

Cios Flow

# Get straight to work

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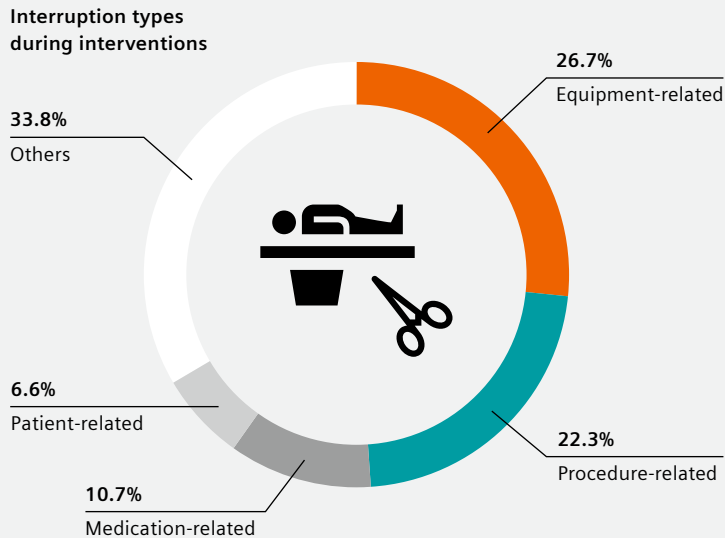


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# Stay competitive in a challenging field

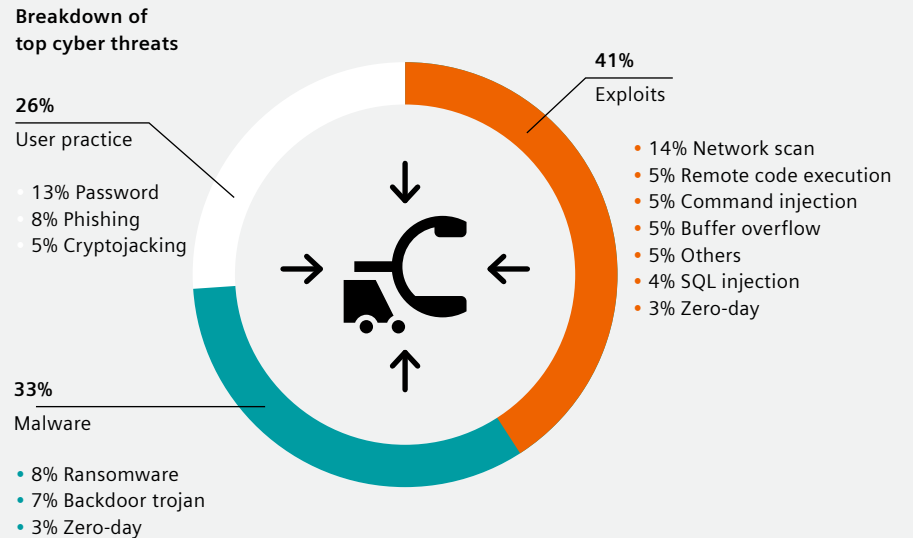
In modern operating rooms, surgical teams are constantly multitasking under time pressure.<sup>1</sup> A good workflow is half the job, since interruptions can negatively impact both patient safety and OR efficiency.<sup>1</sup> And other, invisible disruptions are on the rise: cyber attackers are taking advantage of security gaps to access patient data and compromise vulnerable healthcare systems.<sup>2</sup>

## Three interruptions per hour



On average, the OR team is interrupted three times per hour, and nearly half of these disruptions are workflow-related: 26.7% due to equipment and 22.3% related to procedures.<sup>1</sup>

## Attackers exploit vulnerabilities



In 41% of cyber attacks on healthcare systems, hackers exploit known weaknesses in order to disrupt critical functions and steal sensitive data.<sup>2</sup>

# Get straight to work

A system for smoother procedures

To address the challenges faced by surgical teams, we've developed Cios Flow. This new mobile C-arm can help you make your procedure more straight-forward and efficient. It assists you in your daily routine while also supporting multi-disciplinary utilization. High-end features such as the large CMOS flat detector help ensure high image quality and facilitate the ALARA (as low as reasonably achievable) principle. SpotAdapt and touch gestures simplify workflows, while Cios OpenApps allows you to continuously expand your system. The lightweight, slim, non-compromising design makes Cios Flow particularly easy to position and move. And integrated cyber security protects patient data as well as the system itself.

**Benefit from intuitive use and versatile applications – plus advanced cyber security. Cios Flow lets you get straight to work.**



**Designed for more ease in the OR**



**Versatility supports system utilization**



**Cyber security to safeguard data and access**

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### Optimized imaging parameters with SpotAdapt



With SpotAdapt



Without SpotAdapt

# At a glance

## Designed for more ease in the OR

In rapid OR routines, a mobile C-arm can be challenging to operate. Technicians need years of experience, and surgeons must communicate very clearly. Cios Flow offers intuitive use, low weight, and easy maneuverability, helping to ensure optimum system operation independent of staff expertise.

### Lightweight system design

Featuring a non-compromising C-design, and weighing only 275 kg, Cios Flow is particularly easy to position and move.

### Retina Imaging Chain with CMOS technology

Intelligent algorithms automatically adjust brightness and contrast, detect motion, enhance edges, and optimize metal visualization for improved depiction of surrounding tissue.

### Remote user interface

Trigger key system functionalities, even from within the sterile field, with the touch of a finger.



SpotAdapt on remote user interface



### SpotAdapt and touch gestures

SpotAdapt automatically optimizes imaging parameters to the anatomy of interest. Tablet-like touch gestures let you collimate, rotate, and flip images – and take advantage of SpotAdapt – with just one finger.

### High-brightness green lasers

For improved visibility on all skin types and blood – despite bright OR lighting.

### Wireless footswitch

For less hassle around the equipment and more freedom in the OR.

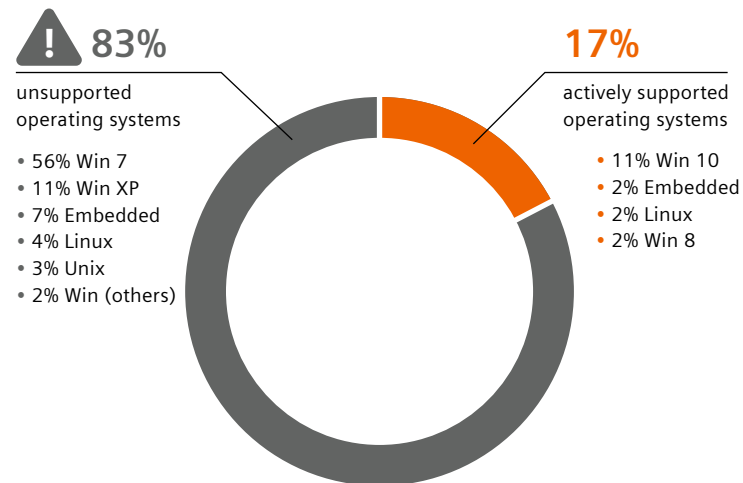


## Versatility supports system utilization

Hospitals face increasing cost pressure, so they need to justify investments. Cios Flow is a multipurpose system that can be used across a variety of disciplines – orthopedic and trauma surgery, spine surgery, vascular surgery, and more – allowing you to boost utilization.

## Cyber security to safeguard data and access

Unprotected digital systems can serve as entry points for cyber attacks. Today, 83% of medical imaging devices run on unsupported operating systems. Attackers exploit these vulnerabilities to shut down critical functions or exfiltrate patient data.<sup>2</sup>



## Infection control

Cios Flow supports your aim to maintain high infection control standards. It is designed to make cleaning and disinfection as easy as possible.

Benefit from improved clean conditions thanks to significant anti-microbial effects on non-sporulating microorganisms.

With Cios Flow, advanced cyber security is on board. This helps decrease your hospital's risk of being hacked, ensure that personal data is secure, and safeguard your finances and reputation.

### Access & user management

Define rights for different user groups – to prevent unauthorized access.

### Whitelisting

Restrict unauthorized applications – to protect your imaging system.

### Data encryption

Encrypt the patient data partition using BitLocker – to secure data against theft.

### Audit Trail

Track important configuration changes – for improved transparency.



Target Pointer – correct position based on the target line.



To check results intraoperatively, overlay pre-op planning with live images from Cios Flow, thanks to seamlessly integrated third-party applications such as Radlink – available in Cios OpenApps.

## Perform ortho/trauma procedures with ease

Cios Flow features easy handling and a slim design, making complex positioning much easier. Orthopedic, trauma, and spine surgeons can better focus on the task at hand, since image parameters, brightness, and contrast are automatically adjusted according to the ALARA principle. A range of supportive features helps ensure smooth workflows and excellent results.

### Visualize challenging areas more easily

SpotAdapt lets you specify a region of interest simply by pointing to the specific anatomical area on the large preview image, and automatically optimizes relevant imaging and post-processing parameters such as brightness and contrast. SpotAdapt supports improved depiction of the selected region and is designed to help visualize challenging anatomical areas like the cervico-thoracic or thoracolumbar junction<sup>3</sup>

### Get it right at first attempt

Target Pointer supports less experienced surgeons by displaying a trajectory for optimized placement of K-wires or other devices. A recent publication showed that Target Pointer significantly reduced the number of K-wire placement attempts in the lower leg.<sup>4</sup>



### Expand your capabilities with Cios OpenApps

In the past, growing into more profitable procedures often meant expensive investments in new equipment. Digitalization opens up new opportunities. Cios Flow with Cios OpenApps connects you to the Siemens Healthineers Digital Marketplace, where you'll find compatible, certified apps to let your mobile C-arm best support you during your procedures.

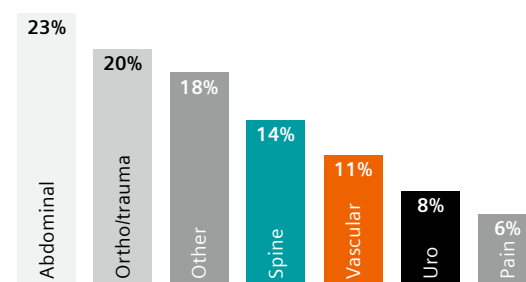
# Benefit from multi-disciplinary capabilities

Addressing a wide range of cases can help your institution significantly increase system utilization. In addition to the applications in ortho/trauma and spine surgery, Cios Flow can be used for abdominal, vascular, urological, pain management, and other procedures.<sup>5</sup>

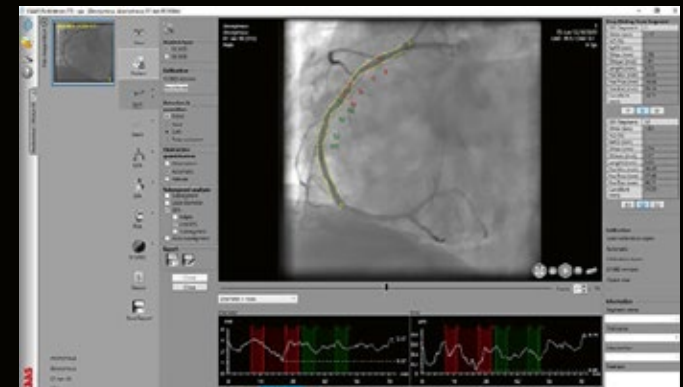
## Support for vascular procedures

Cios Flow incorporates interfaces for injection triggers to synchronize the injection of contrast media. Dedicated software for Live Graphical Overlay supports surgeons to position stent grafts. The roadmap function can be used when moving wires. And in subtraction images, up to 100% landmarking provides better orientation. .

## Types of exams carried out with Cios Flow<sup>5</sup>



Applied biliary stent  
Courtesy of Gansu Traditional Chinese Medicine Hospital  
Image generated with Cios Fusion VA20



To measure stenosis, choose between applications from Siemens Healthineers or market-leading partners like Pie Medical Imaging via Cios OpenApps.



### See the details you need

Our Retina Imaging Chain with CMOS technology enables surgeons to see the details they need. Benefit from higher image quality at low-dose applications.\*



### Intuitively apply ALARA principles

CARE supports surgeons to consciously apply the right dose – with the help of exam sets, dose buttons, and smart collimation.

\*Compared to previous Cios Fusion/aSi detector technology.

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<sup>1</sup> Göras C, Olin K, et al. (2019). *Tasks, multitasking and interruptions among the surgical team in an operating room: A prospective observational study.* *BMJ Open.* 9. 1-12. 10.1136/bmjopen-2018-026410.

<sup>2</sup> Unit 42, Palo Alto Networks (2020). *IoT Threat Report.* <https://unit42.paloaltonetworks.com/iot-threat-report-2020/>.

<sup>3</sup> Based on cadaver study.

<sup>4</sup> See, e.g.: Swartman B, Frere D, Wei W, Schnetzke M, Grechenig S, Matityahu A, et al. *Wire Placement in the Lisfranc Joint Using a 2D Projection-Based Software Application for Mobile C-Arms: an Experimental Study in 20 Cadaver Specimens.* In: Klaus Radermacher and Ferdinando Rodriguez Y Baena (editors). *CAOS 2017. 17th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery*, vol 1: 385–390.

Swartman B, Frere D, Wei W, Schnetzke M, Grechenig S, Matityahu A, et al. *Wire Placement in the Sustentaculum Tali Using a 2D Projection-Based Software Application for Mobile C-Arms: Cadaveric Study.* *Foot Ankle Int.* 2018 Apr; 39(4): 485–492.

Swartman B, Frere D, Wei W, Schnetzke M, Beisemann N, Keil H, et al. *2D projection-based software application for mobile C-arms optimises wire placement in the proximal femur – An experimental study.* *Injury.* 2017 Oct; 48(10): 2068–2073.

<sup>5</sup> SHS Global Product Survey (2020). *Data for Cios Fusion for FY17, 18, 19, and 20.* The survey was conducted by MaritzCX on behalf of SHS.

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