

# Driving surgical excellence

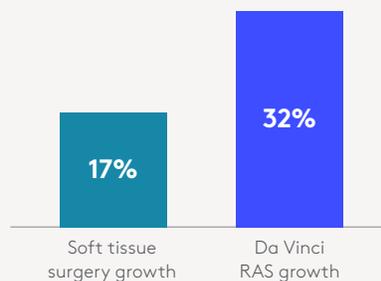
The transformative impact of da Vinci 5 standardization on Virtua Health clinical, operational, and economic outcomes

## Executive summary

Virtua Health is a leading academic healthcare network operating 25 da Vinci® surgical systems across seven of its sites, including a hospital outpatient department and an ambulatory surgery center (ASC). In 2025, supported by five years of procedure-related data, the network made the strategic decision to standardize its entire fleet to da Vinci 5® – advancing surgical innovation to improve clinical outcomes, operational efficiency, and financial performance.

### Virtua 4-year trends: Clinical, financial, and operational

Compound annual growth rates (CAGR) 2020–2024\*



25.4%

contribution margin increase, CAGR, correlating to Virtua da Vinci program growth\*

\$14.5M

actual cost avoidance resulting from better clinical outcomes with da Vinci, for many procedures†

## Rationale for standardization

Virtua recognized that a fragmented fleet limited operational efficiency and quality. Moving to the advanced da Vinci 5 surgical system helped them:

- Facilitate consistency across locations and equitable access to high-quality care.
- Enhance the ability to leverage digital tools and integrated technology, supporting its surgeons and residency program, utilizing features such as case insights, video review, SimNow®, and telepresence.
- Support recruitment and retention of top surgical talent.
- Establish a more strategic approach and effectively manage resources and operating room infrastructure, enabling cost reductions for ancillary equipment and service contracting.

\*Data on file at Intuitive.

†Based on Virtua Health clinical outcomes data (blood transfusions, conversions, ICU visits, readmissions, surgical site infection) da Vinci vs. open and lap, 2020-2024. Data on file at Intuitive. Cost avoidance is modeled by assigning costs to the difference in outcomes between comparator modality and da Vinci, times the number of da Vinci procedures. Cost estimates were derived from review of relevant peer-reviewed publications or national averages.

# Da Vinci delivers

## Collaboration, teamwork, and planning

Virtua formed a multidisciplinary Strategic Task Force with representation from clinical leaders, operations, executive administration, and Intuitive. The task force is a small group that can align and act quickly. Monthly data-driven meetings prioritized quality, access, and efficiency, with Intuitive providing business case development, peer-to-peer networking opportunities, and workflow optimization tools.

## Clinical impact

Virtua launched a multi-site pilot program to evaluate da Vinci 5 performance across diverse clinical settings, assessing its impact on length of stay, surgeon console time, and proficiency.

### Length of stay



### Thoracic surgery focus

#### Correlation between Force Feedback technology and length of stay

Post-operative wedge resection data from a thoracic surgeon revealed a **36% reduction in average force** when utilizing Force Feedback technology—HIGH (1.7) vs. OFF (2.8)—corresponding to fewer hospital days.

### Efficiency



### Bariatric surgery focus

#### Console time: Da Vinci 5 vs. da Vinci Xi

A skilled bariatric surgeon using the da Vinci Xi® system achieved an **11-minute reduction in console time** per sleeve gastrectomy when using the da Vinci 5 versus the Xi.

### Immersion



### General surgery focus

#### Proficiency and adoption

Inguinal hernia repair data from a general surgeon experienced with da Vinci 5 technology demonstrated that frequent users of the system perform better than occasional users—33 minutes vs. 59 minutes, respectively. By comparison, da Vinci Xi benchmarks averaged 41 minutes.

Console time and Force Feedback data from Intuitive system log data, for Virtua Health, single console cases. Date range is from January 2023 to March 31, 2025.

Length of Stay: Sourced from Virtua Health clinical outcomes data: da Vinci 5 vs da Vinci Xi, January 2023 to March 31, 2025. Data on file at Intuitive.

Force Feedback: Force is recorded even when a force feedback instrument is in the 'OFF' sensitivity setting. Data set includes Wedge Resection data. Instruments Used: Fenestrated Bipolar Forceps were included in the analysis. The average force across sensitivity settings is calculated by using a weighted average of the time that force was applied at each setting of all procedures included in the analysis.



For more on da Vinci staffing models and 24/7 access, read the case study, **Staffing transformed.**

**\$1.6M**

potential construction-related cost avoidance<sup>†</sup>

**\$400K**

potential cost savings per year for ancillary equipment and service contracts<sup>†</sup>

### Operational efficiency

As surgeons became more proficient with the technology and their efficiency improved, utilization of da Vinci 5 demonstrated increased throughput and optimized resource validation. Early evidence indicates that surgeon console time decreased by 7,640 minutes\* with da Vinci 5 compared to Xi across 1,467 procedures, resulting in an estimated \$221,560 possible cost avoidance.\*

Virtua updated its staffing models and streamlined workflows. Implementing regional and state bylaws for the use of certified surgical technologists at the bedside provided more effective coverage while eliminating the need for a bedside assist. Greater surgeon autonomy with the da Vinci 5 also enabled scrub techs to exchange instruments and help to facilitate around-the-clock da Vinci care for lower-acuity procedures without needing a Registered Nurse First Assistant or a Physician Assistant. All Virtua staff members are trained and able to support da Vinci procedures 24/7, including weekends.

### Economic value

Improved utilization of existing resources helped minimize the need for costly operating room expansion, infrastructure, and redundant technologies. For example, eliminating the need for steel-reinforced beams for boom towers resulted in a cost avoidance of \$1.6 million. Additionally, Virtua projected a yearly savings of \$400,000 by decreasing expenses related to laparoscopic equipment and service agreements.

Standardization also enabled evaluation and expansion into outpatient sites and ASCs, sliding their da Vinci Xi assets to an alternate site of care and positioning Virtua for new patient growth and profitability. Strategic ASC proforma analysis enabled Virtua to distinguish between backfilling existing capacity and pursuing net new growth.



## Lessons learned

### Data drives decisions

Clinical and operational improvements are quantifiable.

### Collaboration is essential

Alignment across clinical, operational, and executive stakeholders, with a strong industry alliance, helps foster success.

### Adaptation is continuous

Benchmarking at conferences such as Intuitive 360 inspires ongoing process refinement.

Virtua's full-scale transition to a standardized fleet of da Vinci 5 surgical systems did more than upgrade technology; it enhanced patient care, improved financial results, and streamlined operations. Their model demonstrates the impact of thoughtful standardization, multidisciplinary engagement, collaboration, and data-driven leadership.

\*Median console time: Surgeon console time is from da Vinci system log data. The data analysis compared single console da Vinci Xi procedures against single console da Vinci 5 procedures done by the same surgeon at the same facilities. System log data date range is from January 2023 to March 31, 2025. Cost avoidance is modeled by assigning costs to the difference in outcomes between comparator modality and da Vinci (\$29/OR min), times the number of da Vinci procedures. Cost estimates were derived from review of relevant peer-reviewed publications or national averages.

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#### **Important safety information**

For product intended use and/or indications for use, risks, cautions, and warnings and full prescribing information, refer to the associated user manual(s) or visit <https://manuals.intuitivesurgical.com/market>. For summary of the risks associated with surgery refer to [www.intuitive.com/safety](http://www.intuitive.com/safety).

#### **Da Vinci 5 system**

##### **Indications for Use / Intended Use**

The Intuitive Surgical Endoscopic Instrument Control System (da Vinci 5 Surgical System) shall assist in the accurate control of Intuitive Surgical Endoscopic Instruments including rigid endoscopes, blunt and sharp endoscopic dissectors, scissors, scalpels, forceps/pick-ups, needle holders, endoscopic retractors, electrocautery and accessories for endoscopic manipulation of tissue, including grasping, cutting, blunt and sharp dissection, approximation, ligation, electrocautery, suturing, and delivery and placement of microwave and cryogenic ablation probes and accessories,

during urologic surgical procedures, general laparoscopic surgical procedures, gynecologic laparoscopic surgical procedures and general thoracoscopic surgical procedures. The system is indicated for adult use.

It is intended to be used by trained physicians in an operating room environment in accordance with the representative, specific procedures set forth in the Professional Instructions for Use.

#### **Contraindication**

Use of the force feedback needle driver is contraindicated in hysterectomy and myomectomy due to the risk of vaginal bleeding requiring hospital readmission and/or the need for additional procedures. The use of non-force feedback needle drivers is recommended for suturing in these procedures.

#### **Precaution for Representative Uses**

The demonstration of safety and effectiveness for the representative-specific procedures was based on evaluation of the device as a surgical tool and did not include evaluation of outcomes related to the treatment of cancer (overall survival, disease-free survival, local recurrence) or treatment of the patient's underlying disease or condition. Device usage in all surgical procedures should be guided by the clinical judgment of an adequately trained surgeon.

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