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Image guided theraphy

Azurion Hybrid OR

Workflow innovation in the Azurion Hybrid OR

According to the IMV survey[1] of 203 US hospitals

60%

is considering or actually planning to purchase a Hybrid Operating Room

According to the IMV survey[1] of 203 US hospitals

53% of the planned fixed C-arms will be ceiling mounted and 18% will be floor-mounted*

* 28% were not specified and 1% were biplane

The number of structural heart disease, peripheral vascular and aortic repair procedures will grow from 2.4 in 2017 to

3.8 million

procedures in 2025.[2]

Welcome to the future of surgery

Where can new technologies take your surgical practice? To less pain and **shorter recovery** times for your patients. To faster and **simpler procedures**. To **less stress** for surgical teams. This is the brighter future that we envision for your hospital with our Philips Azurion 7 Hybrid OR solution. We provide the connectivity between all equipment and applications to promote orchestrated care and smooth changeovers between procedures.

The Azurion 7 Hybrid OR solution allows your medical teams to experience unmatched procedural flexibility, efficiency and ease of use. They can work with confidence, supported by market-leading 2D and 3D image guidance, stringent infection control and dose management measures.

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Full control at tableside
With FlexVision Pro and the touch screen module Pro you can intuitively control all connected applications in the Hybrid OR via mouse over at table side.

Optimized workflow with Azurion

Our Azurion Hybrid OR solution offers several ways to improve teamwork and allows clinicians to enhance control of patient care and save time during procedures. All connected applications can be controlled at tableside. Or as unforeseen changes occur, team members can control connected applications and systems from other workspots in the room. Flexible control can make the critical difference when you need it.

"We were looking to design an OR that had dual functionality, where we were able to do both open and endovascular procedures.... I can start with an open case and add endovascular techniques because I have the imaging right there. And if I'm doing an endovascular procedure and there is a problem, then I can open immediately and take care of the patient."

Dr. M. Lukens, *MD, Director Vascular Services, Heartland Health Regional Medical Center St. Joseph, Missouri, USA*

Control applications anywhere
View and run all your Philips and third party applications and systems from different Azurion workspots (FlexVision Pro, FlexSpot, and touch screen modules) to free up space at the table and on the floor.

ProcedureCards standardize set-up
One touch sets up the imaging system with relevant parameters for each case. Hospital checklists and protocols can be displayed to safeguard consistency, allowing multiple clinical disciplines to work efficiently in the Hybrid setting.

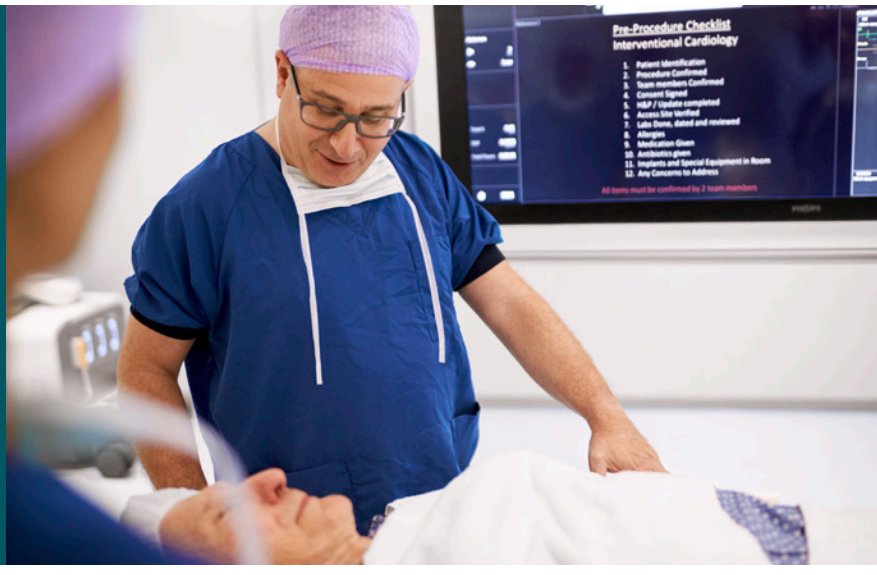
Philips ConnectOS
Your Philips Hybrid OR supports your surgical teams in working efficiently and smoothly together thanks to ConnectOS multi-workspot technology and other unique workflow innovations. ConnectOS allows different team members, working at different work spots, to work in the same application using the same information at the same time without interrupting each other.

Designed for fast and flexible imaging
Azurion's rock-solid C-arm provides excellent patient access, robust image quality, and rotational scans within seconds. The stand can reach the groin without repositioning and supports a wide range of projections.

17% reduction of procedure time with Philips Azurion at St. Antonius Hospital, Nieuwegein, The Netherlands[3]

This is just one of the many improvements in lab performance achieved by the interventional vascular department at St. Antonius Hospital after installing the Azurion system. This first Azurion lab performance study achieved impressive results which have been verified by an independent third party.[3]

> More results can be found at the Azurion website: https://www.usa.philips.com/healthcare/resources/landing/azurion/optimize-lab-performance



Full **flexibility** and **patient access**

Our solutions are based on continuous input and collaborations with stakeholders across the clinical spectrum. Our most recent survey[4] of surgeons around the globe identified their key requirements for a Hybrid OR. The Azurion Hybrid OR with its two unique FlexArm and FlexMove gantry options has been developed to meet these critical issues.

Optimal use of space
Major equipment is mounted on the ceiling, the preferred location for OR equipment. Both the FlexArm and FlexMove gantries have a compact design, developed to maximize use of OR space and help maintain a clean floor.

Easy full body patient coverage
Team members can work at both sides of the table, and the patient can be accessed at any location from head to toe. The imaging system can be easily moved away from the table as needed. Azurion's gantry flexibility also helps to reduce and even eliminate table pivoting or panning which can enhance patient experience and improve catheter control and intubation.

Positioning flexibility and clean floor
Imaging and surgery equipment can be easily positioned for different teams and procedures without touching the floor. The FlexArm C-arm has a 270-degree range of movement to further increase staff and equipment positioning freedom without compromising projection freedom.

Workflow without compromise
The anesthesiologist can stand at the head of the table, and other team members can stand in their preferred working positions for a variety of open and minimally invasive procedures. During radial access and multiple access cases, the transversal movement of the gantries allows you to work in the most ergonomic position.

Easy full body patient coverage

Optimal use of space

Positioning flexibility and clean floor

Workflow without compromise

Keeping **patient and staff safety** at the forefront

Preventing surgical site infections (SSIs) is a complex challenge for healthcare systems and manufacturers. Our Azurion Hybrid OR offers a comprehensive program to help you manage the risk of SSIs before, during and after surgery.

During development of the Azurion Hybrid OR, we carry out a series of tests that aid us in designing a system that minimizes patient infection risk. This, for example, resulted in our special ceiling suspension system which is engineered to minimize interference with uni directional flow (UDF) ventilation systems. It meets the most stringent standards for air ventilation systems in operating rooms, including:

- RichtLijn 7 (Dutch norm)
- DIN 1946 Raumklasse 1A
- ISO Class 5 (1446-1)

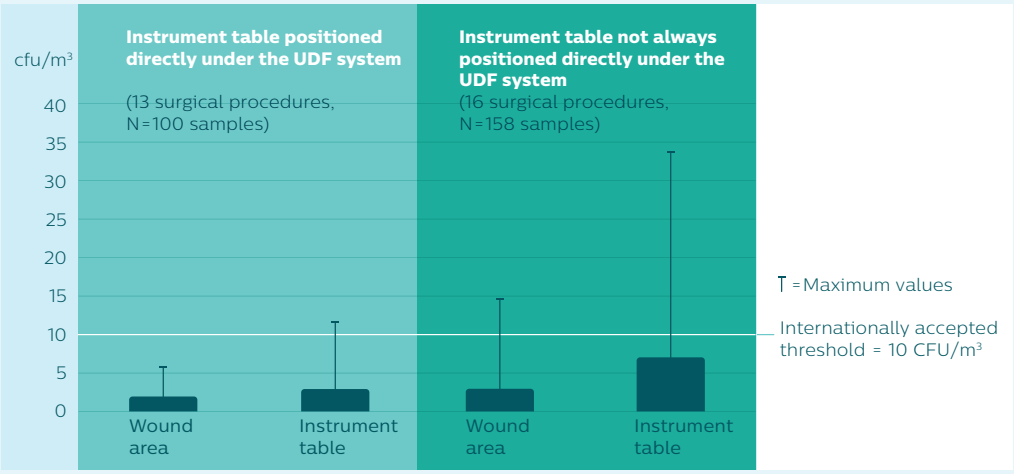
Level of microorganisms near wound during surgery – <2 CFU/m³

Our work in this area goes much farther. We are continually looking for more effective ways to reduce infection risk in the OR. We recently partnered with TNO, an independent scientific research organization in The Netherlands, to evaluate how much our ceiling mounted FlexMove system used with a large UDF system affects air quality during surgical procedures. This study was conducted according to a measuring protocol based on the Swedish technical specification SIS-TS 39:2015, which measures the level of microorganisms present during actual surgical procedures performed with normal equipment and staff movements.

We chose this approach because it provides a more accurate assessment of hygienic performance during surgery, compared to conventional static measurements of ventilation systems, carried out without staff in the room and without equipment movements.

Ceiling mounted systems far within internationally accepted threshold values for air quality

Philips and TNO Research conducted the first study to evaluate the effect of ceiling-mounted imaging systems combined with UDF systems on CFU levels during surgery. The study measured CFU levels during live procedures, explained below. A literature review was also done. The authors concluded that the air quality remains to be far within the thresholds for microbiological air pollution so ceiling mounted systems have no impact on sterility.

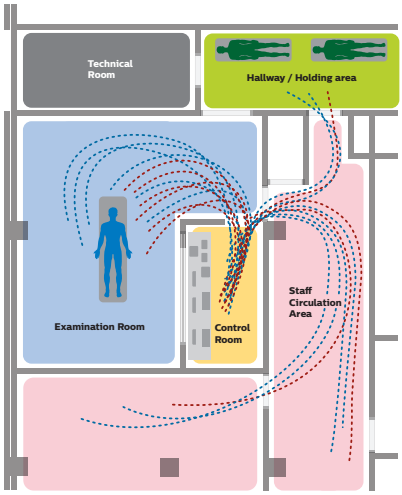


Traversari AAL, et al., Effect of using ceiling-mounted systems for imaging in hybrid operating rooms on the level of colony-forming units during surgery, Journal of Hospital Infection (2018), https://doi.org/10.1016/j.jhin.2018.10.016)

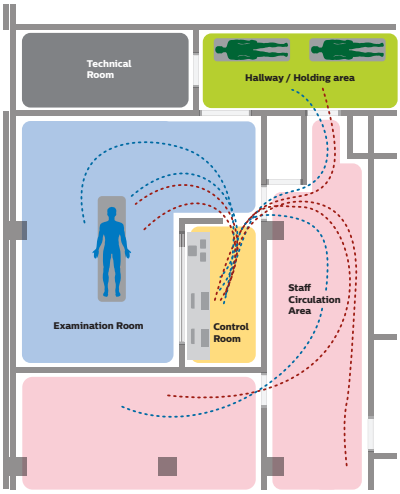
29% reduction in staff movement[3]

Other literature shows that sterility in the treatment area is directly related to the amount of movement between exam and control room.[7,8] By allowing full tableside control, Azurion's FlexVision Pro and TSM Pro solutions help you effectively address this issue. After installing Azurion in the interventional vascular department of St. Antonius, staff movement between the exam room and control room was reduced by 29%.[3]

Pre staff movement

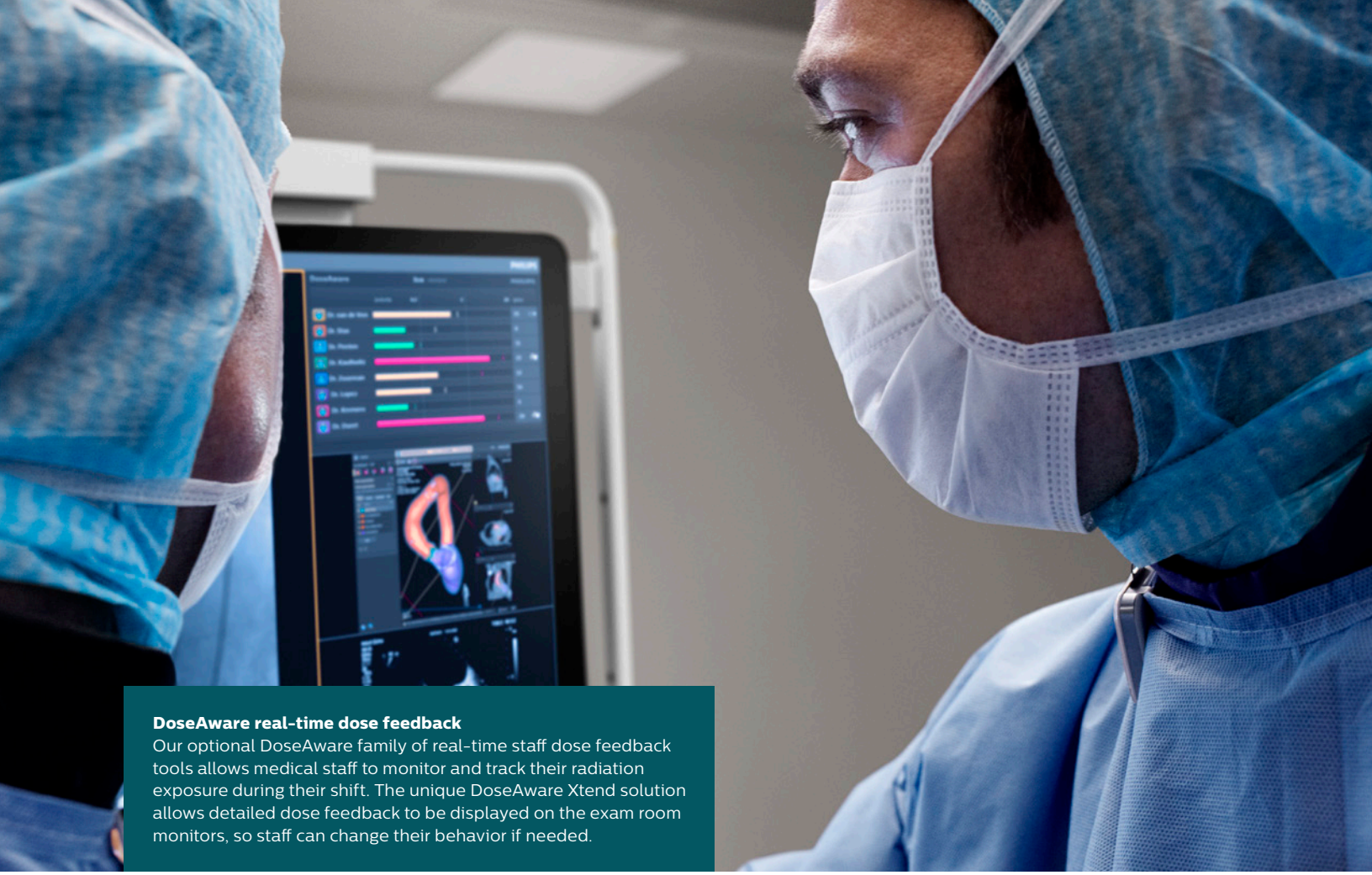


Post staff movement



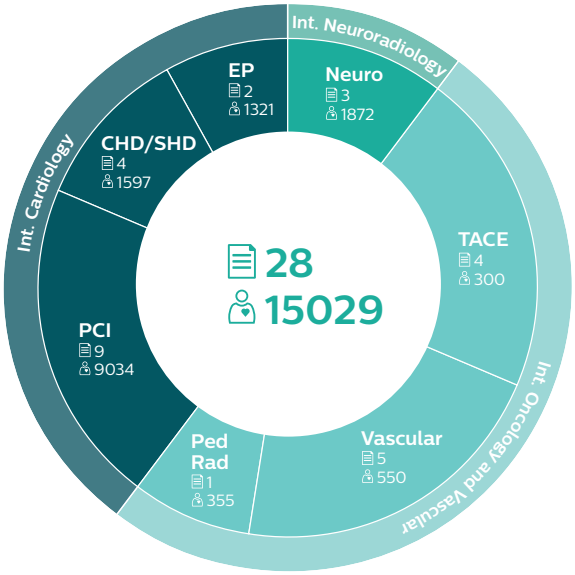
Physician — — — Nurses — — —

Visit: www.philips.com/labperformance in order to view the staff movements in more detail.



DoseAware real-time dose feedback
Our optional DoseAware family of real-time staff dose feedback tools allows medical staff to monitor and track their radiation exposure during their shift. The unique DoseAware Xtend solution allows detailed dose feedback to be displayed on the exam room monitors, so staff can change their behavior if needed.

Efficient dose management
The Azurion Hybrid OR includes DoseWise, a comprehensive range of dose management tools and technologies to promote efficient dose management. Options like our unique ClarityIQ X-ray imaging technology and DoseAware solutions can have a profound impact on establishing strong radiation control and management in the Hybrid OR.



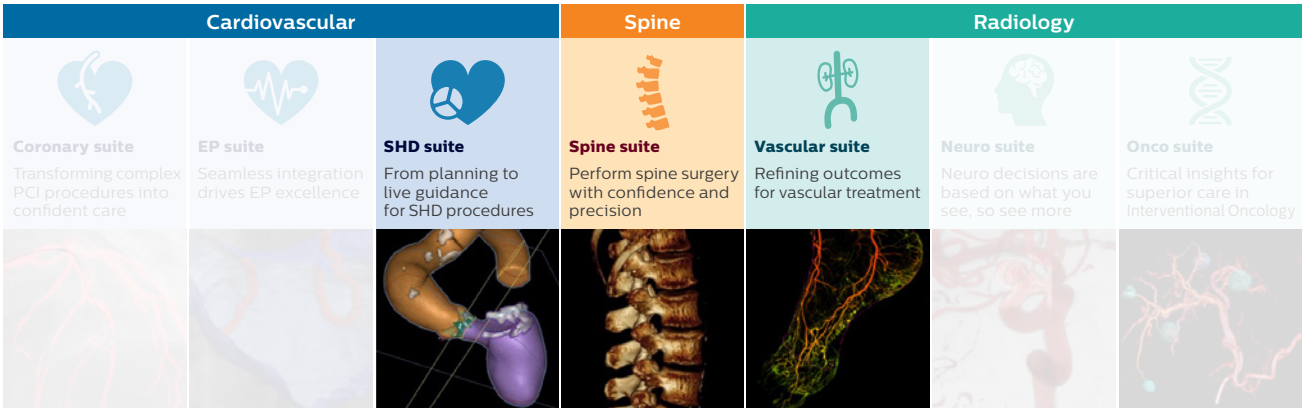
Number of peer-reviewed papers published

Patient data analyzed

A solid base of comparative studies across different clinical applications, types of patients and operators shows significant reduction in dose with ClarityIQ X-ray dose technology.[9]

Clinical confidence for **complex procedures**

Surgical procedures are increasing in complexity and volume as well as expanding into new clinical areas. New technologies and devices are creating very specific challenges, complexities, and needs. As your clinical demands become more specific, so are Philips solutions. Our clinical suites offer a flexible portfolio of integrated technologies and services for cardiac, vascular, oncology, neuro, and spine interventions as part of your Azurion Hybrid OR. These clinical suite solutions combined with our DoseWise radiation dose management program are designed to optimize workflows for specific clinical areas.



For more information on the clinical suites, please visit **www.philips.com/clinicalsuites**

"The use of CBCT in the hybrid OR provides us with a reliable and accurate method for intraoperative localization of small pulmonary nodules. This is the next step in the evolution of thoracic surgery."

Kelvin Lau, *MD, Thoracic surgeon St Bartholomew Hospital London, UK*

"Post-operative CT scans to check implant placements are no longer necessary; it is possible to verify whether a procedure has been successful immediately after treatment. As soon as surgery has been performed, we can be 100% sure that implants are in place, thanks to the high quality of the intra-operative cone beam CT (XperCT) image and positioning flexibility of the system."

Prof. Dr. A. Seekamp, *MD, Director of the Orthopedic and Emergency Surgery clinic, UKSH*

Create the Hybrid OR **you want**

When starting such a complex project, it's reassuring to know you can draw upon Philips 60 years of experience and knowledge from surgical C-arms, image guided therapy, and over 800 Hybrid OR projects globally. All supported by comprehensive service and support solutions to realize a lifetime of benefits from beginning to end.

We offer the flexibility to create a custom environment that meets your unique needs and goals. By partnering and working closely with our major OR partners, including MAQUET, Trumpf Medical, Mavig, Steris, Skytron, Stryker, and others, we can give you a wide range of choices from the latest technological leaders.

Our products are rigorously tested to certify that they work seamlessly with those of our partners. In this way we can ensure that the essential performance of our systems meets high standards for quality and operational reliability. Where possible, we leverage your existing resources and work with your OR partners to help you realize clinical and economical gains.

MAQUET GETINGE GROUP · MAVIG · stryker · STERIS · SKYTRON · Trumpf Medical

Identify clinical needs and workflow
Our clinical and technical experts can then help you define the flow of people, equipment, and supplies in your space

Translate needs and workflow into the best design
Global experience on effective infrastructure and interoperability helps us reduce complexity and enhance control of your surgical equipment

Get a custom fit
Choose from the latest technological leaders, through our partnerships with MAQUET, Trumpf, Mavig, Steris, Skytron, and Stryker

See if it works
Test out different set-ups with our three-dimensional drawings to avoid costly oversights and workflow bottlenecks

Assess the financial feasibility
Our financial professionals can help you calculate caseloads, room utilization, and other operational factors to make a realistic business case

Manage the project efficiently
A dedicated project manager can streamlines collaboration with all stakeholders to help safeguard the process, budget, and quality

A lifetime of **benefits**

As new technologies, techniques, and opportunities present themselves, you want to know that your Hybrid OR gives you a foundation to take advantage of the innovations of tomorrow. With a Philips Hybrid OR, you enjoy a lifetime of benefits from beginning to end.

Getting started

Tailored financing solutions, room planning and design services and education support options help you get up and running as quickly and efficiently as possible.

- Financial services
- Hand-over training
- Room planning services

Getting ahead

We offer a range of flexible support options designed to provide peak lab performance today and unlock future potential for your Hybrid OR.

- Warranty / Maintenance services
- Customer service portal
- Managed maintenance Services
- Utilization services
- Continuous education
- Workflow consultancy

Staying ahead

We collaborate with you in the long-range planning of your medical imaging needs to optimize, enhance, or transform your solution to stay ahead throughout your lifecycle.

- System upgrades & enhancements
- Replacement alternatives

[1] Survey European Society for Vascular Surgery 2014, Survey Society for Vascular Surgery 2014 (USA) and 303 survey participants.
[2] Based on Peripheral Vascular, Aortic Repair, Heart Valve and Structural Heart Closure Devices Report from Millenium Resource Group.
[3] Philips Azurion Simulation Study 2016 - 12NC 452299123041 – FEB 2017. Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions. Study results were verified by NAMSA, an independent third-party expert on study design and analytics.
[4] Survey Society for Vascular Surgery 2014 (USA) of 303 survey participants.
[5] Bischoff P, Kubilay NZ, Allegranzi B, Egger M, Gastmeier P. Effect of laminar airflow ventilation on surgical site infections: a systematic review and meta-analysis. Lancet Infectious Diseases. 2017;17(5):553-61.
[6] Global Guidelines for the Prevention of Surgical Site Infection. World Health Organization. 2016.
[7] Mangram AJ, Horan TC, Pearson ML, et al. The Hospital Infection Control Practices Advisory Committee. Guideline for prevention of surgical site infection, Am J Infect Control.1999;27:97–134.
[8] Alexander JW, Solomkin JS, Edwards MJ. Updated Recommendations for Control of Surgical Site Infections. Annals of Surgery. 2011;253(6):1082-93.
[9] In 18 individual comparative studies, Philips ClarityIQ was associated with reductions in patient radiation exposure.1-18

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