



# NYU Langone Health's Strategy & Smart Investments for the Future of Robotic Surgery

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# NYU Langone Health System

## US News & World Report 2022-2023



"Best Hospital"  
in NYS



"Best Medical  
Schools"



"Best Hospitals"

**1,600**  
Beds

**3,500**  
da Vinci cases a year

**22** da Vinci Xi's

**1** da Vinci SP

**3** ION systems

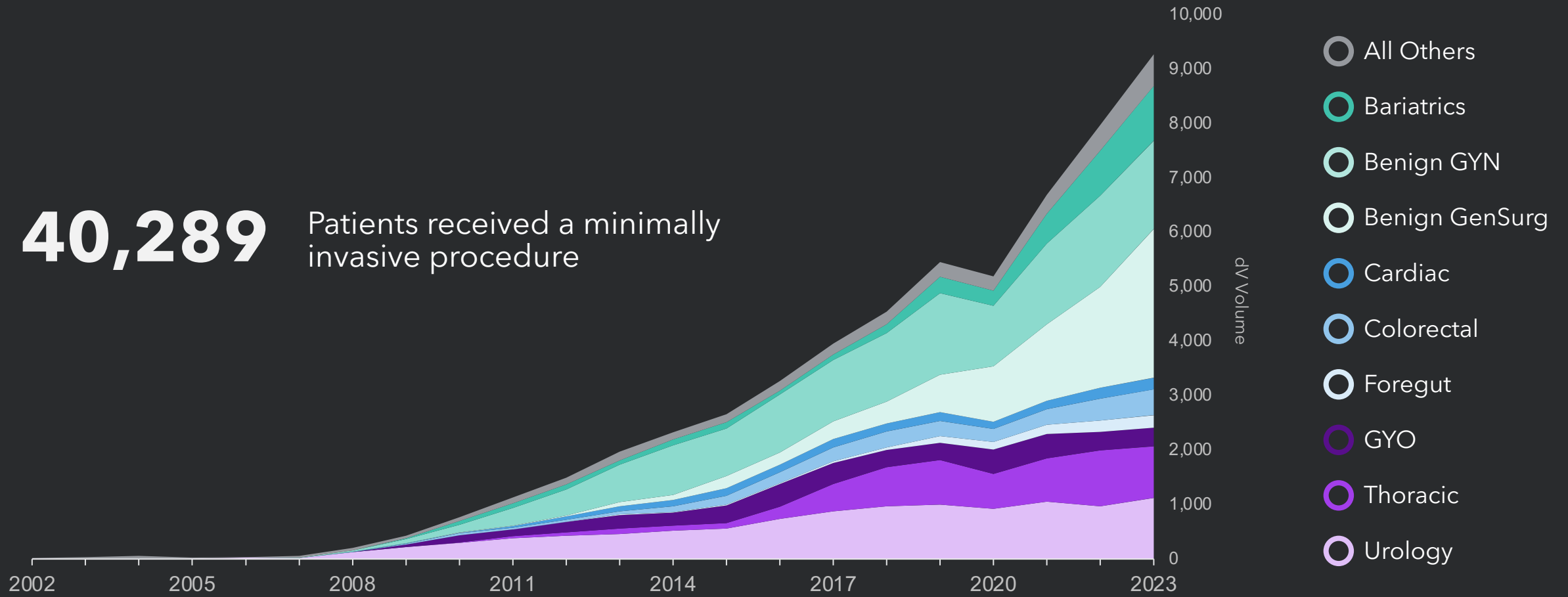
**24** Intuitive HUB's



# Da Vinci procedure volume growth from 2002 to 2023

**40,289**

Patients received a minimally  
invasive procedure



But it wasn't  
**always this way**



# My da Vinci Journey



St. Joseph's Health



NYU Langone Health



# My Learnings so Far

**Captain**  
your ship

**Leverage**  
value of da Vinci

**Identify**  
program champions

**Shared belief**  
builds access

**My data**  
my truth





An aerial photograph of the NYU Langone Health Fisch Hospital building at dusk. The building is a large, modern structure with many windows, some of which are illuminated from within, casting a warm glow. The sky is a mix of blue and orange, suggesting the time is either early morning or late evening. The building's facade is light-colored, and the text 'NYU Langone Health Fisch Hospital The University Hospital of NYU' is visible on its side. In the foreground, there are other buildings and a street with some traffic, including a bus and cars. The overall scene is a dense urban environment.

# Exploring New Horizons at NYU

# Da Vinci Program Leadership Structure





# Assess the current state of your program

## live in reality

| Metric                | Phase 1                                   | Phase 2                                         | Phase 3                                                         | World Class                                                    |
|-----------------------|-------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|
| C-Suite Engagement    | None                                      | Partial                                         | Active                                                          | Champion                                                       |
| Program Structure     | No Formal Structure                       | Quarterly Steering Committee                    | Special Task Force                                              | Collaborating with Intuitive                                   |
| Technology Innovation | 3 <sup>rd</sup> Generation Technology     | 4 <sup>th</sup> Generation Standardization      | 4 <sup>th</sup> Generation with Advanced Technology Utilization | 4 <sup>th</sup> Generation Technology with Digital Integration |
| Service Line          | 25% Addressable Procedures                | 25-50% Addressable Procedures                   | 50-75% Addressable Procedures                                   | 75-100% Addressable Procedures                                 |
| Access                | Urology and / or Gynecology               | General Surgery Utilization                     | Multiple Specialties with Expanded Access                       | Multiple Specialties with Unfettered Access                    |
| Productivity          | 25 <sup>th</sup> Percentile in Peer Group | 50 <sup>th</sup> Percentile in Peer Group       | 75 <sup>th</sup> Percentile in Peer Group                       | 90 <sup>th</sup> Percentile in Peer Group                      |
| Data Insights         | No Formal Data Review                     | Limited Data & Volume Review to Customer Portal | Formal Review and Access to Robotic Data & Benchmarks           | Collaborate w Intuitive for Data, informs Strategic Decisions  |

# Stringent training pathway for surgeons

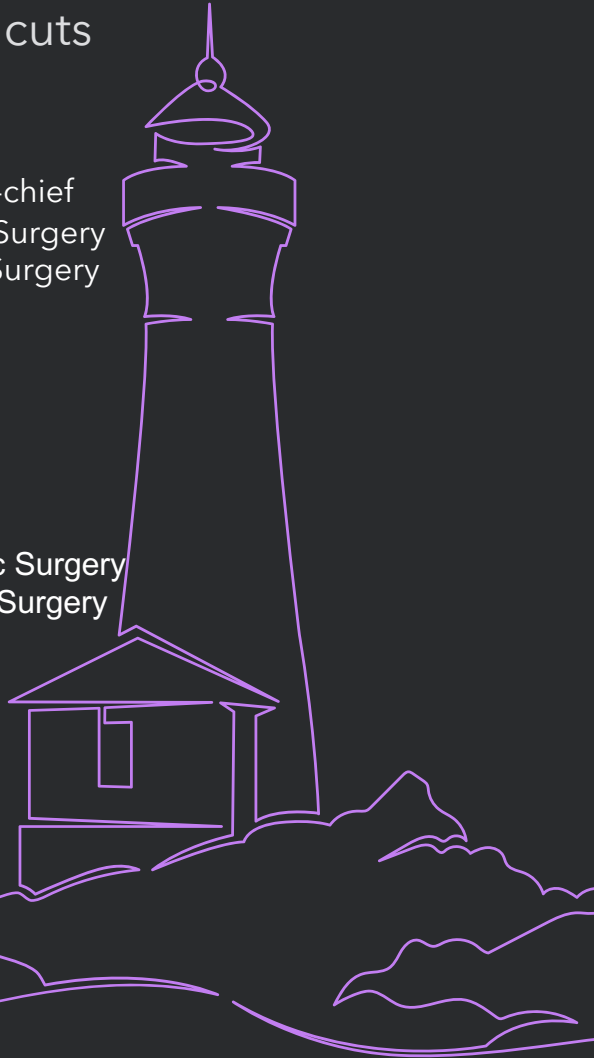
No exceptions, no short cuts



Surgeon-in-chief  
Vice Chair of Surgery  
Professor of Surgery



Chief, Bariatric Surgery  
Professor of Surgery



## Commitment



Epicenter Visit/  
Case Observation



Technology Training  
(Offsite Lab)



Proctoring



Peer-to-Peer Procedure  
Training Course(s)

## Continuing Development

- Physician Lecture Program
- Complex Procedure Observation
- Complex Procedure Video Review
- Webinar
- Peer-to-Peer Mentoring
- Peer-to-Peer Procedure Training Course(s)

# Multi-specialty approach da Vinci Total Program



Accelerates surgeon  
proficiency



Creates reproducible  
MIS outcomes



Foregut, Colorectal,  
Hernia/Ab wall,  
Bariatrics, Surg Onc,  
HPB, ACS, GYN,  
URO



Prepares surgeons and  
program for the  
operating environment  
of future:

Ergonomics

Greater surgeon  
autonomy

Unified ecosystem

# Executive Alignment da Vinci Total Program



## Better outcomes

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- Length of stay
- Consistency of outcomes
- Surgical site infections
- Complications
- Return to OR
- Readmission



## Better patient experience

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- Recovery
- Conversions
- Outpatient vs. inpatient



## Better care team experience

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- Ergonomics
- Dedicated teams
- OR efficiencies
- Analytics
- Training



## Lower total cost of care

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- Clinical cost
- Direct costs
- Clinical variation



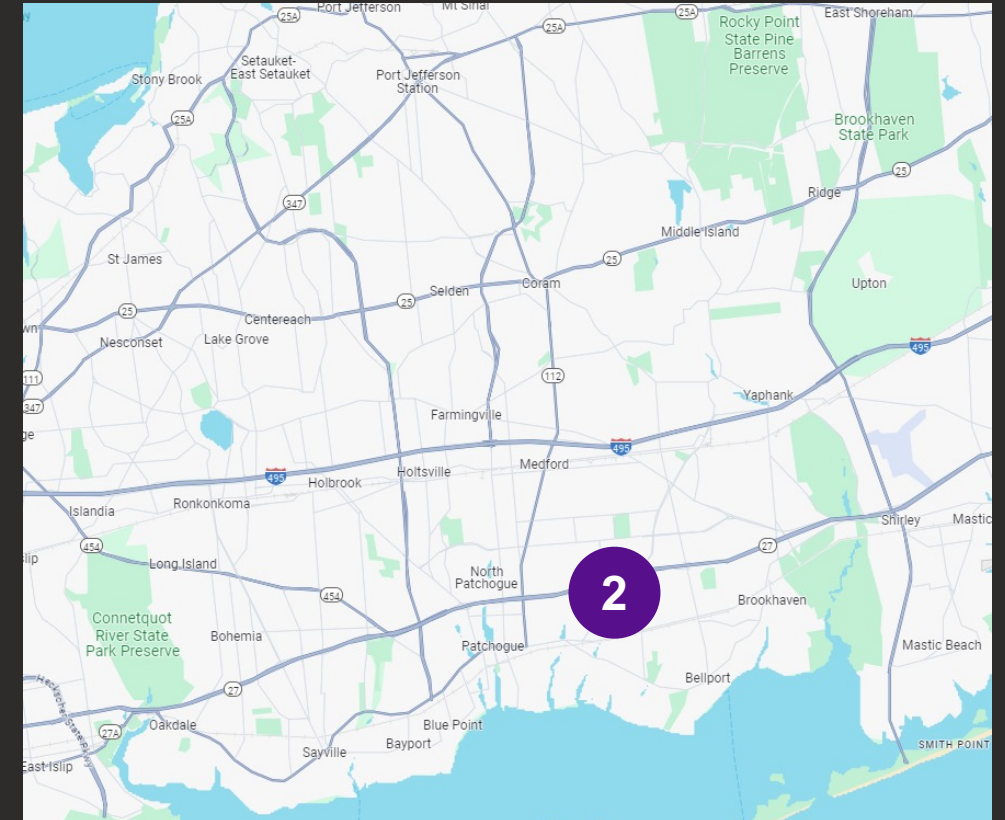
## Improve healthcare equity

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- Access to da Vinci
- After hours care
- Acute care



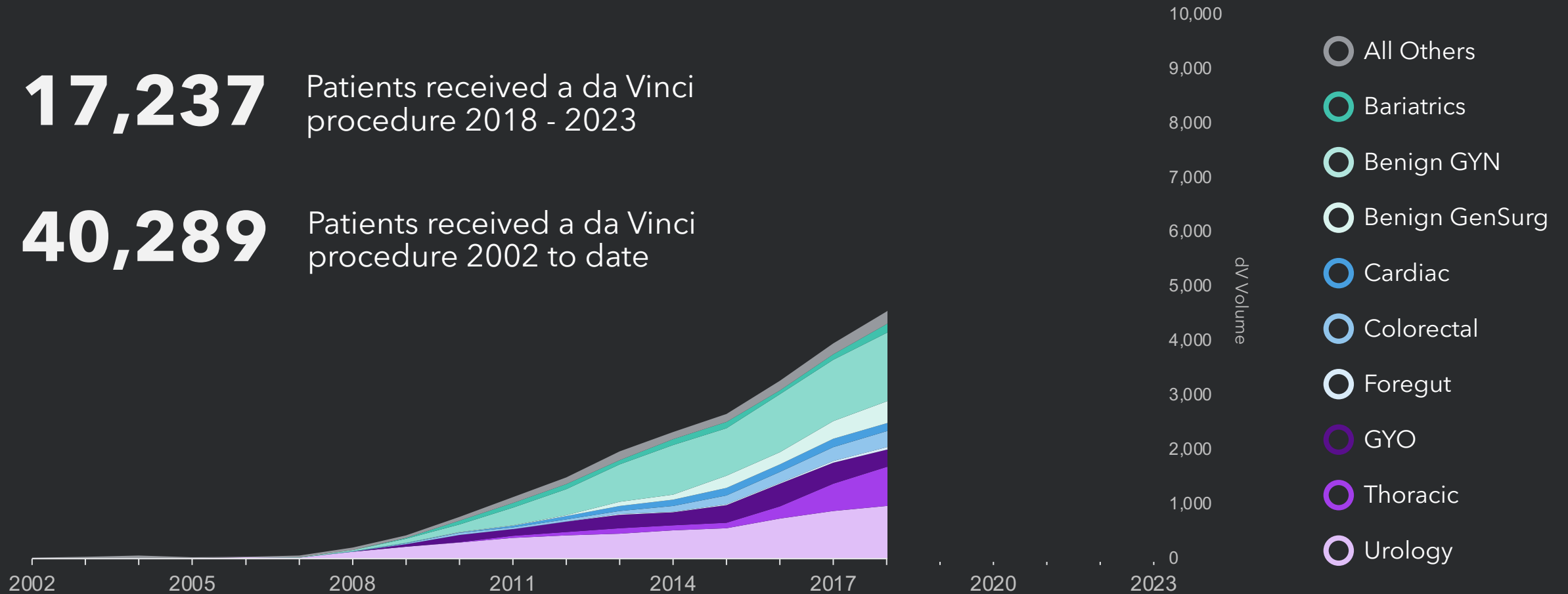
# Creating access to da Vinci Surgery Across our Communities



# Growing a Total da Vinci Program from 2018 to 2023

**17,237** Patients received a da Vinci procedure 2018 - 2023

**40,289** Patients received a da Vinci procedure 2002 to date



# Know your data

## Performance Quantified

Estimated Cost Savings Per Procedure

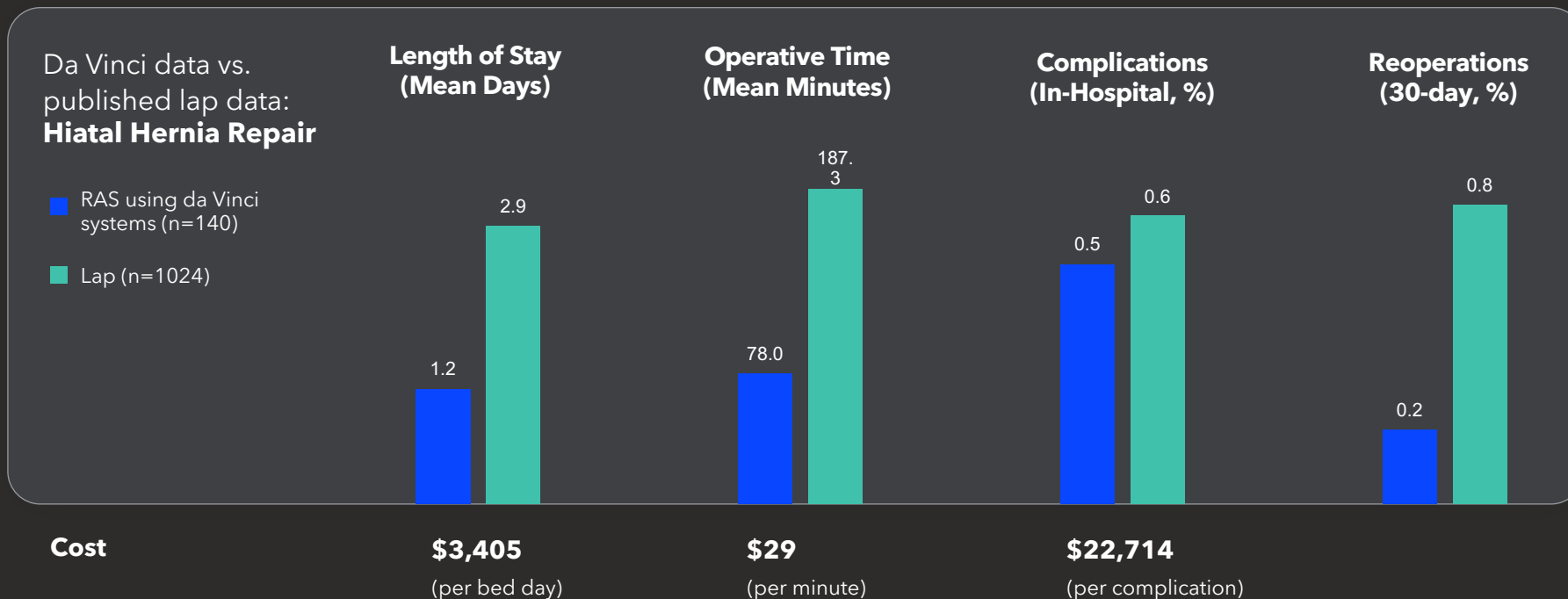
**\$8,981**

vs. Lap

Estimated Total Cost Savings

**\$1,257,327**


vs. Lap



# Value of a da Vinci Total Program

## Quality Analysis - Lap vs da Vinci

### Impact of type of minimally invasive approach on open conversions across ten common procedures in different specialties

Paresh C. Shah<sup>1</sup> · Alexander de Groot<sup>2</sup> · Robert Cerfolio<sup>3</sup> · William C. Huang<sup>4</sup> · Kathy Huang<sup>5</sup> · Chao Song<sup>2</sup> · Yanli Li<sup>2</sup> · Usha Kreaden<sup>2</sup> · Daniel S. Oh<sup>6</sup> 

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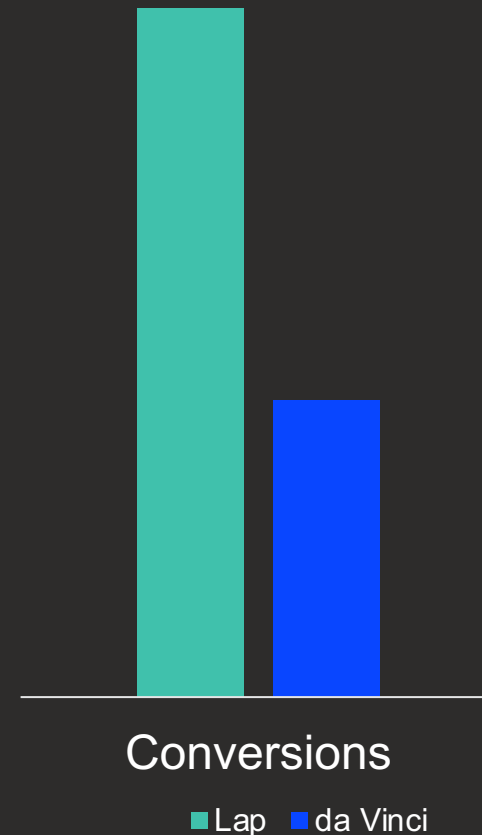
#### Abstract

**Background** Conversion rates during minimally invasive surgery are generally examined in the limited scope of a particular procedure. However, for a hospital or payor, the cumulative impact of conversions during commonly performed procedures could have a much larger negative effect than what is appreciated by individual surgeons. The aim of this study is to assess open conversion rates during minimally invasive surgery (MIS) across common procedures using laparoscopic/thoracoscopic (LAP/VATS) and robotic-assisted (RAS) approaches.

**Study design** Retrospective cohort study using the Premier Database on patients who underwent common operations (hysterectomy, lobectomy, right colectomy, benign sigmoidectomy, low anterior resection, inguinal and ventral hernia repair, and partial nephrectomy) between January 2013 and September 2015. ICD-9 and CPT codes were used to define procedures, modality, and conversion. Propensity scores were calculated using patient, hospital, and surgeon characteristics. Propensity-score matched analysis was used to compare conversions between LAP/VATS and RAS for each procedure.

**Results** A total of 278,520 patients had MIS approaches of the ten operations. Conversion occurred in 5% of patients and was associated with a 1.77 day incremental increase in length of stay and \$3441 incremental increase in cost. RAS was associated with a 58.5% lower rate of conversion to open surgery compared to LAP/VATS.

**Conclusion** At a health system or payer level, conversion to open is detrimental not just for the patient and surgeon but also puts a significant strain on hospital resources. Use of RAS was associated with less than half of the conversion rate observed for LAP/VATS.



1.77

Day incremental increase in length of stay

\$3441

incremental increase in cost

58.5%

RAS was associated with a lower rate of conversion



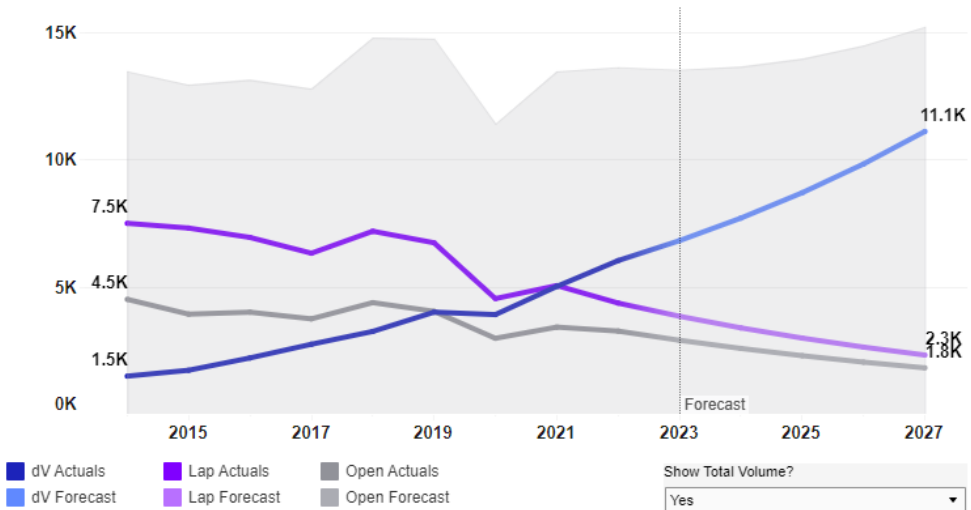
# Enabling the future **Today**

# da Vinci Total Program enables future growth

## NYU Langone Health System - Today

### Case Modality Trends and Potential Growth

Forecast based on 13.0% dV CAGR; -11.9% Lap CAGR; -11.1% Open CAGR.  
Volumes for procedures where 3rd party data is available.



| dV          | Customer  |      |
|-------------|-----------|------|
|             | 2022 Lap  | Open |
| 17%         | -12%      | -7%  |
| National dV | Market dV |      |
| 15%         | 14%       |      |

### Est. Annual Utilization Comparison

| dV (L4Q)           | Lap ('22)         |
|--------------------|-------------------|
| 429 (cases/system) | 54 (cases/system) |

Specific to procedures w/ 3rd party data for Lap.

Est. **687.9%** more procedures per system / tower

429

Cases per da Vinci (avg)

54

Cases per lap tower (avg)

687% more procedures per dV vs. lap tower

# Why we Standardize our ORs

Reproducing scale  
and eliminating  
waste

Handheld camera  
eliminates the need  
for towers

Alleviates space  
constraints

Consistency helps  
with staff burn out

Constantly  
collecting data vs  
none from lap  
towers



# Variability is the Enemy

Improve Efficiency

Understand Cost



Case Time Scheduling  
& Access OR Staffing

Instrument & Accessories  
Choreography



# Why 24/7 Access is Next for Our da Vinci Program

Equitable access for all patients regardless of time of day

Reduction in LOS

Reduced complications for more involved cases

Reduce cost over the whole episode of care (not just the OR)

Enhanced revenue

Pursue improved market share

# Preparing for the Future

**77%**

of resident applicants believed robotic-assisted surgery would be very important to their future<sup>1</sup>

**47%**

Growth from new surgeons trained on da Vinci<sup>®</sup> systems through a residency or fellowship<sup>2</sup>

**1,450+**

Total equivalency certificates, 2021-2022 academic year<sup>2</sup>

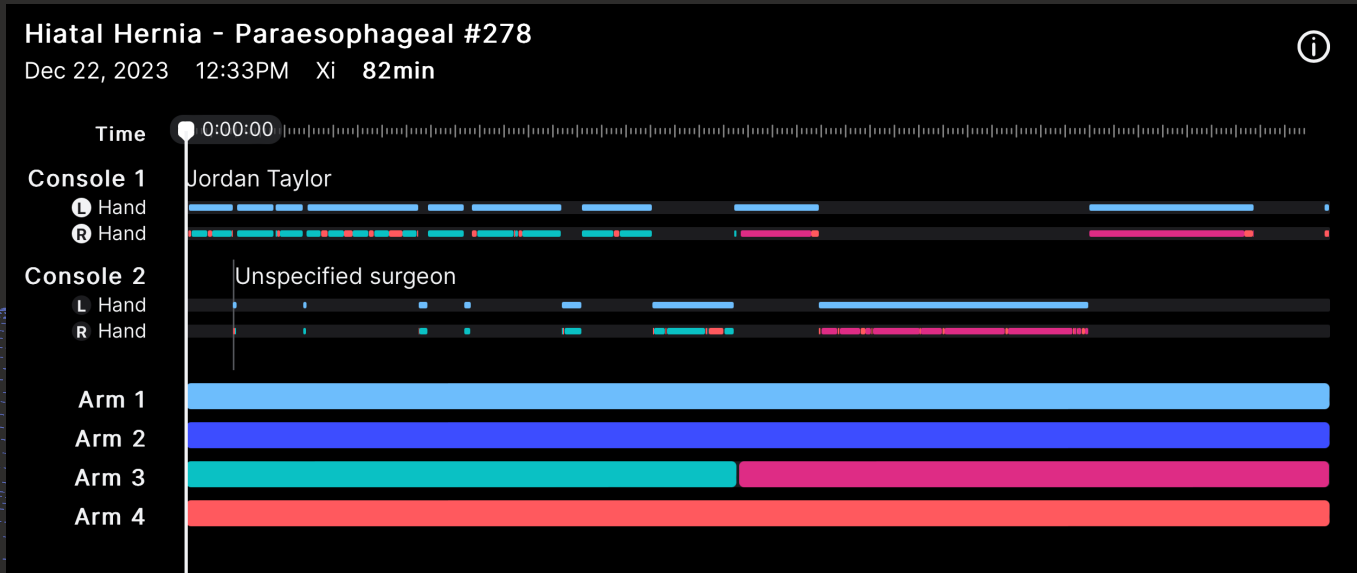
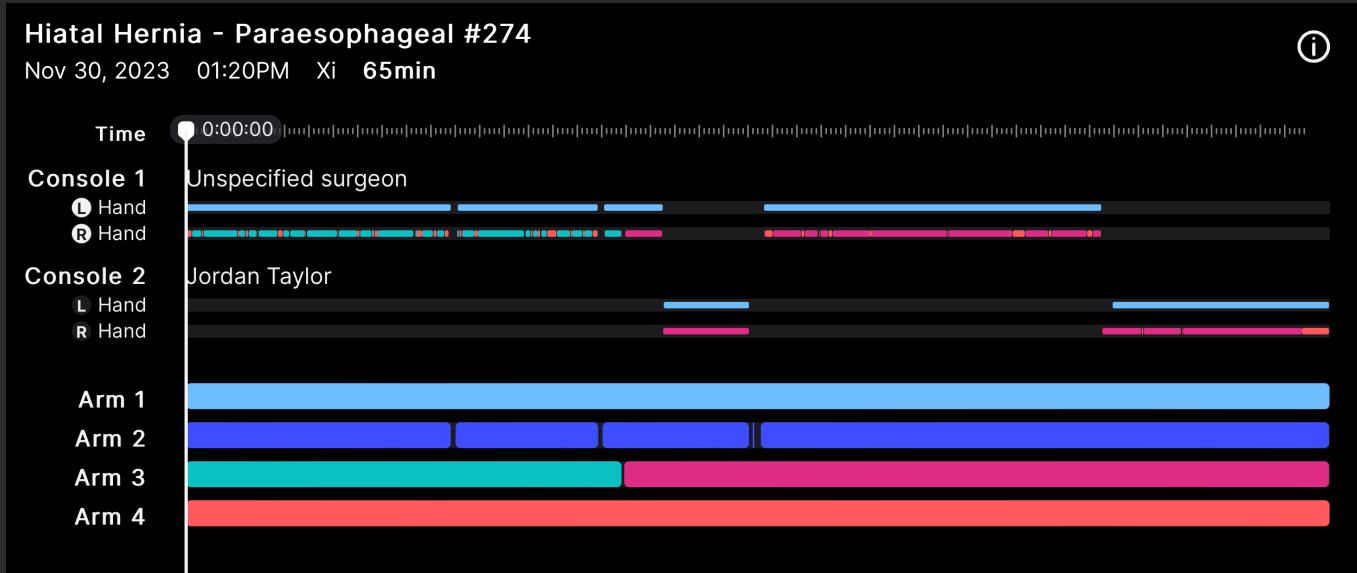
1. Krause, W., Bird, J. The importance of robotic-assisted procedures in residency training to applicants of a community general surgery residency program. J Robotic Surg 13, 379-382 (2019). <https://doi.org/10.1007/s11701-018-0859-5>

2. Information based on Intuitive internal data for 2021-2022 academic year



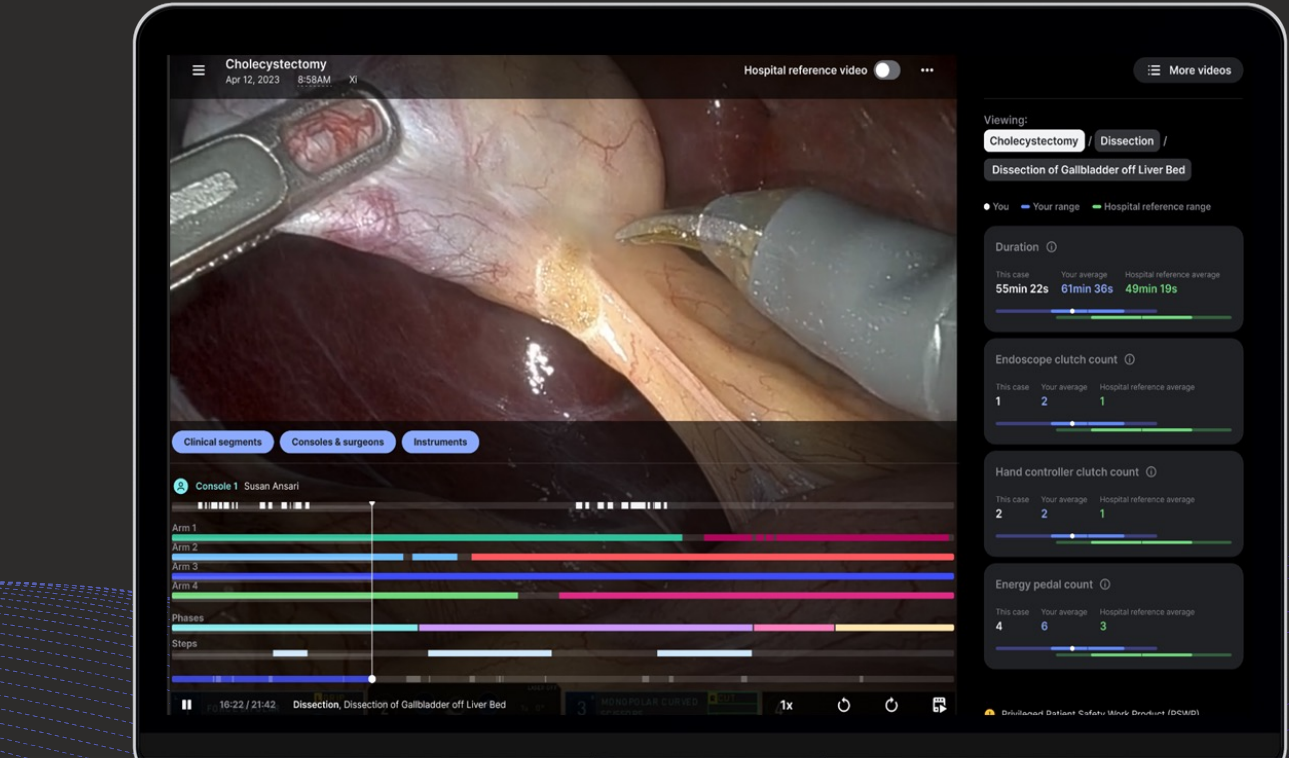
Not just future tech,  
**future captains...**

Value for resident  
& fellow training



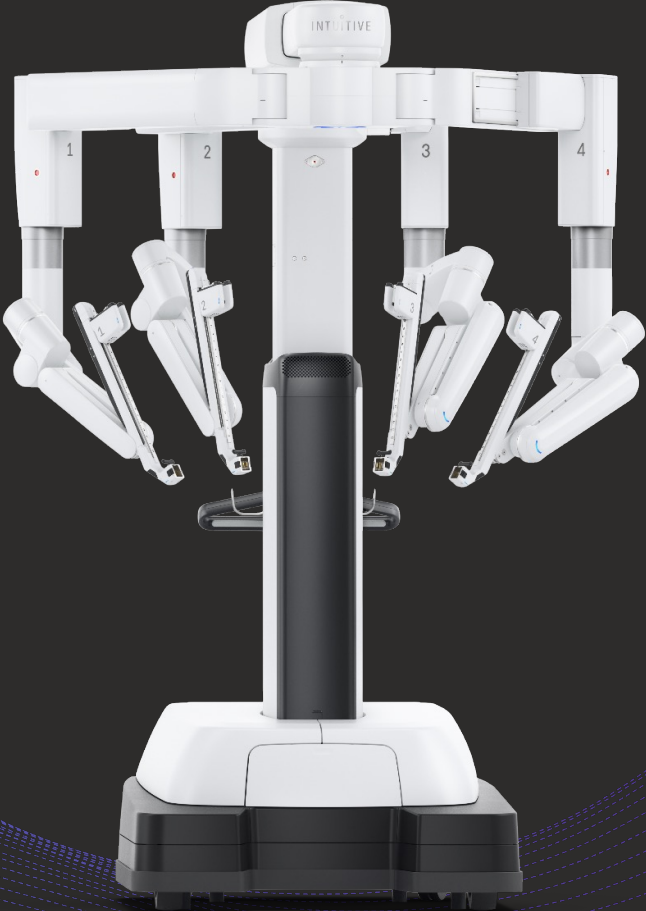


# Not just future tech, future captains...





da Vinci 5  
future is now...



“The best time to plant a tree  
was **20 years ago**. The  
second best time is **now**.”

Chinese Proverb





Thank  
**you.**

