CIARTIC Move

Move like never before

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Challenges in the OR

Repeated manual C-arm positioning

1 minute
of OR time costs
$46.04

Most surgical teams routinely perform multiple image-guided procedures within tight OR schedules. During the procedures, the C-arm frequently needs to be repositioned accurately to give surgeons the exact anatomical views they require.

With conventional mobile C-arms, this repeated manual positioning can be stressful, time-consuming, and prone to error.

Smith T, et al. (2022) | *Cost of Operating Room Time is $46.04 Dollars per Minute.*

Intraoperative inefficiencies and waiting times

OR departments are not immune to the staff shortages affecting many healthcare systems today. Frequent unavailability of staff trained to operate the C-arm can cause inefficiencies and unplanned waiting times.

Marć M, et al. (2018) | *A nursing shortage – A prospect of global and local policies.*

Physically demanding daily routine

Surgical teams have to perform physically demanding work. Manually steering heavy imaging systems around the OR and between rooms is a major contributor to this physical burden.

Sarafis P. (2016) | *The impact of occupational stress on nurses' caring behaviors and their health-related quality of life.*

Move like never before

CIARTIC Move: A robotic C-arm

CIARTIC Move is a new class of robotic C-arm that has the potential to address operational challenges related to intraoperative imaging and overloaded surgical teams.[1]

With its self-driving and automation capabilities, CIARTIC Move unburdens OR teams by standardizing intraoperative imaging workflows. The robotic technologies effectively reduce the time[1], effort, and workforce capacity needed for system positioning during procedures and simplify moving the device between operating rooms.

Move automatically
Accelerate and standardize 2D and 3D imaging in the OR.

Move independently
Avoid idle times and delays in the OR.

Move effortlessly
Reduce the physical burden of working in the OR.

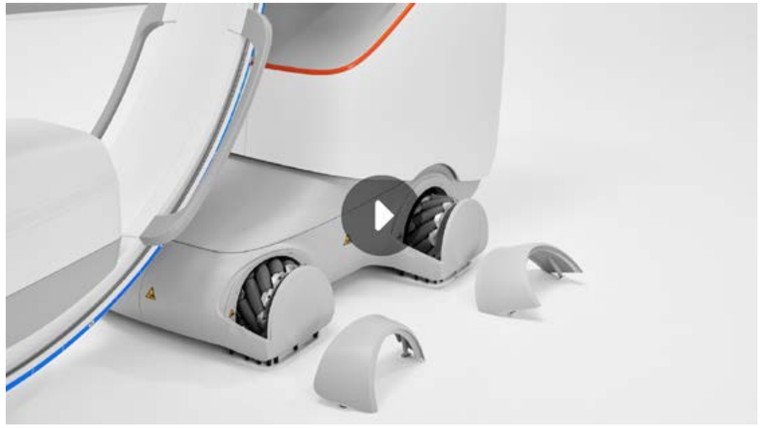
[1] *Proven with orthopedic trauma and spine surgeons in a cadaveric setting with 10 human specimens, compared with Cios Spin.*

Key features

Discover the highlights of CIARTIC Move

Fully motorized chassis with holonomic wheels

The motorized chassis is a key enabler for all automation features. Holonomic wheels allow floating-like movements in every direction.



Position Assist

Store and recall up to 12 procedure-specific 2D or 3D C-arm positions, plus the corresponding imaging parameters.

Park Assist

Send CIARTIC Move to a park position when you need more space at the OR table. Call it back at the touch of a button when you need it again.

Key features

Discover the highlights of CIARTIC Move

ISO Assist

Adjust the distance of the detector to the patient without losing your anatomical field of view.

Smart Control

Operate the system independently, even from within the sterile field.[1]

Active sensing technology

Benefit from collision protection for increased safety, whenever the system is in motion.

[1] *Proven with orthopedic trauma and spine surgeons in a cadaveric setting with 10 human specimens, compared with Cios Spin.*

Key features

Discover the highlights of CIARTIC Move

Touch-sense handles

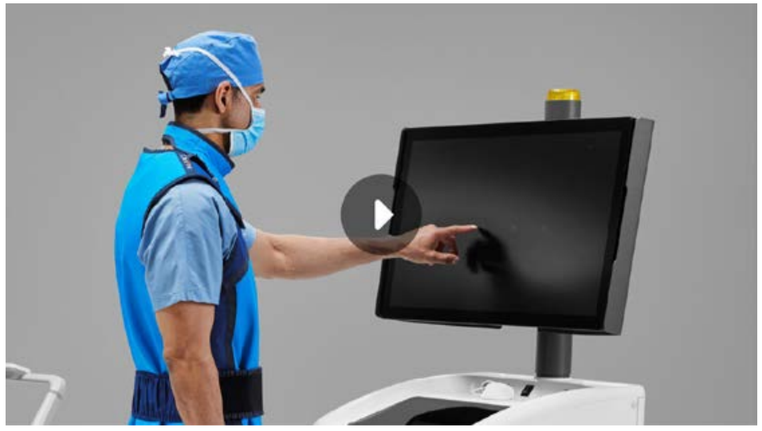
Reduce the physical burden of working in the OR: Steer the system effortlessly, thanks to motor-assisted movements.

Retina 3D

Benefit from precise 3D visualization of anatomical structures and metallic objects with excellent image quality.

32” 4K touch monitor and new touch interfaces

Use the large 4K touch monitor to display X-ray images in native resolution and sharply visualize anatomical structures.



Preclinical study

Save intraoperative imaging time with CIARTIC Move[1]

A preclinical study involving **14 orthopedic and spine surgeons** compared the operational capabilities of CIARTIC Move with a conventional C-arm in **three anatomical regions** (spine, pelvis, and distal radius) using **10 human specimens**.

The goal of this study was to assess the following:

1. Whether the remote control would allow a single surgeon to operate the system **independently** from within the sterile field.
2. Whether the ability of CIARTIC Move to return to saved positions at the touch of a button would **reduce intraoperative imaging time** compared using a conventional C-arm for the same procedure.

[1] *Proven with orthopedic trauma and spine surgeons in a cadaveric setting with 10 human specimens, compared with Cios Spin.*

Experimental setup

CIARTIC Move

Cios Spin

Study outcomes

55%

less intraoperative imaging time when finding the pelvic projections[1]

50%

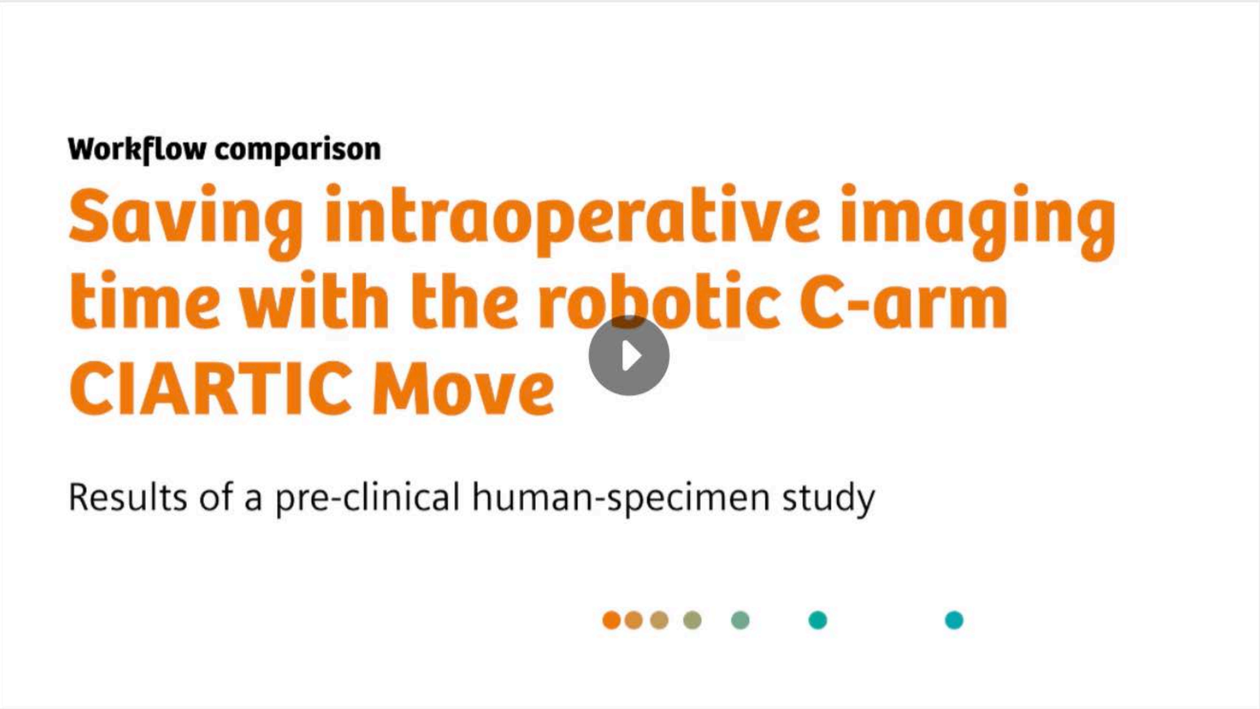
less intraoperative imaging time in distal radius and spine surgery[1]

100%

of all imaging-related tasks were performed by the surgeons from within the sterile field[1]

Clinical workflow with CIARTIC Move

This example of a clinical workflow for pelvic surgery shows how CIARTIC Move can save intraoperative imaging time compared to a conventional mobile C-arm. By leveraging features like Position Assist, Park Assist, and Smart Control, surgeons can operate the C-arm independently and efficiently.[1]

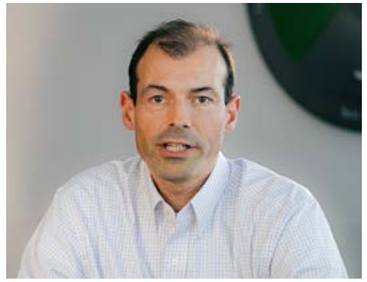


[1] *Proven with orthopedic trauma and spine surgeons in a cadaveric setting with 10 human specimens, compared with Cios Spin.*

Testimonials

"I remember a complex fracture of the elbow and forearm. It's hard to find the previous C-arm positions in a case like that. So it was a real gamechanger for me when I realized I just had to press the button to return to an earlier position."

Professor Paul Alfred Grützner, MD
Medical Director
BG Klinik Ludwigshafen



"The ability to find the location for a perfect image over and over again, to bring in the C-arm and use Position Assist to find the right position efficiently – this is a tremendous improvement on what we currently have."

Kornelis Poelstra, MD, PhD
Orthopedic and Neurological Spine Surgeon
Las Vegas, NV

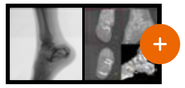
"... Positioning C-arms is always very difficult because the surgeon's view is often different to the person who is operating the system. As a surgeon, it's obviously a huge benefit to be able to position the C-arm from within the sterile field and get the view you actually need from your own vantage point."

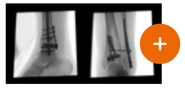
Nina Renner, MD
Senior Physician, Orthopaedic and Trauma Surgery
Universitätsklinikum Erlangen

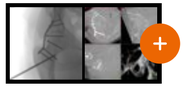
Clinical cases

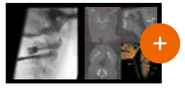
Imaging for multiple surgical disciplines

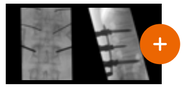
CIARTIC Move supports a range of surgical procedures with intraoperative 2D and 3D imaging.

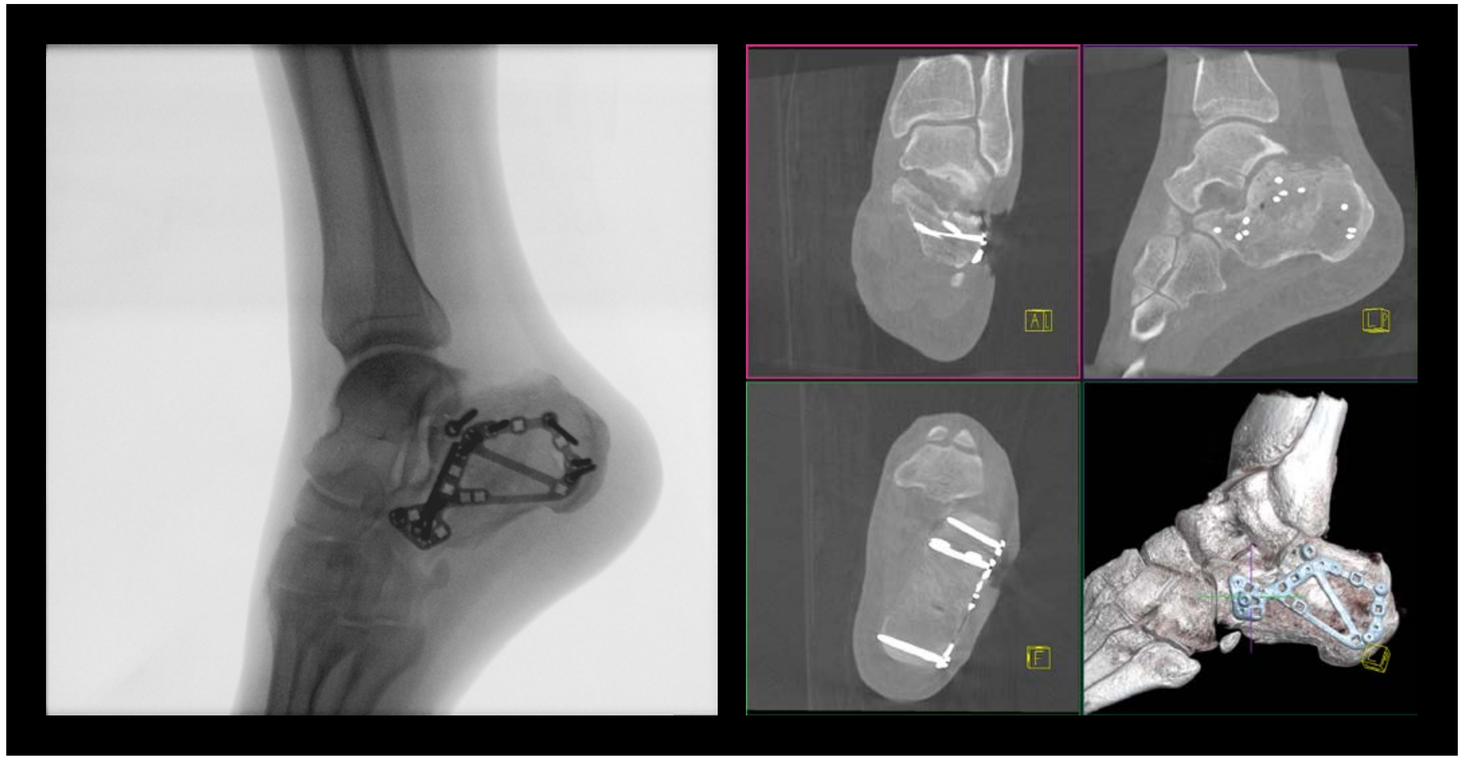

Calcaneus surgery


Tibia surgery


Acetabulum surgery


Cervical spine surgery


Lumbar spine surgery



Calcaneus surgery

Open reduction and internal fixation using a modified sinus tarsi approach; fixation using a VA locking calcaneal plate, defect filling with allogenic cancellous bone.

Clinical images courtesy of BG Klinik Ludwigshafen, Germany

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Our portfolio, spanning in vitro and in vivo diagnostics to image-guided therapy and cancer care, is crucial for clinical decision-making and treatment pathways. With the unique combination of our strengths in patient twinning[1], precision therapy, as well as digital, data, and artificial intelligence (AI), we are well positioned to take on the greatest challenges in healthcare. We will continue to build on these strengths to help overcome the world's most threatening diseases, enable efficient operations, and expand access to care.

We are a team of more than 73,000 Healthineers in over 70 countries passionately pushing the boundaries of what is possible in healthcare to help improve the lives of people around the world.

[1] *Personalization of diagnosis, therapy selection and monitoring, aftercare, and managing health.*

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