INTUITIVE

Qualitative Perspectives of Early Surgeon Users on the Value of the da Vinci 5 Surgical System

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Objective of the Technology

Robotic-assisted surgery has become widely accepted as a minimally invasive approach, with the da Vinci surgical system used in over 16 million procedures globally. The da Vinci 5 (dV5) system, launched in 2024, introduced significant technological advances including Force Feedback to enhance surgical senses, greater surgeon autonomy, and advanced data analytics for continuous improvement. The purpose of this study is to assess the early experience and surgeon perceived value of dV5 in surgical practice.

Description of the Technology

The dV5 system incorporates high-definition imaging, enhanced ergonomics, and Force Feedback – a technology that measures push and pull forces at the instrument tips and transmits them to the console hand controllers. My Intuitive+, a suite of digital-enabled solutions includes Case Insights – a machine learning-enabled video review application objective performance indictors (OPIs), SimNow 2, and Telepresence, to enhance the capabilities of dV5.

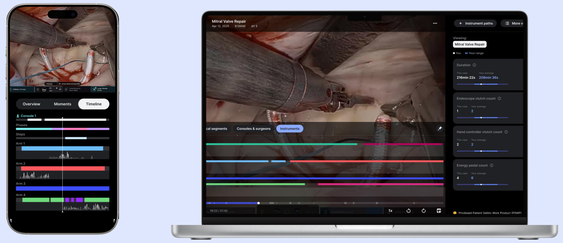
Methods

Among early-adopters, a qualitative study was conducted with focus on advanced digital features and adoption challenges. Surgeons representing a range of specialties, practice settings, and robotic experience were recruited using randomized sampling. Participants completed a minimum of 10 dV5 procedures and were interviewed via semi-structured videoconferences. Interview transcripts were analyzed using a hybrid thematic approach.

Technologies

Figure 1. dV5 surgeon console, tower, and patient cart

Figure 2. Web and mobile Case Insights to perform video review with OPIs



Preliminary Results

Twenty-three surgeons participated.

Thematic analysis identified two primary categories: perceived value (65.6% of coded data) and challenges/barriers (34.4%).

Surgeons reported the greatest value in **improved ergonomics**, particularly through the "head-in" console design, and in features enabling greater autonomy and streamlined workflow.

The dV5 system was viewed as instrumental for:

- **training** and mentorship,
- **self-improvement** through OPIs
- **reducing operative time** by enhancing patient throughput,
- and **expanded case capabilities**, especially for complex procedures

Humanistic value included support for patient education via case videos and the potential to increase access by mentoring using Telepresence.

Challenges included the learning curve associated with new technologies, interpretability and clinical relevance of OPIs, data delivery, and regulatory concerns surrounding data governance.

Notably,

- **low-volume** surgeons cited ergonomic and efficiency improvements,
- while **higher-volume** surgeons emphasized training applications and encountered more nuanced barriers.

Conclusions & Future Directions

Early experiences with the dV5 system suggest meaningful advances in ergonomics, workflow efficiency, and training support for robotic surgeons, with modest operational and economic benefits. While the impact on clinical outcomes requires further quantitative investigation, these user perspectives highlight both the strengths and evolving challenges associated with adopting next-generation robotic platforms.