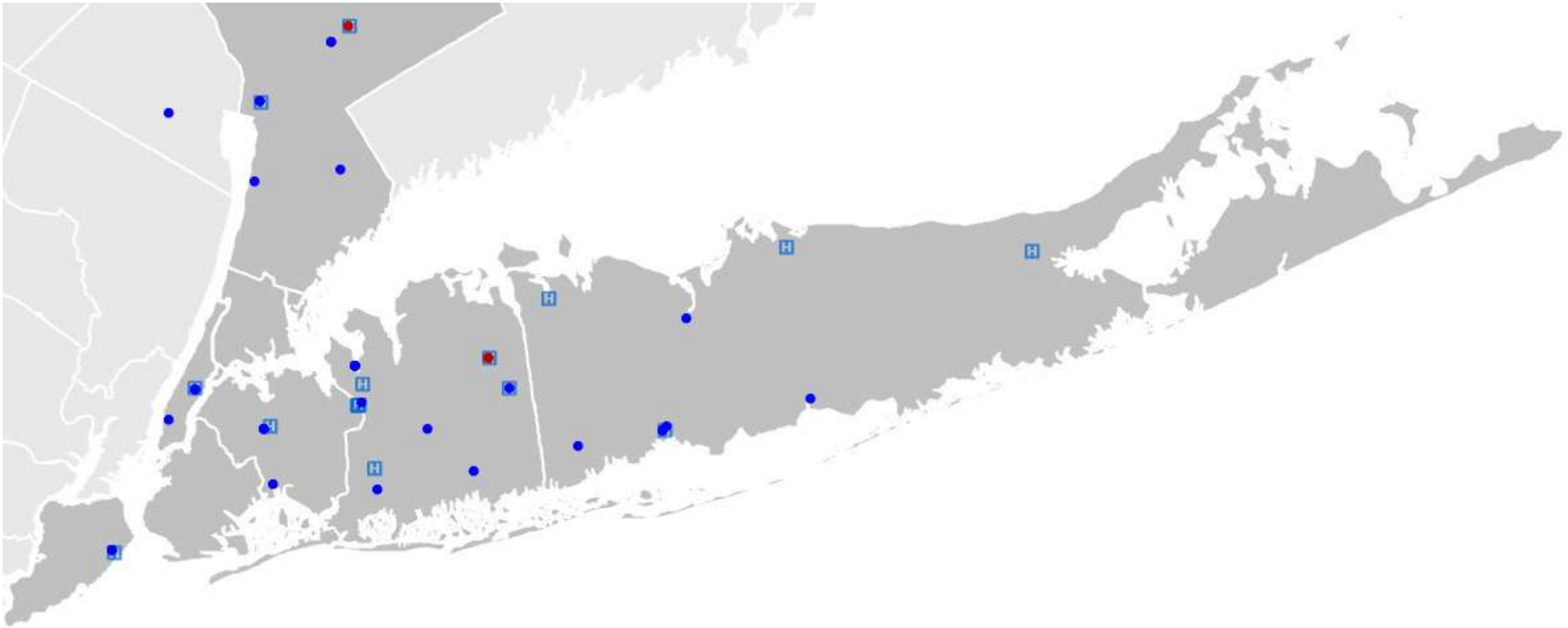
$221 million in charity care

NORTHWELL BARIATRIC LANDSCAPE:

30 BARIATRICS SURGEONS

MEDICAL WEIGHT MANAGEMENT: 18,000 PTS/YR

OVER 3,000 ANNUAL SURGICAL CASES



Leadership Committed to Investing in Robotics

David Battinelli, MD
Executive Vice President
& Physician-in-Chief

Jill Kalman, MD
Senior Vice President, Chief Medical Officer & Deputy Physician-in-Chief

> *"We were doing it to be on the cutting edge and to be able to demonstrate enhanced quality. Emerging technologies sometimes promise that there will be financial rewards; but technology is always expensive, and we just wanted to make sure that the quality [improvement] would be clear enough to compensate as a return on investment for some margin in either direction on finances."*
>
> - Dr. David Battinelli

Superior Quality Outcomes	Excellent Patient Care	Standardization of Care Delivery

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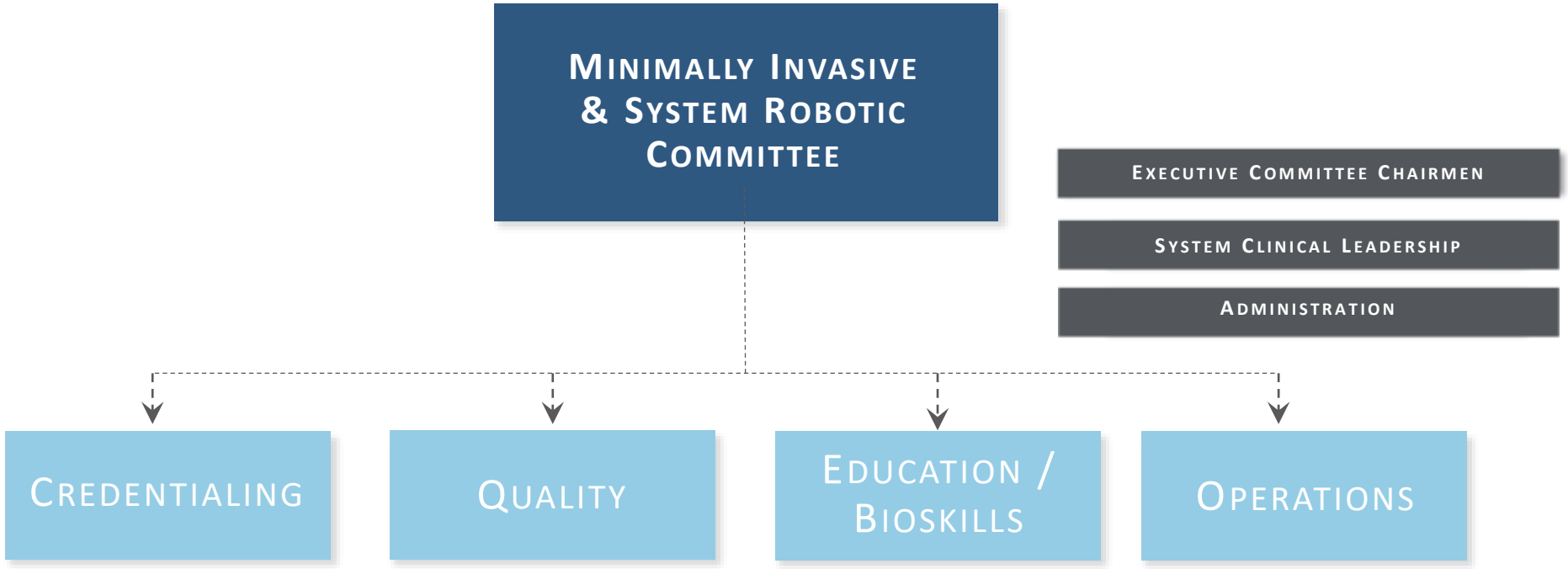
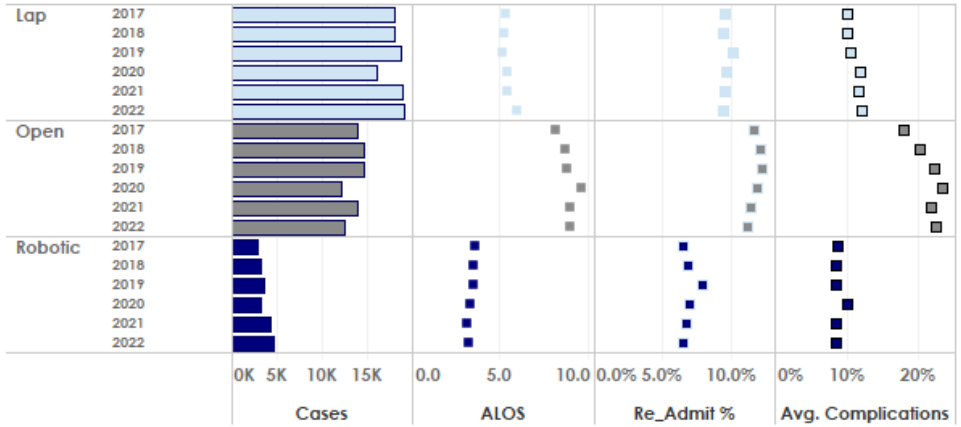
NWH System Robotics Committee Structure and Mission:

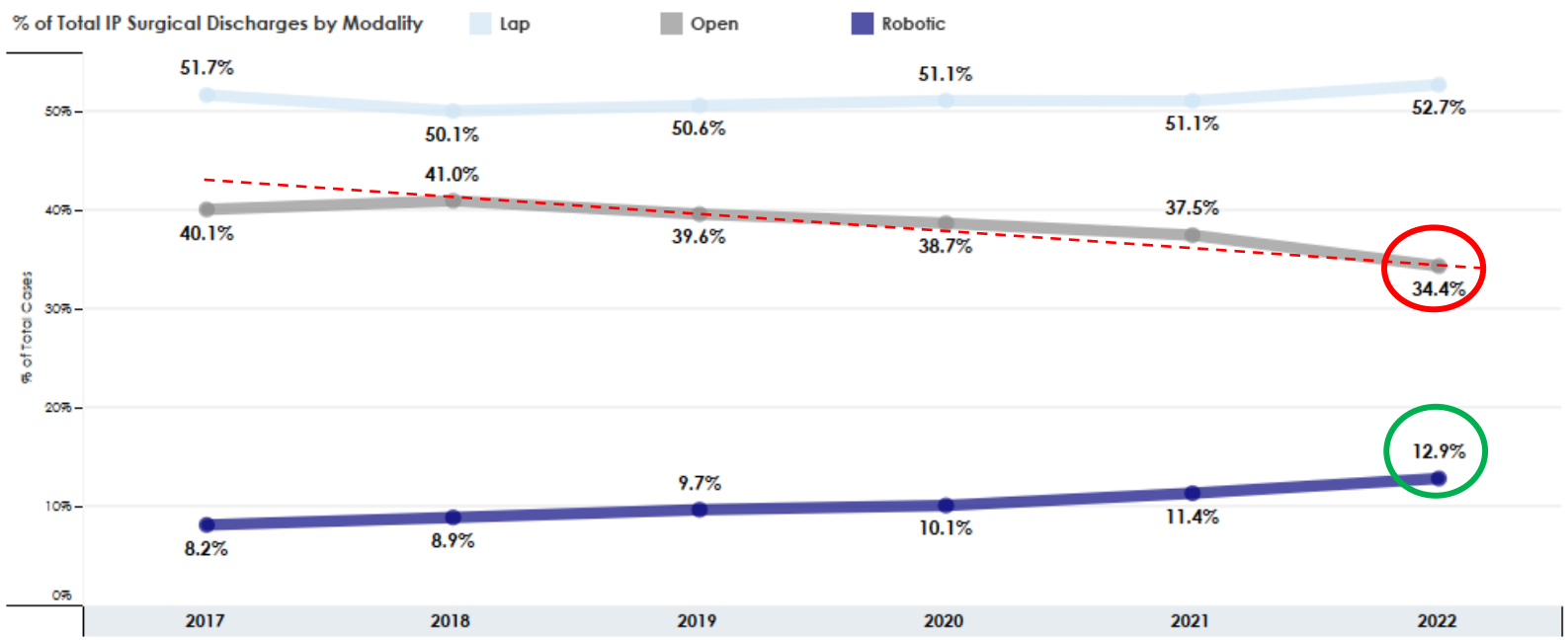
'To establish a comprehensive multidisciplinary Minimally Invasive & Robotic program recognized for its dedication to superior quality, exceptional patient experience and innovation; complemented by an outstanding clinical team that leverages Health System Centers of Excellence for exceptional patient-centered care'



Applicable Soft Tissue Comparison – IP Surgical Discharge: 2022

Modality	Fiscal Year					
	2017	2018	2019	2020	2021	2022
Lap	18,003	18,026	18,768	16,052	18,901	19,091
Open	13,968	14,753	14,692	12,155	13,872	12,443
Robotic	2,844	3,211	3,598	3,182	4,207	4,660
Grand Total	34,815	35,990	37,058	31,389	36,980	36,194





2021 % IP Cancer			2022 IP Re-Admit			2022 IP ALOS			2022 IP Comp %			2022 IP Mortality			2022 % IP Transfusion			IP CMI		
Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic
8.2%	15.8%	39.3%	9.4%	11.2%	6.5%	6.0	9.0	3.2	12.1%	22.5%	8.6%	2.4%	2.5%	0.3%	10.2%	21.6%	4.1%	2.92	3.58	2.20

- **13,048** patient days saved compared to Lap in 2022
- Improved patient outcomes and experience
- Patient observed standard of care

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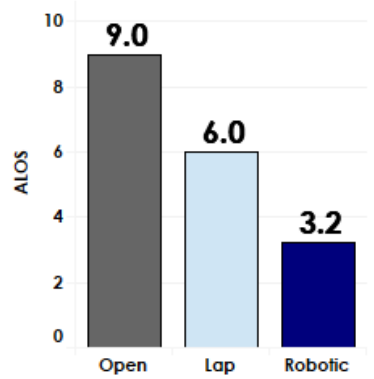
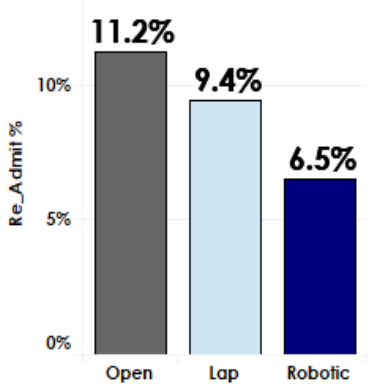
Applicable Soft Tissue Comparison – IP Surgical Discharge: 2022

Outcomes Analysis 2022:

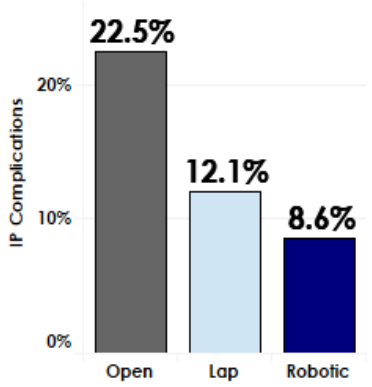
ALOS



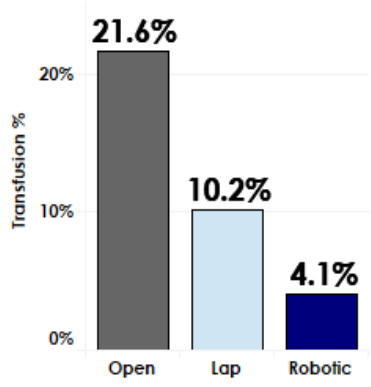
Re-Admit



Complications



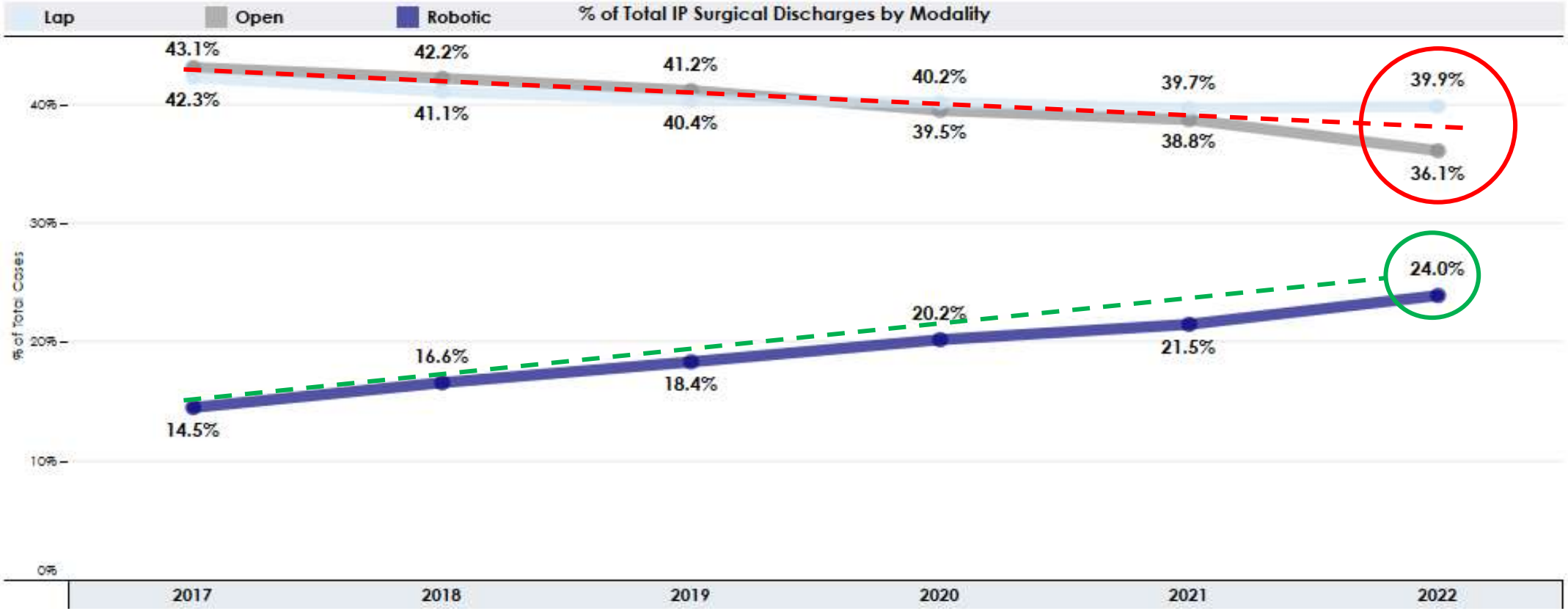
Transfusions



Northwell Health All-Modality Dashboard

Non-Emergent, Inpatient, Soft-Tissue Procedural Volume

- Open vs Laparoscopic vs Robotic



- Removing emergent case volume, robotics accounts for ***24%*** of all soft tissue surgery in 2022

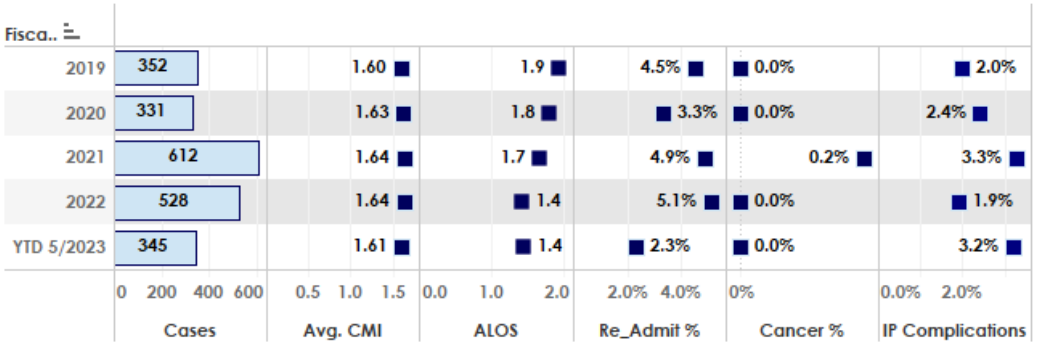
System Robotic Dashboard: Bariatric Focus

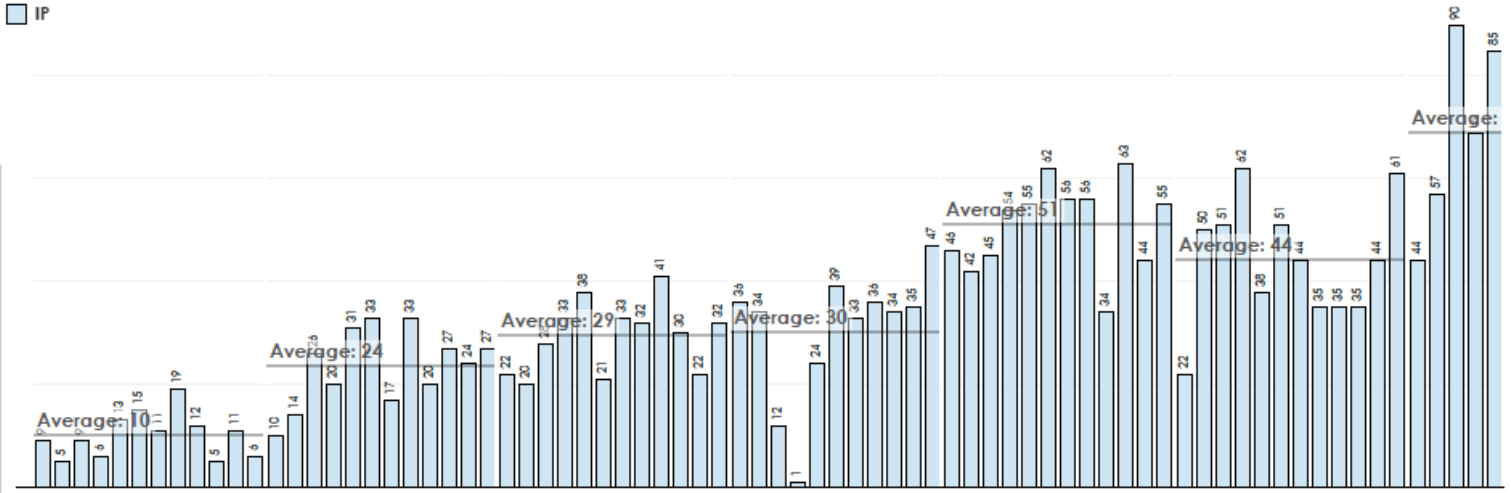
NORTHWELL HEALTH: System Robotics

SIS PRO Name | Business Unit Divisional: (All) | Service Line Actual: (All) | Operating MD: (All) | Admit Category: (All) | MSDRG Bucket: O.R. procedures for obesity 619, 620, 621 | MS DRG Code + Descr: (All)

Setting	Fiscal Year				
	2019	2020	2021	2022	YTD 5/2023
IP	352	331	612	528	345
Total	352	331	612	528	345

Annlzd. 2023: **828**





Total Re-Admit	IP ALOS	IP Comp %	IP Mortality	IP CMI	Total % Cancer	% IP ICU	% IP Transfusion	Cut to Close	Room Time
2.3%	1.4	3.2%	0.0%	1.61	0.0%	5.5%	0.6%	116.4	169.2

- Not Including JTM*
- Annualized Growth Rate 2022 – 2023 = 57%
- Annualized Growth Rate 2019 – 2023 = 135%

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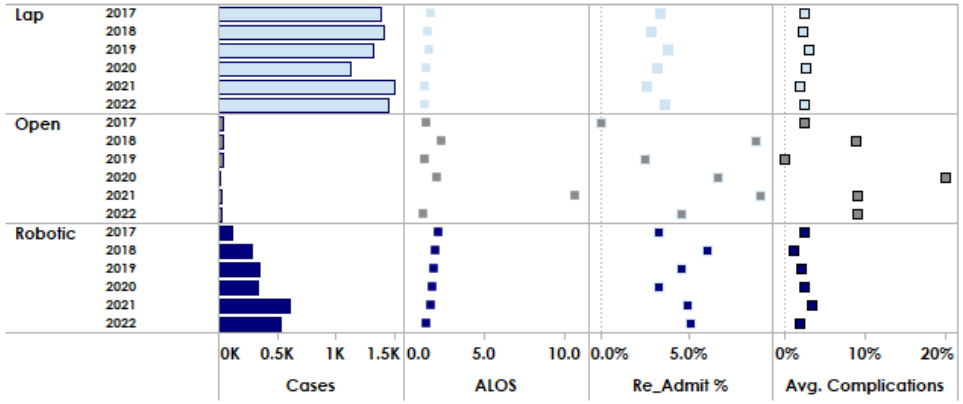
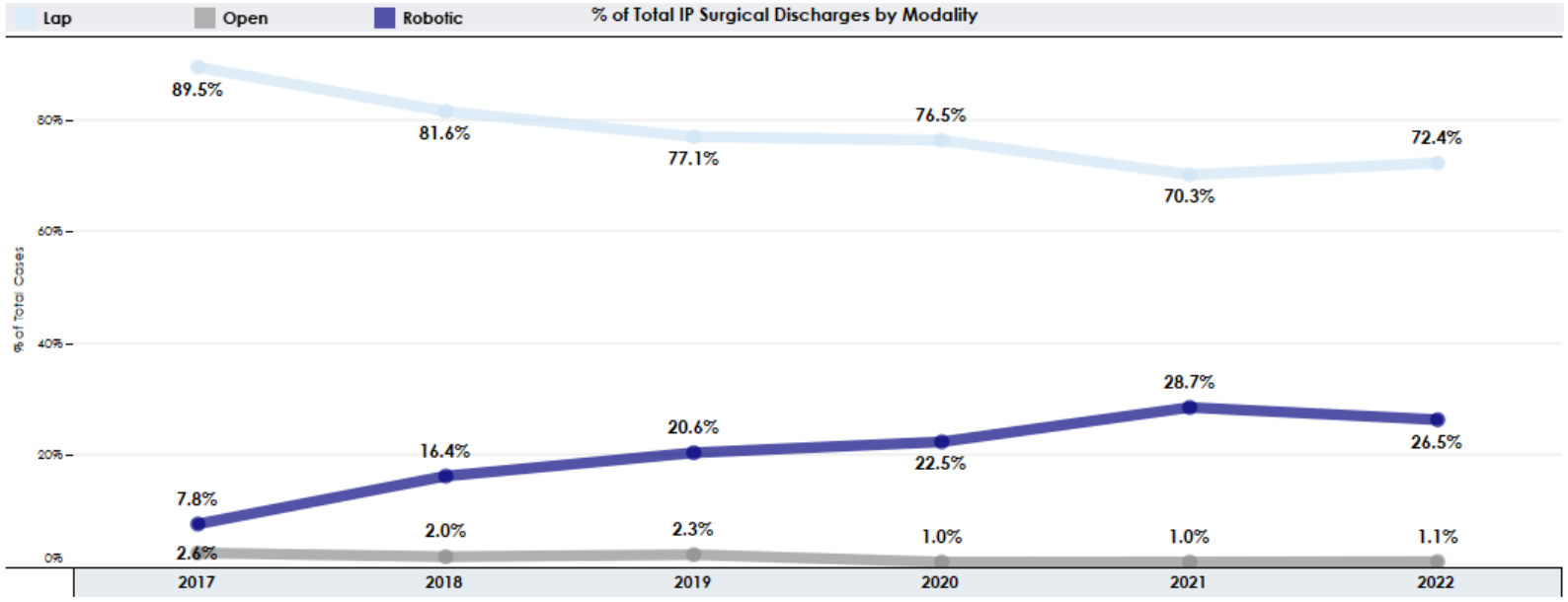
System Robotic Dashboard: Bariatric Focus

NORTHWELL HEALTH: All Modality IP Surgical

Business Unit Divisional: (All)
Operating MD:
Admit Category: (All)
Product Line (DRG Based): (All)
MSDRG Bucket: O.R. procedures for obesity 619, 620, 621
Cancer Flag: 0 – 1

Modality	Fiscal Year					
	2017	2018	2019	2020	2021	2022
Lap	1,386	1,404	1,319	1,124	1,500	1,444
Open	41	34	40	15	22	22
Robotic	121	282	352	331	612	528
Grand Total	1,548	1,720	1,711	1,470	2,134	1,994





2022 % IP Cancer			2022 IP Re-Admit			2022 IP ALOS			2022 IP Comp %			2022 % IP ICU			2022 IP Mortality			2022 % IP Transfusion			2022 IP CMI			2022 Avg. Cut to Close		
Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic	Lap	Open	Robotic
0.0%	0.0%	0.0%	3.6%	4.5%	5.1%	1.3	1.3	1.4	2.5%	9.1%	1.9%	8.7%	0.0%	4.0%	0.0%	0.0%	0.0%	1.2%	4.5%	1.5%	1.63	1.62	1.64	96	236	116

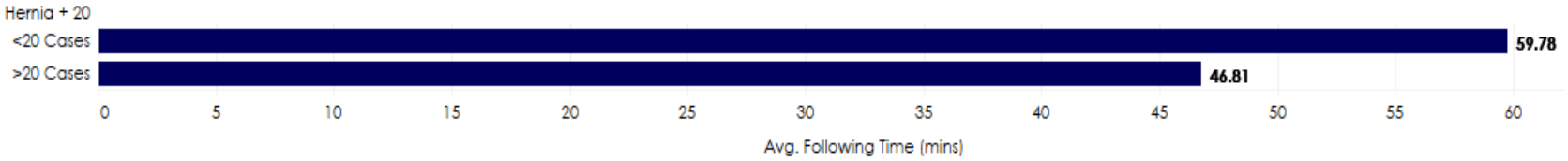
System Robotic Dashboard: Bariatric Focus

#1 Procedural Code:

Bariatric Sleeve Gastrectomy - SIS Analytics: 2022						
Procedure Name	**Procedure Code**	**INCISION_TYPE**	**Cases**	**Average of Cut to Close**	**Average of Room Time**	**Avg. Cost**
Sleeve Gastrectomy	43775	Laparoscopic	486	84	134	$3,154
		Robotic	299	95	142	$3,892
		Open	9	104	159	$2,973
	43775 Total		794	88	137	$3,429

NWH System Robotics:

Outpatient Hernia + Chole Procedural Times:



#1 Hernia and Chole Procedural Code Used - SIS Analytics					
Ing Chole	Procedure Code	INCISION_TYPE2	Cases	Average of Cut to Close	Average of Room Time
Chole	47562	Open	60	79.8	117.2
		Robot	331	83.5	124.2
		Lap	1,101	75.1	112.8
	47562 Total		1,492	77.2	115.5
Hernia	49650	Open	71	62.1	105.7
		Robot	651	94.4	135.6
		Lap	546	71.8	111.7
	49650 Total		1,268	82.9	123.6

- High variability in procedural length + Cost for all modalities
- Hernia and Chole volume often has residency teaching component
  - Two most appropriate teaching cases GS Residents have

Hernia + Chole Case Durations			
Procedure	Surgeon	Cut to Close	Room Time
Chole	Surgeon Time w/ < 20 Cases	102.7	149.3
	Experienced Robotic Surgeon	88.6	126.3
Hernia	Surgeon Time w/ < 20 Cases	90.5	135.2
	Experienced Robotic Surgeon	75.7	114.6

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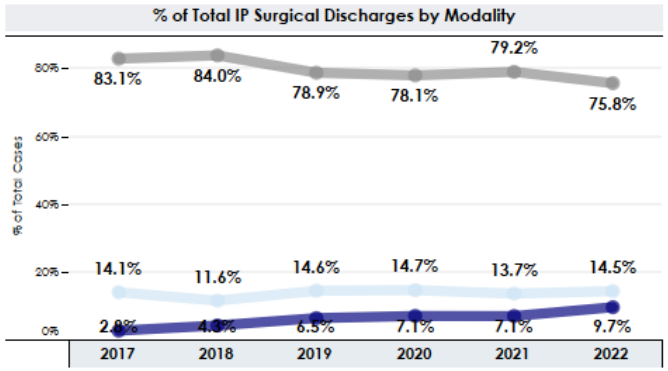
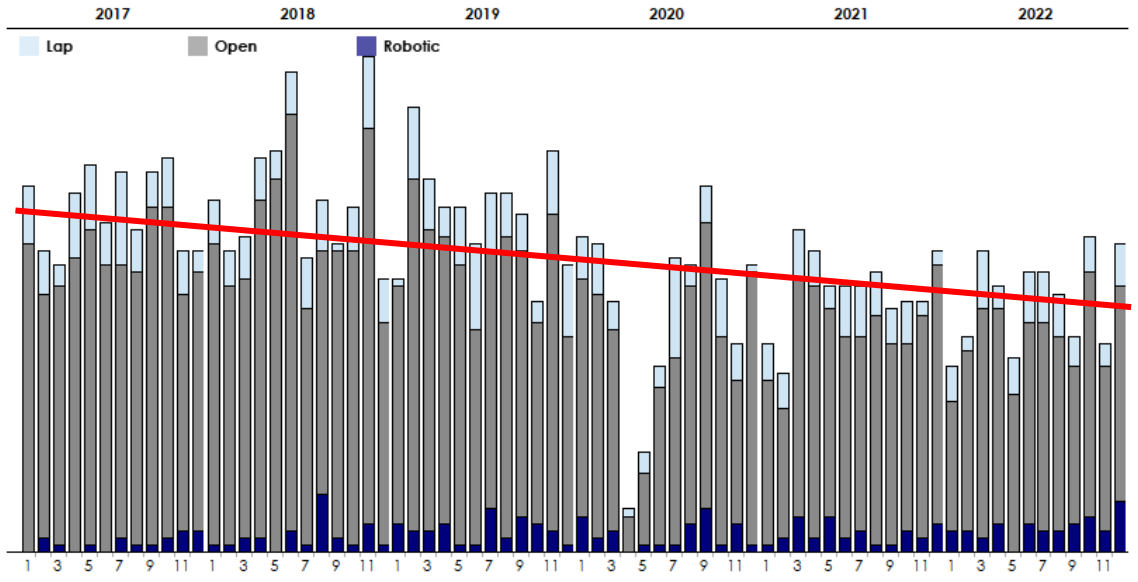
NWH System Robotics:

Ventral Hernia: Inpatient Surgery:

Modality	Fiscal Year					
	2017	2018	2019	2020	2021	2022
Lap	81	70	83	60	60	61
Open	476	505	449	318	346	320
Robotic	16	26	37	29	31	41
Grand Total	573	601	569	407	437	422



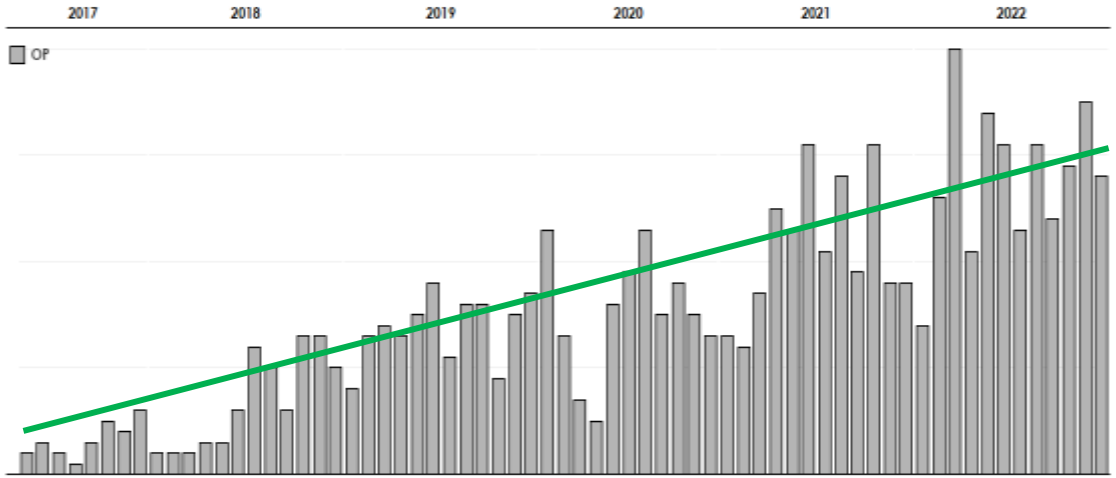


17-22: (-26%) ↓

2022 IP Re-Admit			2022 IP ALOS		
Lap	Open	Robotic	Lap	Open	Robotic
6.6%	8.4%	2.4%	3.44	3.34	2.46

Robotic Ventral Hernia: OP (Outpatient Surgery):

Setting	Fiscal Year					
	2017	2018	2019	2020	2021	2022
OP	26	82	165	167	256	336
Total	26	82	165	167	256	336



17-22: (1,192%) ↑

OP Re-Admit
1.8%

Incremental Robotic System Analysis

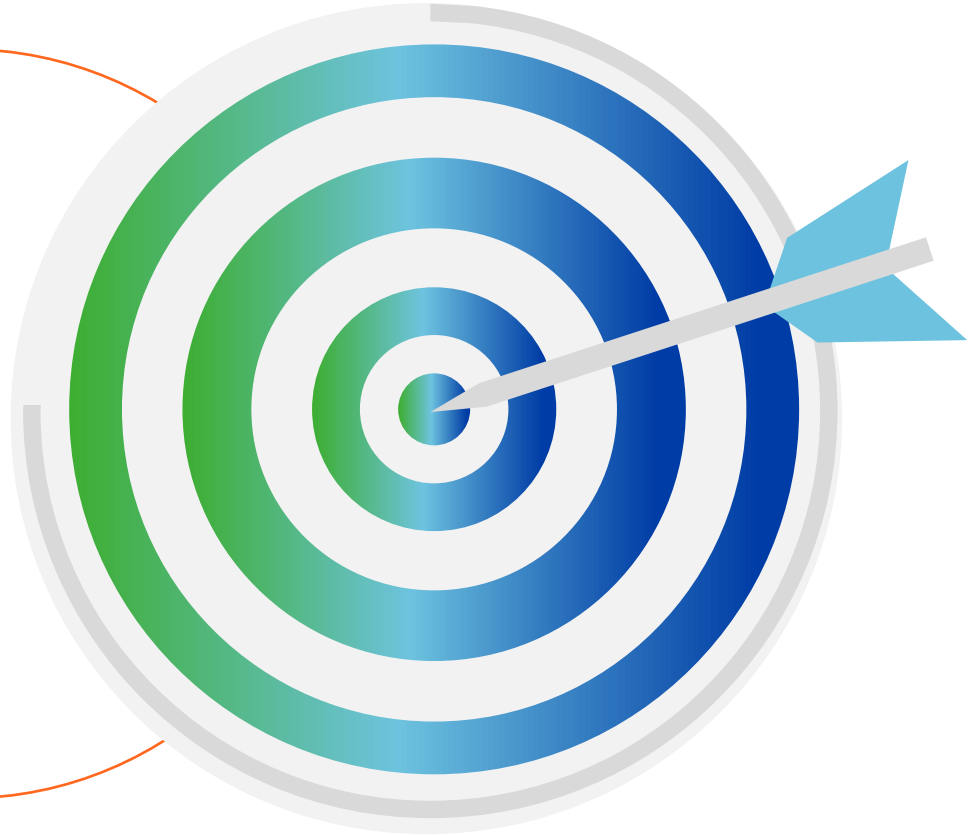
For each hospital:

Total # of OR's — 1

# of existing da Vinci Systems — 2

# of Ortho, Neuro, Plastic, Vasc Rooms — 3

Remaining Available Soft Tissue ORs — 4



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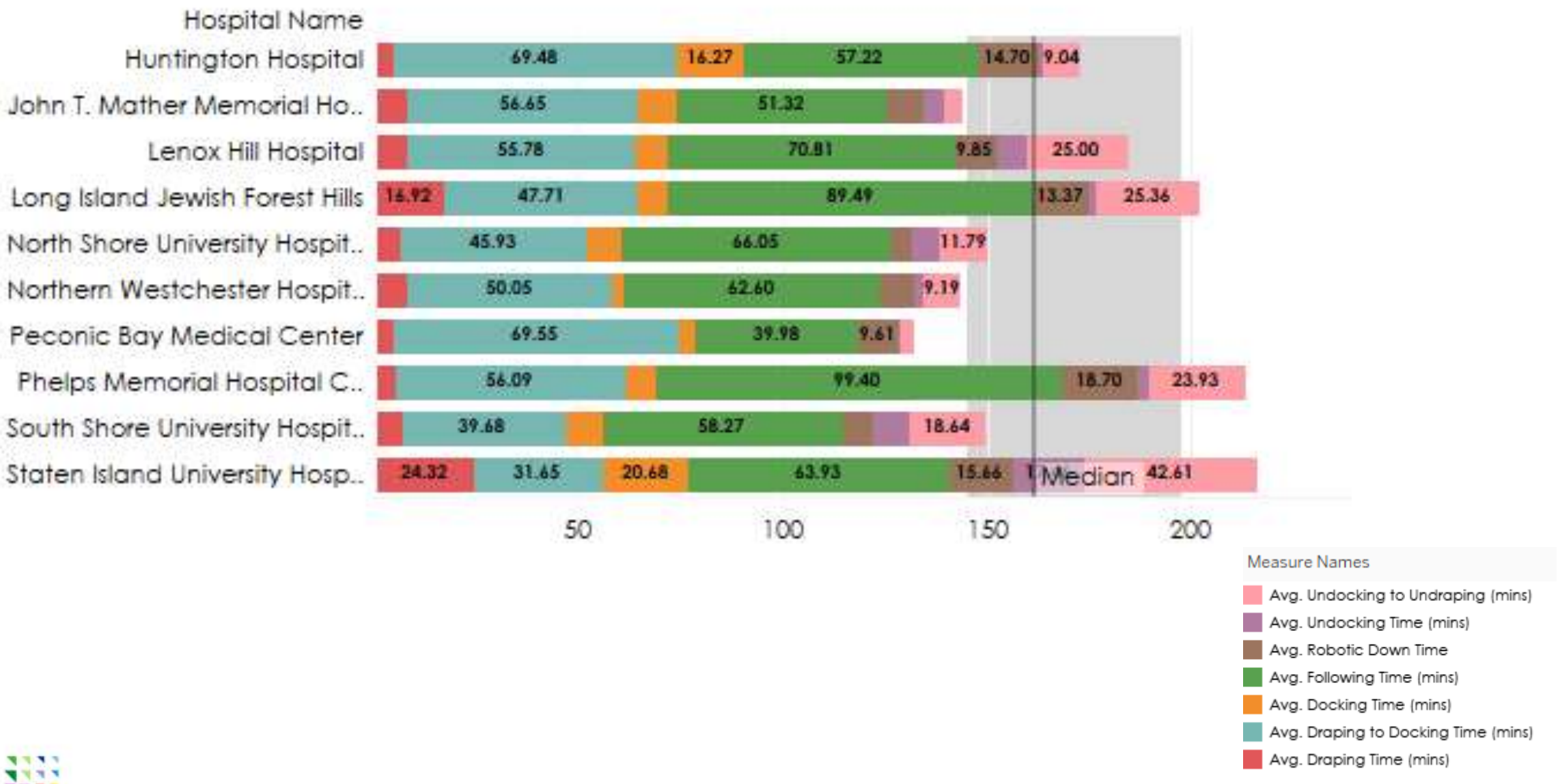
System Robotic Dashboard: Bariatric Focus - Efficiency



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CONCLUSIONS

System Growth in Robotic Surgery is Significant

Learning Curve is Real

With Time Robotic Outcomes exceed lap:

- Loss of Lap Skills?
- Robotic Efficiency

Can Use System Data to Leverage Insurers

Davinci Data can be helpful to:

- Identify Outliers
- Improve Performance

THANK YOU

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