



How a dedicated extremity imaging system helps to improve workflow and patient care

Experience with the OEC Elite MiniView™
at AZ Monica Hospital Antwerp – Belgium

gehealthcare.com

*"The OEC Elite MiniView can see what your eyes can't see"
- Professor Dr. Roger van Riet, Elbow Surgeon Specialist*



Dr. Frederik Verstreken | Hand Surgeon



Dr. Petrus van Hoonacker | Hand Surgeon



Prof. Dr. Roger van Riet | Elbow Surgeon

AZ Monica Hospital has 477 beds on 2 campuses—Antwerp and Deurne in Belgium—and employs more than 1,300 people.

*“The OEC Elite MiniView is not a machine that stays in a room, it goes from one operating room to another, because it is so **compact and easy to maneuver** .”*

- Dr. Verstreken

*“With the OEC Elite MiniView I need to check less than before to know if I am correct: it helps to reduce **X-rays and fluoroscopy time for each patient.**”*

- Pr. Dr. van Riet



Orthopedic Department

- 18 orthopedic surgeons group: shoulder, elbow, spine, hip, knee, foot, paediatric, sports injuries, and hand
- Approximately 75,000 patient contacts and 12,000 orthopedic surgical procedures per year
- 2 mini C-arms: OEC Elite MiniView and other system dedicated for hand, elbow and foot surgeons
- 8 standard C-arms

Discover in this testimonial:



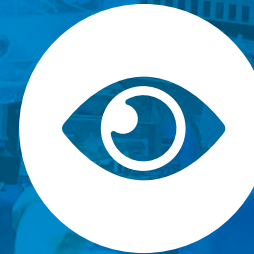
PRACTICE SHARING



CLINICAL CASES



TIPS & TRICKS



SHAPE THE FUTURE



Dr. Frederik Verstreken | Hand Surgeon

Hand Surgery

- 30 procedures/week
- Common procedures: 15 min—2 h
- Microsurgery: up to 10 hours
- Fluoroscopy: 30% of surgical procedures*
- Most common procedures with fluoroscopy : fracture fixation, corrective osteotomies, joint arthroplasty
- Insertion of metal implant: 30% of surgical procedures*

After an international education in orthopedic surgery with a speciality in Hand & Microsurgery, Frederik Verstreken is involved in many scientific and professional societies:

- Acta Orthopaedica Belgica: Editorial board
- Belgian Hand Group (BHG): Board member and President Elect
- Belgian National Board for Certification in Orthopedic Surgery
- European Board of Hand Surgery Examination Committee
- Council Member - Federation of European Societies for Surgery of the Hand (FESSH)
- American Society for Surgery of the Hand

“We see older surgeons whose hands have been affected by radiodermatitis, caused by exposure to high doses of radiation. This is something we want to avoid by using state-of-the-art low dose imaging technology.”



**Based on daily hand surgery activity of Dr. Frederik Verstreken*



Impact for Patients

"With the high image quality and the ease-of-use enabled by the OEC Elite MiniView technology, the patient is going to benefit in the end."

Our Workflow in OR

"We have a nurse driving the OEC Elite MiniView for the big movements but then we move the head by ourselves and I can do it really easily."

Once we have the right position, the button that locks the system is extremely good: just one button to lock the C-arm and it stays there, it's absolutely stable, it will not change position."

Impact for Surgeons

"In our daily routine, the ease of handling the mini C-arm makes work for the operating room team much easier. They feel comfortable, confident and happy working with it, which has an impact on our working conditions as surgeons as well."

Moreover, the startup is also faster than the other fluoroscopy machines, which makes it more efficient and allows us to make better use of our operating time. All of us have waiting lists, so efficiency is very important."

We can rely on the high quality of the images of the OEC MiniView. Hand surgery is precision work, and we need images that show us the result of our work in great detail. We cannot accept inferior image quality anymore. It leads to more radiation and a suboptimal patient outcome."

The images are easily transferred to the PACS system of the hospital, so that we have access to them from every computer. This helps us in our daily work, allows us to educate the patient about the procedure and avoids the need of further imaging in many cases."

In conclusion, I feel that the MiniView improves our workflow, our working conditions and has an impact on the quality and efficiency of our work."



Distal Interphalangeal Joint Fusion





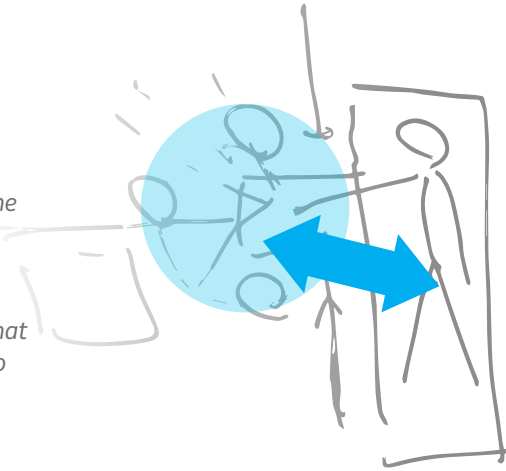
Dr. Frederik Verstreken | Hand Surgeon



Tips & Tricks

*“Planning is everything in surgery, and we will carefully plan the **position** of the patient, the surgeon and the equipment.”*

*What I find a major benefit of the Miniview is the compactness and the fact that it is so easy to maneuver and place in position. Once it is well positioned with the help of the laser beam, one button will lock that position. You have seen what you need, unlocking the device will allow you to easily shift it out of the operating field, without having to **move** the whole machine.”*



Surgery planning sketch



Future of Hand Surgery

- **Mini C-arms:** *“Since I started 15 years ago I have seen the image quality improve a lot, the radiation exposure goes down, systems became more user friendly, mini C-arms really change everything—I don’t think that hand surgeons will want to work with big C-arms anymore.”*
- **3D applications are the future of orthopedic surgeries:** *“Computer software transforms CT, MRI and x-rays (DICOM files) into a 3D STL file. This allows us to virtually plan surgical procedures and print anatomical models of, for example, complex fractures. These can be sterilized and used during the surgical procedure. Indeed, having a 3D model of the bones next to us, combined with the detailed images of the Miniview, prepares us in the best possible way to perform accurate surgery.”*



Hand Surgery



Dr. Petrus van Hoonacker | Hand Surgeon

“ With the OEC Elite MiniView, we noticed an important improvement of the image quality.

We have also noticed that the laser aimer helps decreasing significantly the radiation and the SmartLock is absolutely genius!”

Orthopedic and trauma surgeon, Dr. Petrus van Hoonacker, who specializes in Hand and Wrist Surgery, Microsurgery and Upper Limb Surgery, has extensive global experience and is a member of several scientific societies including:

B.V.O.T.

(Belgian association of Orthopedics and traumatology)

B.H.G.

(Belgian Hand Group)

E.W.A.S.

(European Wrist Arthroscopy Society)

B.O.T.A.

(Belgian Orthopedic Trauma Association)

A.A.O.S.

(American Association of Orthopedic Surgery)





Images obtained by Dr. van Hoonacker and Dr. Verstreken

Clinical Case #1 - Partial Wrist Fusion



*Guidewires placement
AP view control*



*First & Second screws placement
AP view control*



*First & Second screws placement
Lateral view control*



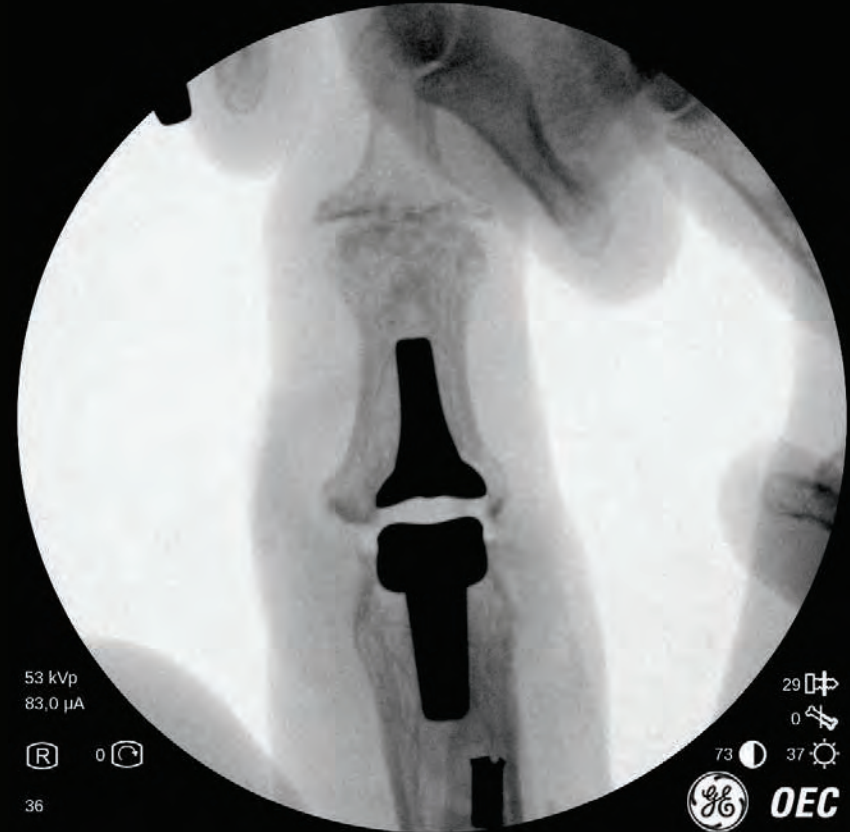
*Final control of the 3 screws placement
AP view*



Clinical Case #2 - PIP* Joint Arthroplasty



Without metal correction



With metal correction

*PIP: proximal interphalangeal



Images obtained by Dr. van Hoonacker and Dr. Verstreken

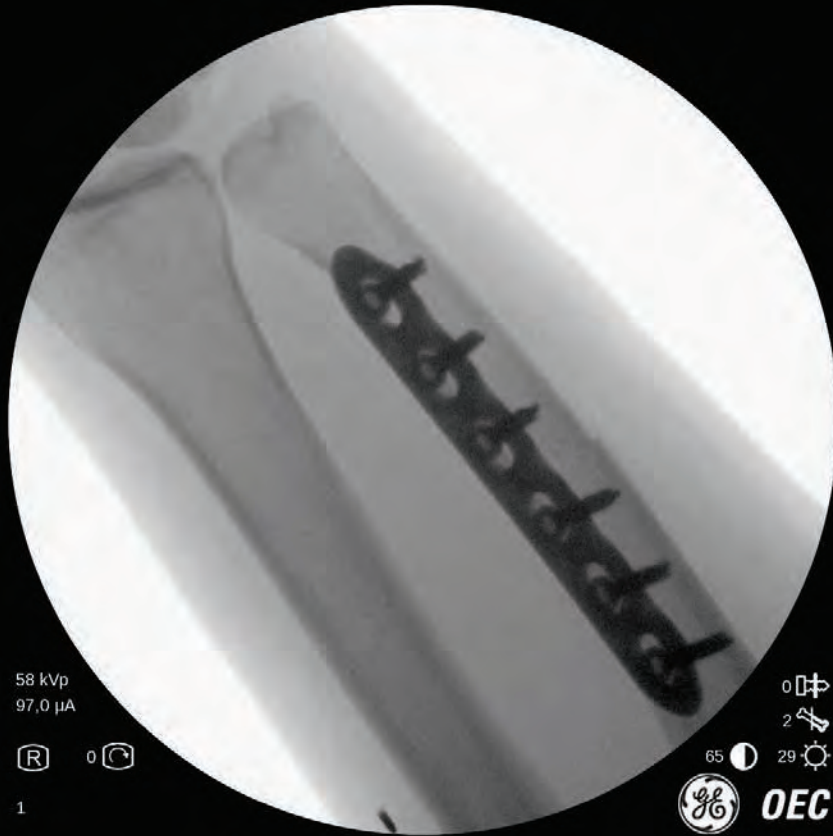
Clinical Images



*Second metacarpal osteosynthesis
AP view
Without metal correction needed*



*Trapezio metacarpal joint implant
Final control AP view*



*Ulna fracture reduction
Standard view control*



Radius fracture reduction control



Prof. Dr. Roger van Riet | Elbow Surgeon

After an international education in orthopedic surgery with a speciality in upper extremity surgery, Roger van Riet is now focusing his activity on elbow surgery.

He also dedicated his time to scientific societies:

- European Society for Shoulder and Elbow Surgery: Executive Board
- Belgian Elbow and Shoulder Society: President

Founding Member

MoRe (Monica Orthopaedic Research Institute)

Associate Editor

Shoulder & Elbow Journal

Journal of Bone & Joint Surgery
– Essential Techniques

Elbow Surgery

- 800 procedures/year
- Fluoroscopy: 20% of cases*
- Most common procedure with fluoroscopy: Trauma
- 95% of the procedures in Low Dose Mode
- Metal: 95% of surgeries

“Back when I was a student, I did some research on the elbow and my tutor was an inspiration. I really wanted to help in getting to know more, to do research in this area and develop surgical techniques. We were discovering the elbow, it’s what I really enjoy.”



**Based on annual elbow surgery activity of Prof Dr Roger van Riet*



Impact for Patients

“The OEC Elite MiniView helps decrease soft tissue damages during our surgery because if we make smaller incisions, we see less: the mini C-arm can see what your eyes can’t see. Radiation dose is decreased because of the quality of the image and ease of positioning. At the end, the chance for better results is higher for the patient.”



State-of-the-Art Elbow Surgery

“Elbow surgery is a growing clinical domain. In the last ten years, elbow surgery grew in minimally invasive surgical techniques, surgeons training, and prosthetic improvements, which ensure a better patient care.

Elbow surgical procedures can be split into two groups:

- *Soft tissue repair: fluoroscopy is not needed except when repairing biceps with metallic buttons or to identify the incision localization*
- *Traumatology: for acute trauma or revision surgery, as the surgical technique preferred is minimally invasive, fluoroscopy is required to ‘see’ beyond the wound, to guide the placement of guidewires, plates, screws and nails.*

Overall, in minimally invasive elbow surgery, fluoroscopy is necessary 20% of the cases.”*

**Based on annual elbow surgery activity of Prof Dr Roger van Riet*



See More, with Less Radiation

*With OEC Elite MiniView, Prof Dr van Riet is running 95% of his procedures in low dose mode.**

“The contrast between the bone and the soft tissues, and the contrast within the bone are preserved.”



Impact for Surgeons

“One of the most challenging procedures can be the total revision of elbow arthroplasty with total replacement of the implant. If a new canal has to be reconstructed, the risk is to perforate the cortex. For this reason, the image quality of the OEC Elite MiniView reduces the number of images around the elbow, simplifies the procedure, and increases confidence in surgery output.

In general, I believe that because I am more happy with the view and the fact that there is only one button to push, my surgeries are more efficient.

Indeed, almost every time, when I press the X-ray button, I get the picture I want. This is thanks to the laser aimer and to the electronic lock preserving the machine from drifting. Indeed, it makes me more confident in that part of the procedure.”



Prof. Dr. Roger van Riet | Elbow Surgeon



Tips & Tricks

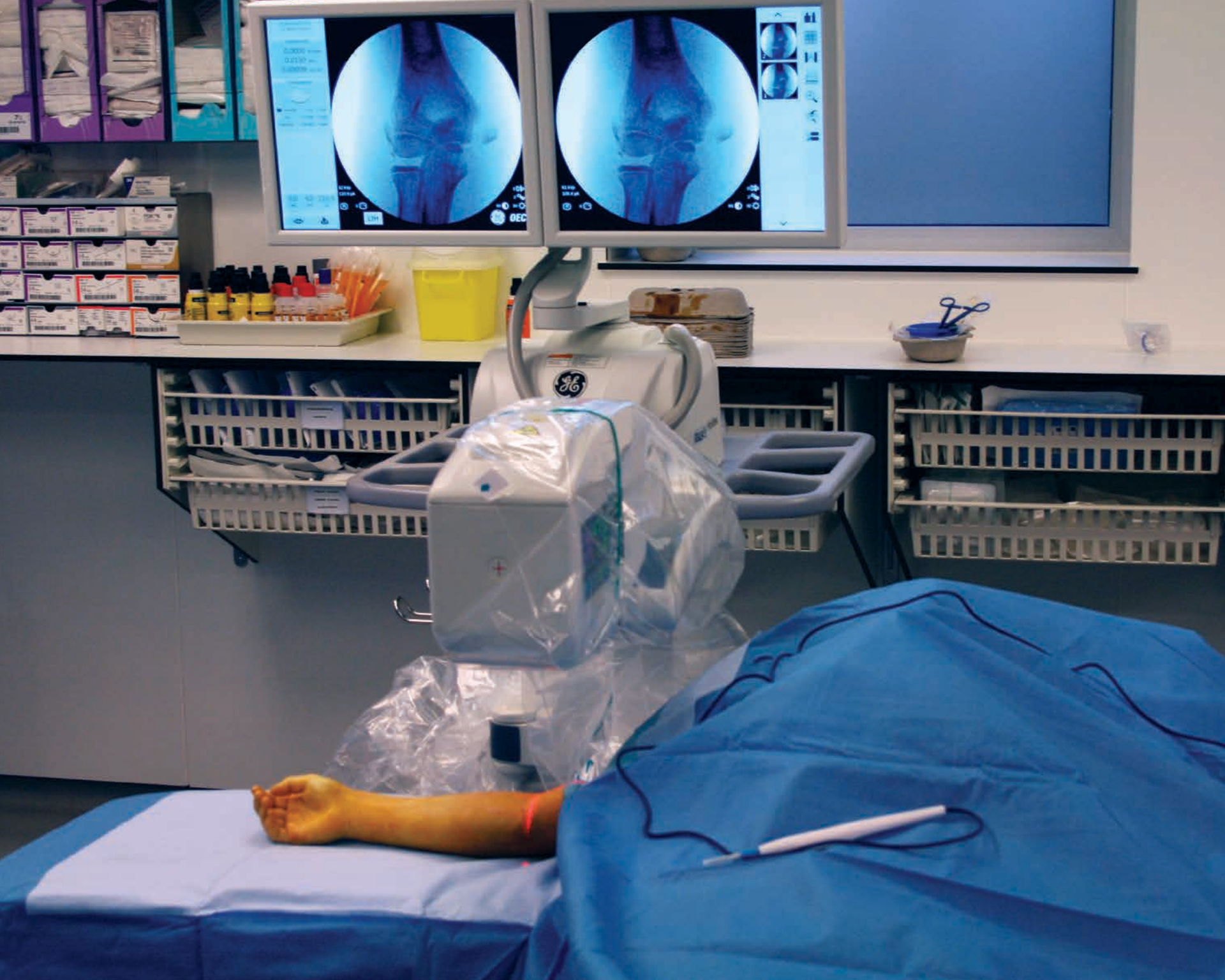
"The most important advice I can give is to plan ahead:

- *Make sure where you are positioned relative to the patient*
- *Where your assistant, nurse and equipment are going to be*
- *Plan before you start where the fluoroscopy is going to be and which view you want because once the table is set, it's very difficult to move around."*



Future of Elbow Surgery

- **Elbow surgery is growing:** *"We know more and because we know more we can try new techniques. Minimal invasive and arthroscopic techniques will gain in importance in the near future. If, for example, you look at arthroscopy indications and the way they have increased in the last decade we can only assume that this will keep growing."*
- **Minimally Invasive Surgery (M.I.S.):** *"Stiffness is a common complication following elbow surgery. This is often due to extensive tissue damage during open surgery. MIS and arthroscopy significantly decrease soft tissue damage. The OEC Elite MiniView helps with that because if you make your incision smaller, you see less and the mini C-arm can see what your eyes can't see."*





Clinical Case #3



Pediatric medial epicondyle fracture



Pediatric medial epicondyle fracture valgus stress



Pediatric medial epicondyle fracture pinning



Pediatric medial epicondyle fracture valgus stress - Final



At AZ Monica, Surgeons like ...



#SmartLock

"The button that locks the system is extremely good, just one button to lock it and it stays there, it's absolutely stable, it will not change position."

- Dr. Verstreken

#Quality #Comparison

"The quality of the OEC Elite MiniView monitors is very good and the fact it has two monitors is good because very often we need to compare images from different angles!"

For example, in the case of a distal radius fracture, we need lateral and AP views and with the OEC Elite MiniView monitor, we can display both views together."

- Dr. Verstreken

#SingleShot

"I routinely use the laser aimer. The aimer stays on, so you can be confident that if you shoot, the image will show what you want to see."

This decreases the dose for the patient and for myself as it avoids unnecessary images. This is of course of primary importance."

- Pr. Dr. van Riet

#Customization

"The color code on the footswitch is very good because it helps to prevent errors and you can even personalize the action it does."

- Dr. Verstreken

#LowDose

"As surgeons, we are more and more concerned about the radiation dose we receive and on the OEC Elite MiniView, we see that it is greatly reduced."

- Dr. Verstreken

#Efficiency

"The start up is faster than with other systems, workflow in the OR is more efficient, so more procedures can be performed during the day."

- Dr. Verstreken



#WorkEverywhereWithDigital #GEHealthCloud

"Another very useful feature is the connection to the PACS system of the hospital. It allows us to review the images on every computer, even from our home and show the images to patients and their relatives. Less additional X-rays are necessary after surgery, as we have the fluoroscopy images stored on our computer system."

- Dr. Verstreken

Let's Give Voices to Our Nurses

When efficiency meets profitability

"In the morning the nurses try to take the OEC Elite MiniView first, they really want to have this system for the reasons of ease of use, much more user-friendly than the other mini C-arm or the bigger systems."

- Dr. Verstreken

"When they are happy, we are happy."

- Pr. Dr. van Riet

"The nursing staff feels very comfortable working with the OEC Elite MiniView software, and is therefore much more efficient in helping us."

- Dr. Verstreken



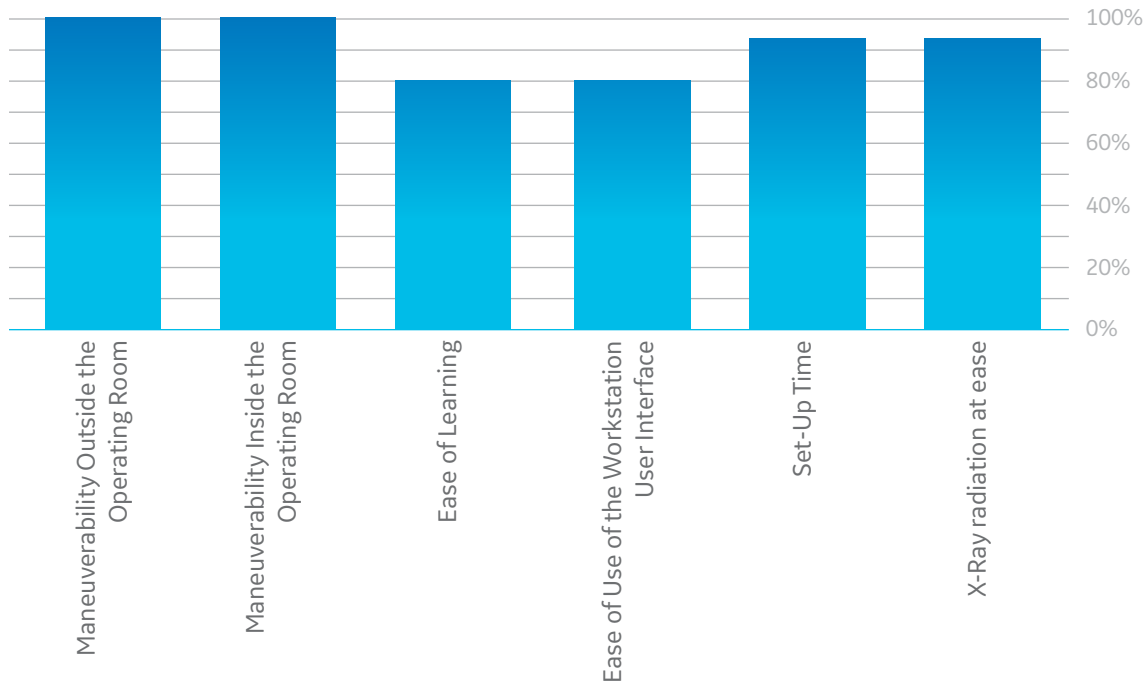


At AZ Monica Hospital, the staff began working with the OEC Elite MiniView three months ago for hand, elbow and foot surgeries.

The five nurses who most frequently used the new OEC Elite MiniView system answered a satisfaction survey:

Nurse Satisfaction Survey*

OEC Elite MiniView - AZ Monica



"I prefer to work with this machine because the dose is lower than the other one."

"It can save images automatically, so it allows us to help do something else in the OR."

"On the other mini C-arm, we cannot drive it on our own, we need two nurses to maneuver it. Now, the OEC Elite MiniView flies."

*The survey has been realized in April 2017, interviewing the five nurses using the OEC Elite MiniView at AZ Monica Hospital since it has been installed in January 2017. The percentage indicated on the vertical axis represents the average level of satisfaction given by the nurses.





GE imagination at work

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The statements made by GE customers described here are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist i.e. hospital size, there can be no guarantee that other customers will achieve the same results.

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