

# SimNow® from da Vinci®

The value of an integrated simulation learning program

# Variabilities may have an impact on achieving consistent outcomes



Compared to the highest-skilled surgeons, those with lowest-ranked surgical skills had:

**~3x** more complications<sup>1</sup>

**~2x** increase in readmissions<sup>1</sup>



Patients with significant pre-op comorbidities are associated with:

**~2x** more complications<sup>2</sup>

Variabilities such as those highlighted on the left, as well as others such as equipment familiarity and availability of support and analytics, may adversely impact procedure quality and cost.

SimNow®, in conjunction with the da Vinci® Ecosystem, has the potential to help overcome some of these challenges.

Intuitive is focused on designing minimally invasive solutions that strive to reduce variability in surgery and may help deliver better care.

# Reducing variability leads to better overall care<sup>3</sup>

## Integrated product solution\*

Designed to make minimally invasive surgery (MIS) reproducible across various specialties.

## Surgical experience\*

Through a common user interface, visualization of and access to anatomy is consistent across procedures.

## OR support teams

Enabling surgeon autonomy and training OR teams on a consistent user interface.

## OR team training

Highly-connected learning continuum with common technology from skills simulation to advanced training across specialties.

## Instrument usage\*

Multi-purpose EndoWrist® instruments and advanced analytics help standardize surgical programs.



\*Current focus for simulation

# Da Vinci® Ecosystem by Intuitive

## Patients, Surgeons & Hospitals



## Innovation & Integration



Instruments



Stapling



Surgical  
Systems



Software

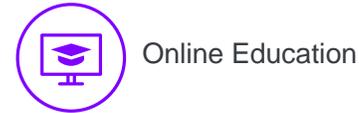


Advanced  
Energy

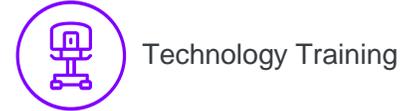


Vision

## Training & Education\*



Online Education



Technology Training



Continuing Education



Peer-to-Peer  
Education



Residency/  
Fellowship Program



**Skills  
Simulation**

## Support & Analytics



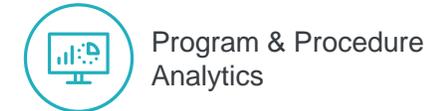
Support Services



Clinical Evidence &  
Economics Analytics



System  
Maintenance



Program & Procedure  
Analytics



Program  
Implementation /  
Optimization



Clinical Support  
Staff

\*Training offered by Intuitive is limited to the use of its products and does not replace the necessary medical training and experience required to perform surgery. Intuitive additionally facilitates various educational and training opportunities conducted by licensed medical professionals.

# The growth of da Vinci® simulation

**3**

Generations of da Vinci® simulation based on over a decade of learning.

**360**

Minutes of simulation invested by the majority da Vinci surgeons before basic training.<sup>4</sup>

**300+**

Peer-reviewed publications on the impact of simulation on da Vinci surgeon skills.<sup>5</sup>

More than **2/3**  
of all da Vinci customers  
also own simulators.<sup>6</sup>

**45k+**

Hours of da Vinci simulation completed annually.<sup>4</sup>



# Simulation

## Measurable Benefit



### Positive impact of simulation

Significant positive association between performance on virtual reality (VR) training tasks and intra-operative robotic-assisted surgery performance.<sup>7-10</sup>

Da Vinci® skills simulation performance can transfer to surgeon system skills in the operating room.



### Benefit for a surgeon's practice

A surgeon's console skills can be significantly degraded after several days away from the surgical system.<sup>11,12</sup>

Bi-weekly simulation practice for one hour may be sufficient to maintain robotic-assisted surgery skills.<sup>13</sup>

Continuous practice through simulation use may support retention of surgical system skills and robotic-assisted surgery efficiency.



### Measurable impact to hospital

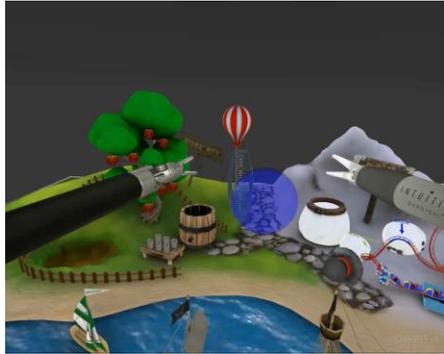
Surgeons with 6+ hours of simulation prior to basic training show higher case productivity within 90 days.<sup>14</sup>

The fastest growing top tier da Vinci® programs have simulation installed on site.<sup>15</sup>

Internal data at Intuitive suggests simulation engagement may support increased procedure volumes.

# SimNow® on da Vinci®

Enables you to *Sharpen Skills* and *Stay Connected* at all times

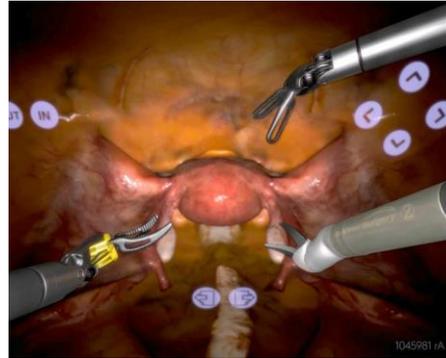


## Skills

Dynamic simulation exercises optimized to engage surgeons from novice to advanced experience levels.

Hone your skills by driving da Vinci instruments in a virtual environment.

Access pre-set curricula, or produce customizable curricula, for training and credentialing purposes.

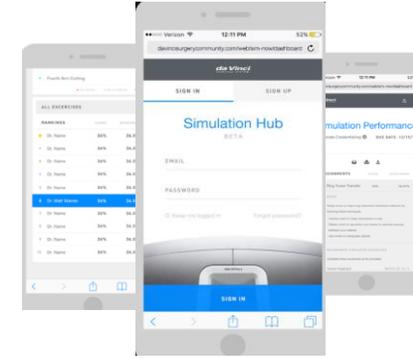


## Procedures

Access to an ever-growing library of current and future clinical procedure modules.

Progress from guided to freehand virtual reality (VR) procedures.

Use results from the simulated procedures to enhance surgical benchmarking prior to the operating room.



## Link

Easily track performance through an online dashboard delivering real-time metrics.

Manage all SimNow users' progress from any PC or smart device.

Remotely push personalized simulation content to specific users and groups.

# The SimNow® program advantage

	<b>Content Features</b>	<b>Da Vinci® Simulator Box</b>	<b>Da Vinci SimNow</b>
<b>Skills</b>	Future hardware upgrades	—	●
	Simulator repairs included	—	●
	Basic skills content	●	●
	Advanced skill exercises	—	●
	Customizable pre-set curricula	—	●
	Da Vinci® instrument experiences	—	●
<b>Links</b>	Remotely push simulation content	—	●
	Single user performance metrics	●	●
	Extensive management of metrics	—	●
<b>Procedures</b>	Access to current procedure modules	—	●
	Access to future procedure modules	—	●
	Guided and freehand tasks (benchmarks)	—	●

# SimNow® from da Vinci®

Addressing three key pillars



## Performance

- The only true da Vinci simulation experience which uses the actual da Vinci surgeon console, and is compatible with all platforms.
- A growing library featuring over 50 of the latest basic, advanced, and procedure skills simulation modules.
- Improve the assessment of a users' simulator skills by comparing scores against an aggregation of hospital surgeons and peer groups.



## Operational

- Access pre-set simulation curricula to train and onboard new da Vinci surgeons efficiently.
- Support clinical procedure expansion through the procedure simulation library.
- Re-engage low volume da Vinci surgeons through advanced simulation and procedure simulation.



## Standardization

- Drive one unified da Vinci simulation experience and measurement system for all robotic-assisted surgeons.
- Standardize da Vinci instrumentation and application techniques in a virtual setting before integration in the O.R.
- One dashboard for remote longitudinal tracking of surgeon skills simulation performance across the hospital system.

Enhancing **value** for da Vinci surgeons

# The Ongoing Impact of SimNow®

Get a better understanding of surgeons' simulator skills compared to *hospital peers*, as well as *regional, national, and global* surgeon simulator results.

Enjoy *complete simulator compatibility* on every type of da Vinci® surgical system, and help *standardize instrument choreography* for all da Vinci procedures.

Deliver *potential cost reductions* by decreasing average da Vinci surgical times, and reducing future hardware and repairs & maintenance costs.

# References

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- 6) Intuitive Internal Sales OPS, tableau
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- 11) Pearce, Shane M. et al (2015) "The impact of days off between cases on perioperative outcomes for robotic-assisted laparoscopic prostatectomy" *World J Urol*. Springer 1605-5
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- 13) Guseila, Loredana M. et al (2014) "Training to maintain surgical skills during periods of robotic surgery inactivity" *Int J Med Robotics Comput Assist Surg* 2014; 10: 237–243.
- 14) Internal Intuitive training survey from 858 surgeons between 2014-2017
- 15) Internal Intuitive Sales Ops, tableau (2018) Internal data

# Important Safety Information

Serious complications may occur in any surgery, including da Vinci® Surgery, up to and including death. Examples of serious or life-threatening complications, which may require prolonged and/or unexpected hospitalization and/or reoperation, include but are not limited to, one or more of the following: injury to tissues/organs, bleeding, infection and internal scarring that can cause long-lasting dysfunction/pain.

Risks specific to minimally invasive surgery, including da Vinci® Surgery, include but are not limited to, one or more of the following: temporary pain/nerve injury associated with positioning; a longer operative time, the need to convert to an open approach, or the need for additional or larger incision sites. Converting the procedure could result in a longer operative time, a longer time under anesthesia, and could lead to increased complications. Contraindications applicable to the use of conventional endoscopic instruments also apply to the use of all da Vinci instruments.

For Important Safety Information, indications for use, risks, full cautions and warnings, please also refer to [www.davincisurgery.com/safety](http://www.davincisurgery.com/safety) and [www.intuitivesurgical.com/safety](http://www.intuitivesurgical.com/safety).

Individual surgical results may vary.

It is the responsibility of the owner of the da Vinci Surgical System to properly train and supervise its personnel to ensure that the instruments and accessories are properly cleaned, disinfected and sterilized as required by the User's Manual. The da Vinci products should not be used in a clinical setting unless the institution has verified that these products are properly processed in accordance with the da Vinci System User's Manual.

The da Vinci® SimNow is intended to augment, not replace, existing training programs for the da Vinci® Surgical Systems.

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