Sectra Orthopaedic Solutions

SECTRA

Knowledge and passion

> “The ability to utilize Sectra’s 3D tools has given me the direct ability to optimize the care of my patients with complex orthopaedic injuries to create specific plans that meet their needs.”
>
> *Samir Mehta, MD, Chief at department of Orthopaedic Trauma & Fracture Service*

Pre-operative planning in 2D and 3D

Sectra's orthopaedic solutions enable orthopaedic surgeons to employ digital technology to reduce cost, increase efficiency and improve patient outcomes.

Sectra offers a complete set of highly efficient pre-operative planning tools for both 2D and 3D images. Our 3D planning software is especially valuable for planning complex cases, such as trauma, spine and revision cases. Sectra's solution enables orthopaedic surgeons to increase precision in planning and advance preparation for various scenarios, thereby avoiding stress, saving time and minimizing risk during surgery. The solution also creates a well-documented workflow to meet regulatory demands.

Sectra's pre-operative planning solution is provided as a PACS-independent online service or as a completely integrated add-on to Sectra PACS. For full flexibility, the user can access the system from any computer within the hospital network and even from home.

Plan complex trauma cases

Sectra's pre-operative planning solution for 3D images can improve understanding of complex fracture cases. The solution can also assist trauma teams in correctly diagnosing and planning for surgery. This assistance becomes invaluable when striving for superior outcomes and increased operating room efficiency.

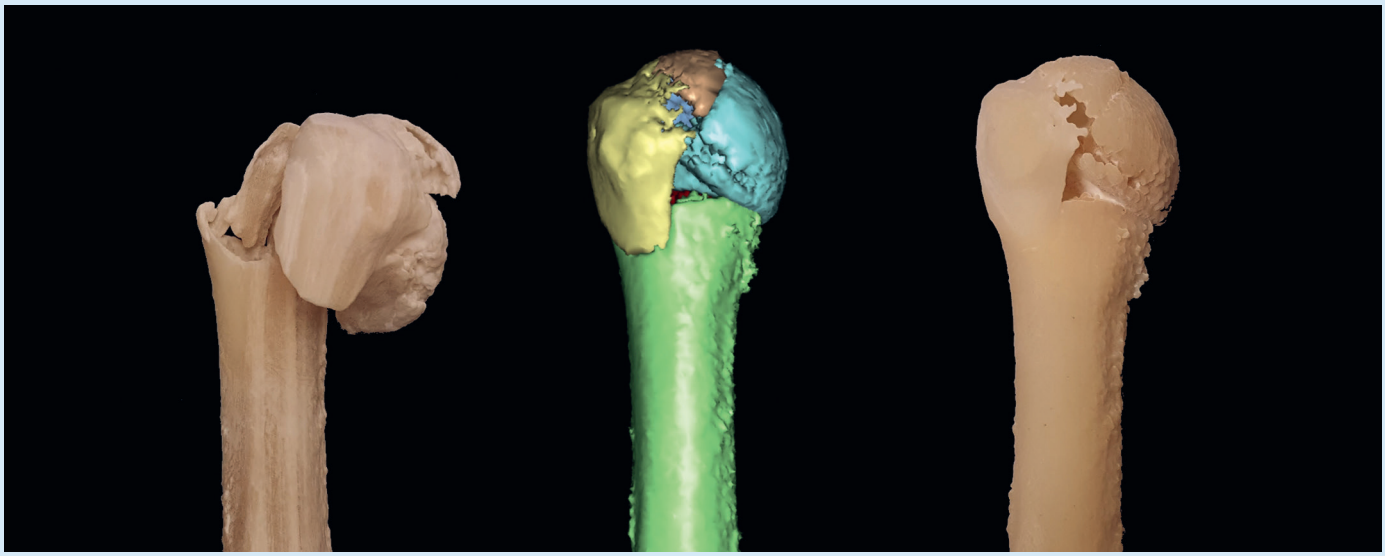
3D Pre-operative planning system

Sectra's planning solution uses 3D images to improve understanding of complex cases, especially those with multiple fragment traumas. It enables the trauma team to correctly diagnose and plan for surgery, saving valuable operating room time while improving the quality of the diagnosis and treatment plan.

Dedicated tools for the orthopaedic surgeon

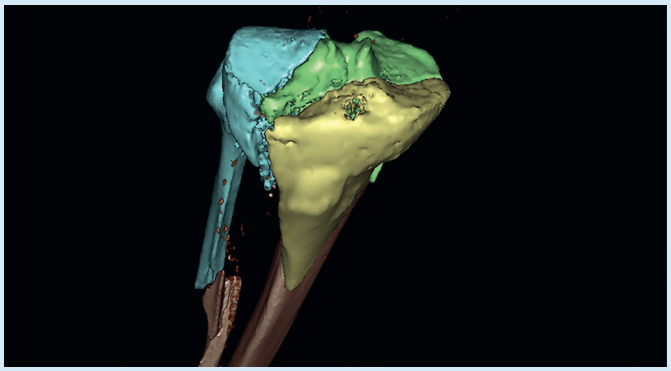
Sectra's solution makes it is easy to visualize trauma structure, and diagnose fractures, without first opening the patient. With the advanced bone segmentation tools, the orthopaedic surgeon can study joint surfaces, or previously hidden areas, before deciding on a treatment plan.

- Sectra 3D has reimbursement opportunities available for U.S. customers.



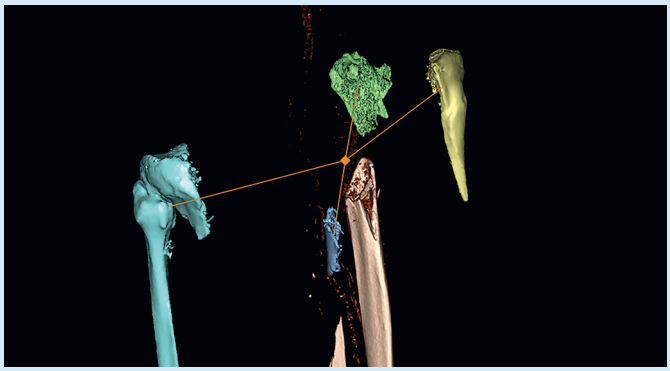
Export bone fragments for 3D print

Bone fragments can be saved and exported as STL and OBJ files. These files can be used in 3D printing, allowing for further surgical planning and educational use.



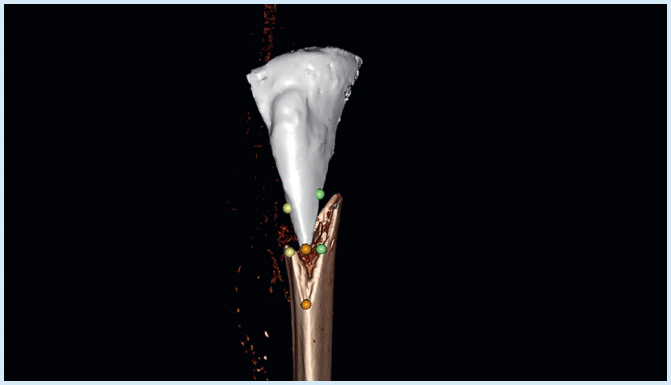
Bone segmentation

The bone segmentation tool allows users to mark bone fragments and choose whether they remain on screen, are hidden from view, or are marked for repositioning. Each fragment becomes color-coded for easy visualization. After marking a bone fragment, the system automatically creates a new color. Fracture segmentation possibilities are infinite.



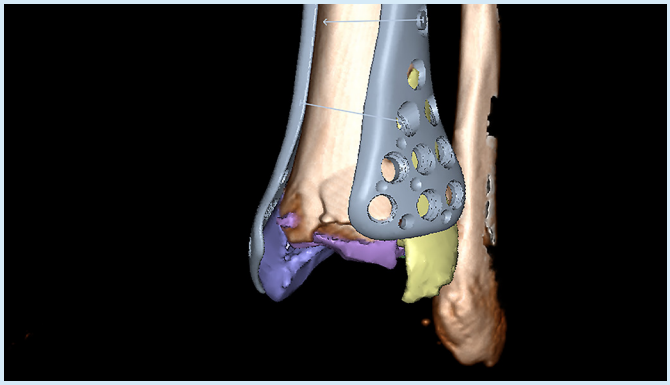
Explode

Using the explode function to gain a quick overview of the fractured area, the system can give a cutaway view by moving all of the marked bone fragments away from the center of the fracture. This helps to confirm that no fragments have been left behind and that no other structures will potentially interfere with implants.



Bone alignment

When bone segmentation is complete, the marked fragments can be repositioned manually. Bone alignment can also be done automatically by simply choosing landmarks for the software to identify.



Templating

Template placement can be done in 3D space and screws added with an automatic extension functionality. The major manufacturer and generic templates include screws, nails, plates and a full library of other components. This ensures that you have the most suitable implants available during surgery.

ANONNDUDDB1RH
FoV: 281 mm
A segmentation is acti
Ortho Panel
Hidden Bone
Bone Fragment
Bone Fragment
Bone Fragment
Bone Fragment
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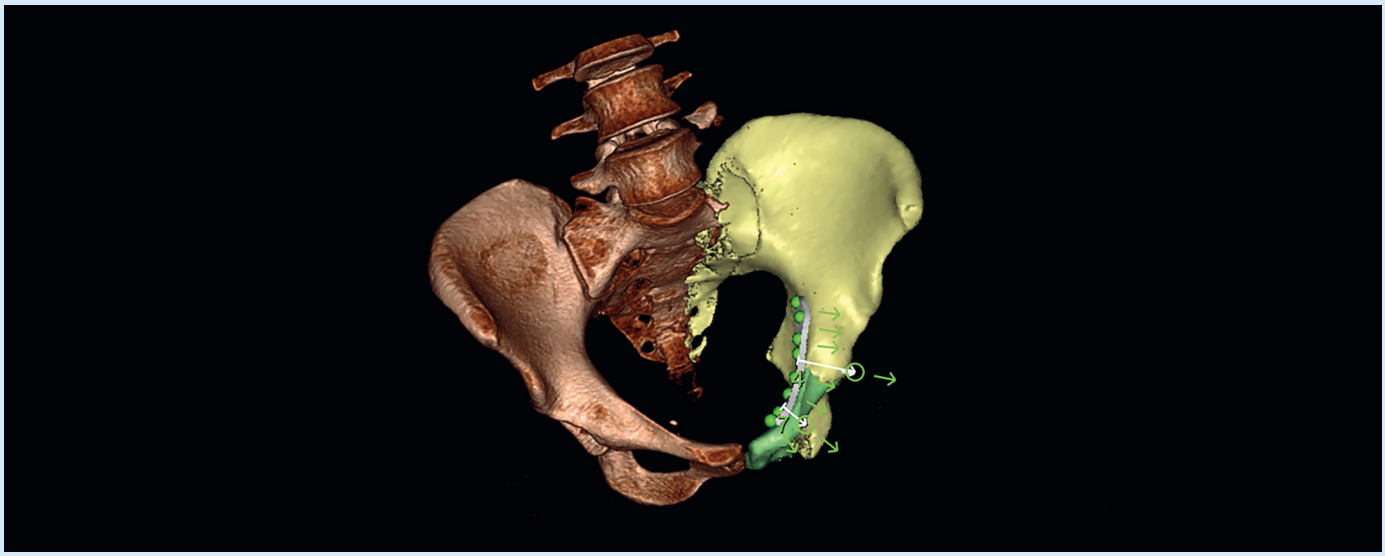
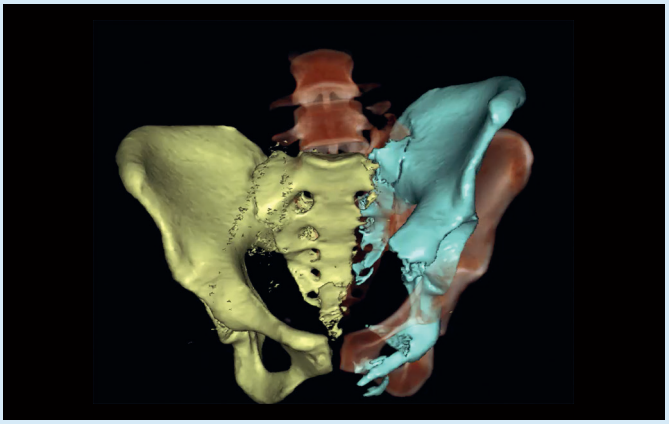
Alt
BARCO



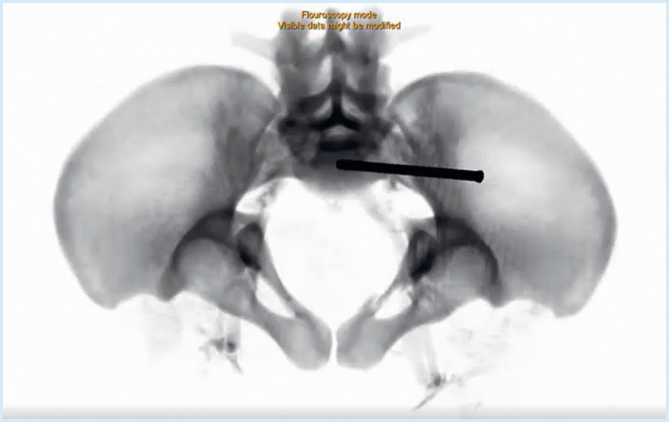
Contouring templates

The contouring templates function can be used to plan appropriate plate shape, size, length and screw placement for pelvic surgery. This function further allows the user to add screws and holes if needed. Once complete, the newly contoured plate (on-screen or in 3D printed format) may be used as a guide to pre-bend implants before entering the operating room. This can ultimately save time and increase patient safety.



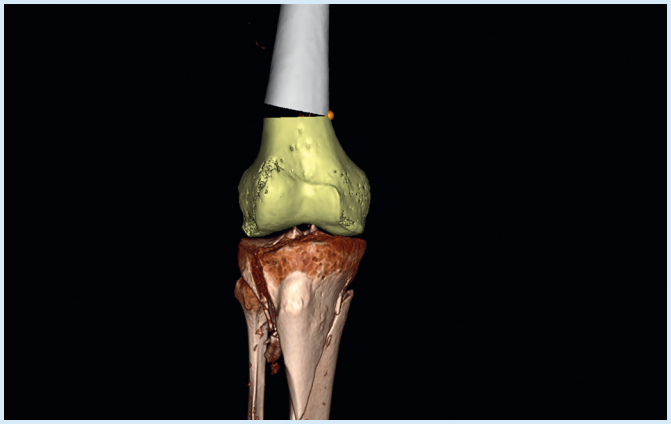
Mirror bone fragments

Mirroring can prove especially useful when a surgeon wishes to use an unaffected side as reference for fracture reconstruction.



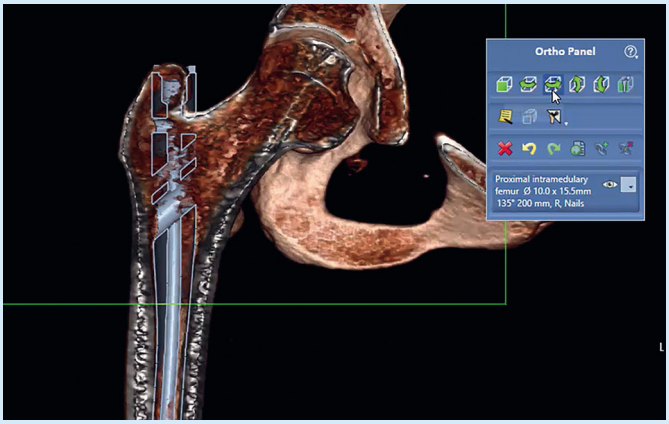
Fluroscopy mode

Fluoroscopy mode provides the surgeon with the option to mimic the fluoroscopy view most commonly used during surgery.



Split bone fragments

The split bone feature is useful when planning a surgical correction of an impacted fracture, but it can also be used for pre-operative planning of osteotomies.



Generic templating

Any 3D template can be added manually to the pre-operative plan. Correct placement can be determined quickly by using the library of supported tools. The tool set covers distance measurements as well as more complex functionality like clip plane and alignment.

Improve planning before spine surgery

With Sectra's 3D pre-operative planning solution for CT images, spine surgeons can easily plan for cases involving pedicle screws. By utilizing the smart and efficient 3D spine tools, the surgeon can gain advanced knowledge of optimal pedicle screw diameter and length.

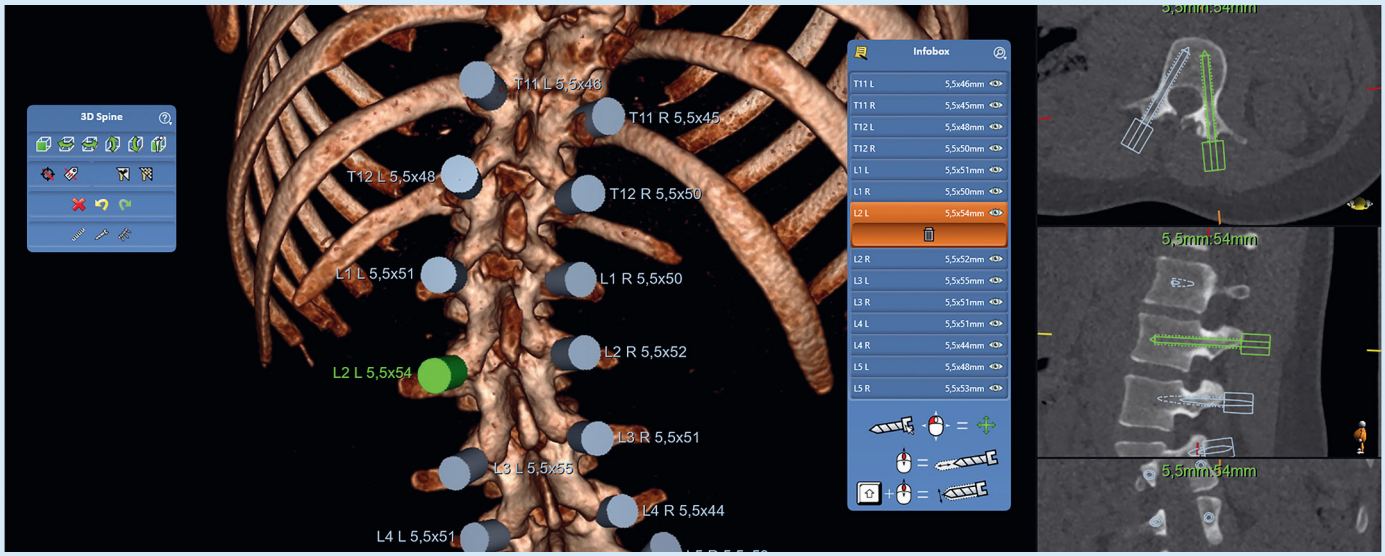
Easy-to-use 3D system

Sectra's 3D spine solution allows surgeons to plan cases involving pedicle screws more efficiently. The solution considers each pedicle's unique anatomy when determining the placement and size of individual screws. From standard fusions to complex scoliosis, Sectra is there to help you plan with confidence. Once screws have been placed, Sectra's unique rod placement technology can assist with rod diameter and length measurements. Bending considerations can also be clarified for snapshots or 3D file export.

Advantages of 3D planning for spine surgery

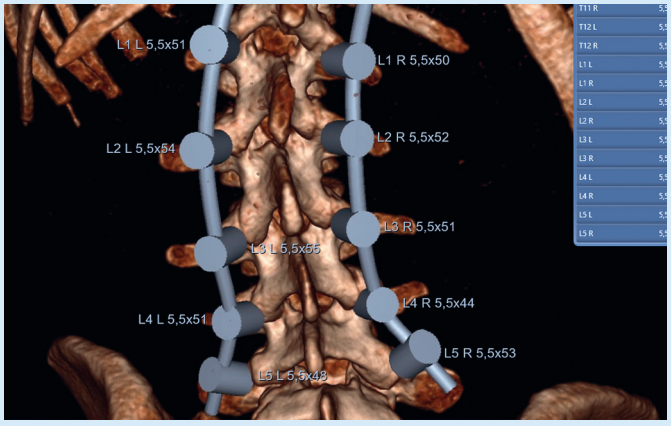
Compared with using 2D images, a 3D planning system has better potential to support surgeons in reducing the number of misplaced screws, avoiding surgical complications and speeding up surgical procedures. It can also be used to plan for alternative solutions for very narrow or deformed pedicles well before the actual surgery. A 3D system also increases precision when deciding the diameter and length of each pedicle screw. This knowledge helps ensure the surgeon has the correct implants ready in the operating room.

- Sectra 3D has reimbursement opportunities available for U.S. customers.



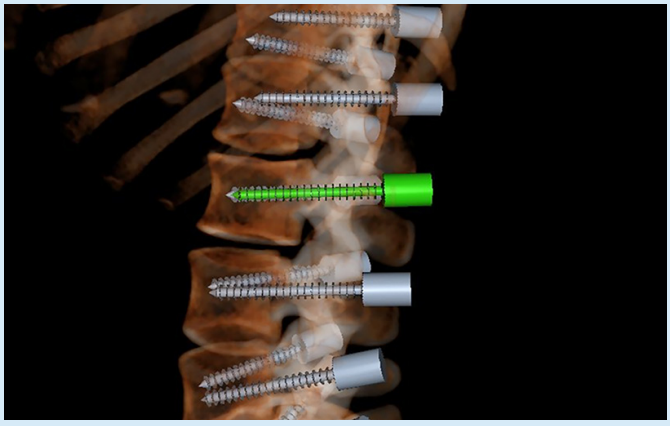
Pedicle screw

Pedicle screw placement, along with screw length and width, can be planned with ease with Sectra's 3D Spine software. Once all screws have been placed initially, surgeons can use the MPR view to improve and finalize the screw characteristics specific to each pedicle's anatomy.



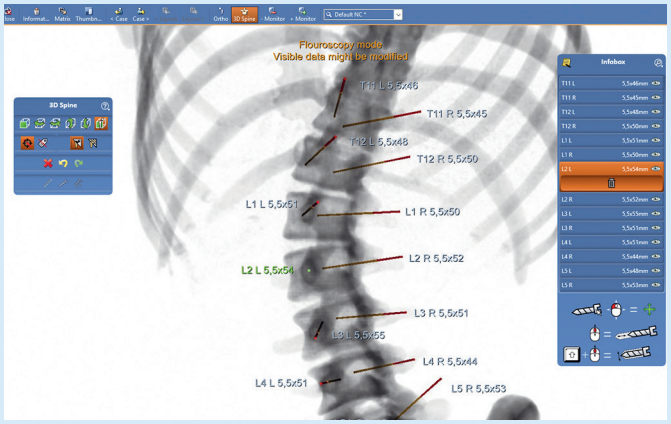
Rod Placement

Sectra's rod placement technology can assist with rod diameter and length determinations. Bending considerations can also be clarified for snapshots or 3D file export.



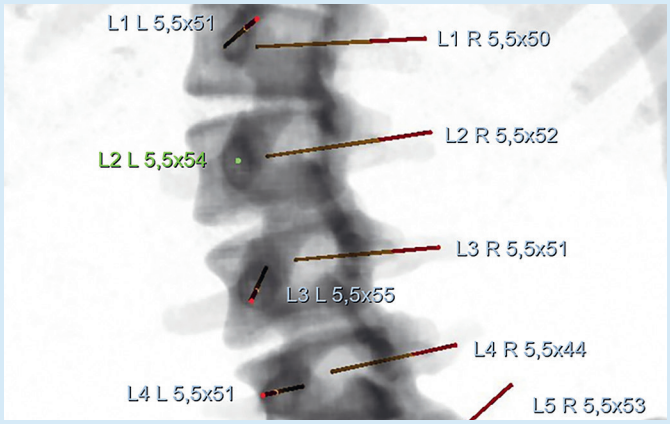
Transparency mode

Built specifically to illustrate CT volume data in a transparent holographic format most conducive to accurate pedicle screw placement.



Fluoroscopy mode

Provides the surgeon with the option to mimic the fluoroscopy view most commonly used during surgery.



Screw centerline

Combining fluoroscopy view with the need to clearly define screw trajectory, screw centerline mode makes it possible to determine accurate pedicle pathways clearly before surgery.

Increase accuracy in joint replacement with 3D planning

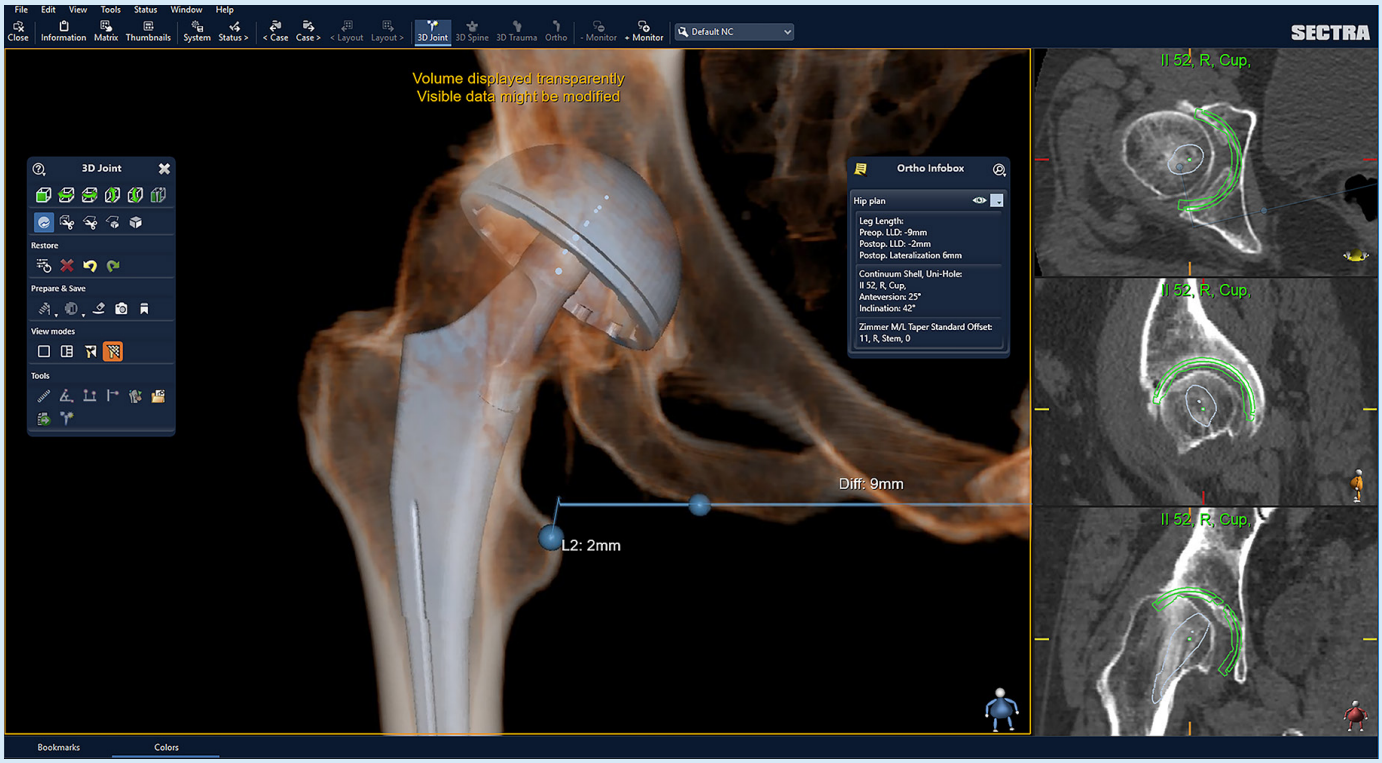
Sectra's 3D joint replacement solution enables surgeons to easily plan complex arthroplasties. The 3D views and dedicated orthopaedic tools allow for increased accuracy in implant sizing, angle measurements and surgical approach. Surgeons will now be able to study the patient's anatomy, and plan for surgery, in ways that are simply not possible using today's standard 2D images. This can ultimately lead to less time in the operating room and improved surgical outcomes.

3D solution that makes a difference

With Sectra's 3D joint replacement solution, surgeons can gain advantages that prove highly beneficial for their patients. The intuitive tools enable a quick learning curve, while template and angle measurement functions speed up the process of planning through simultaneous use of 3D and MPR views. 3D joint planning also seamlessly removes potential calibration issues and errors, as CT data visualizes true size automatically, improving accuracy in implant selection even further.

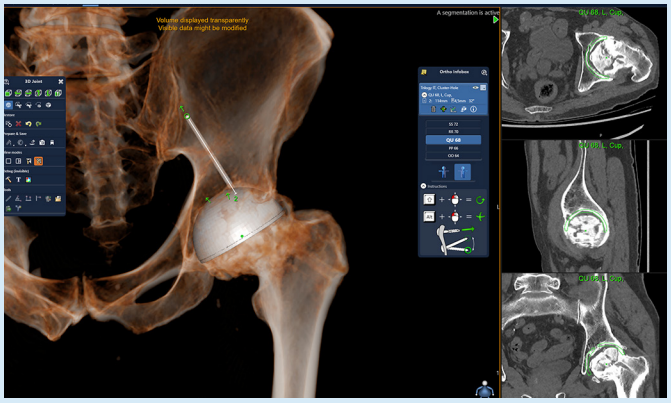
Improved pre-operative planning for revision cases

Sectra's 3D joint replacement solution allows surgeons to temporarily hide metal while doing their pre-operative plans. This is especially beneficial for revision cases, where pre-existing implants can otherwise obscure the overall 3D plan. The segmentation and clip plane functions serve to hide bone or other structures that may additionally draw focus away from what is most important.



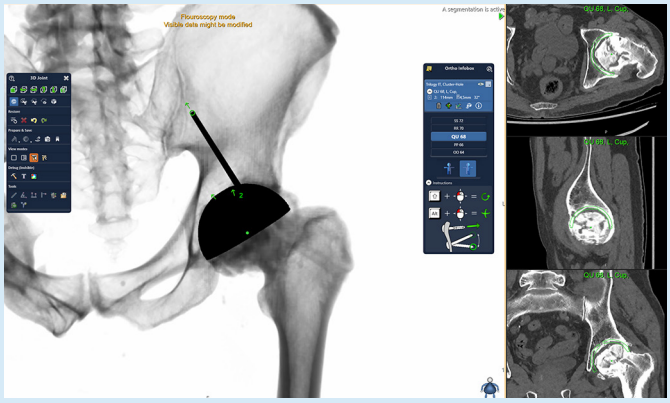
Assisted placement of hip plan components

The 3D hip guide assists the surgeon in the efficient placement of hip plan components within the 3D view. By using the available tools in the MPR views, the optimal implant position and sizing is truly possible. Automatic calculation of leg length discrepancy (LLD), as well as cup inclination and anteversion, provides another layer surgeon confidence.



Transparency mode

The transparency mode enables visualization of the planned implants, making it easier to map placement and size of acetabular cups and screws.

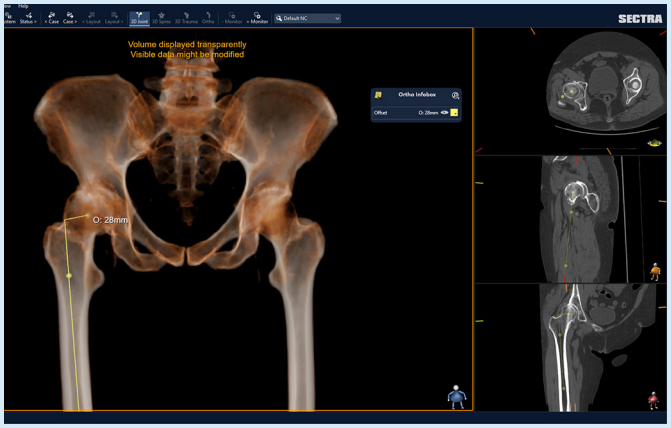


Fluoroscopy mode

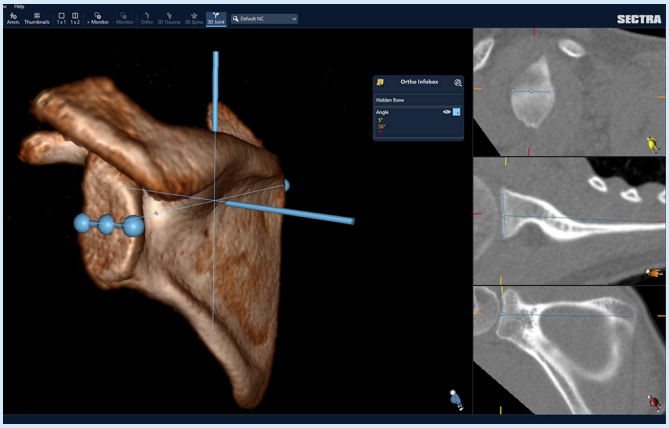
The fluoroscopy mode simulates the perioperative view most common during surgery. The view can be used as a reference when placing screws or other materials.

Measurements

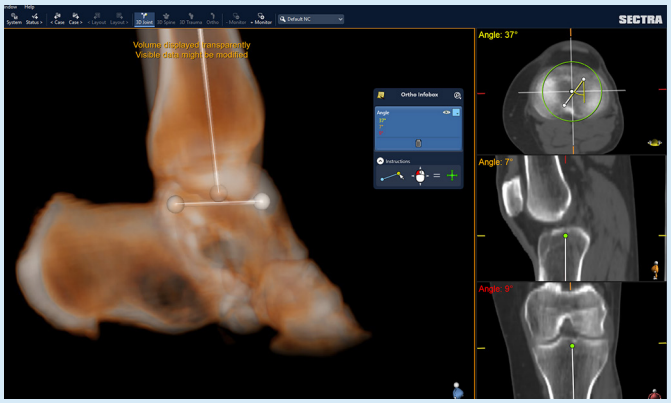
Angles, distances and offsets can be measured in 3D, while avoiding the projection errors 2D images are often subject to. This error avoidance is due to the removal of projection effects and the non-optimal patient positioning that accompanies many 2D images. When taking measurements, the surgeon can use the MPR views to fine tune the placement of each desired point.



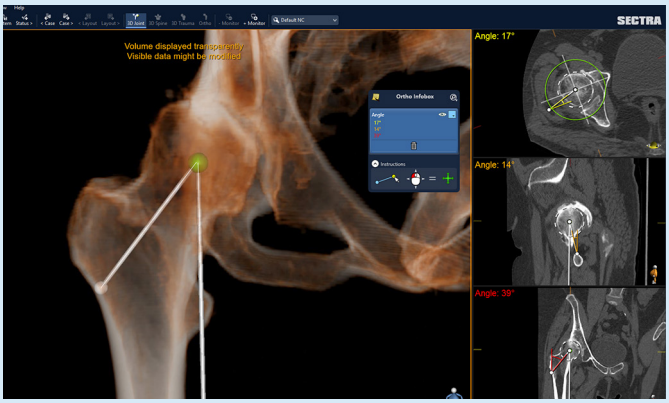
Offset



Glenoid anteversion



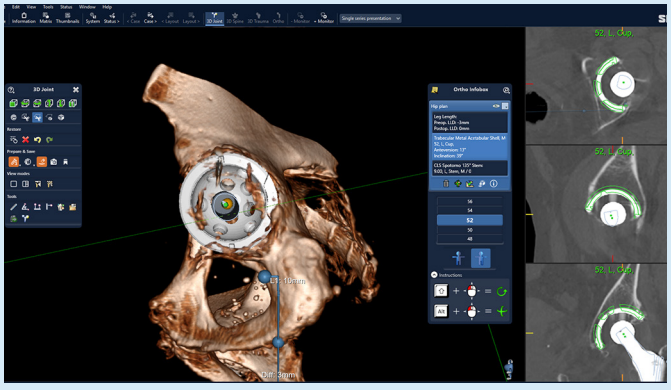
Tibial Torsion

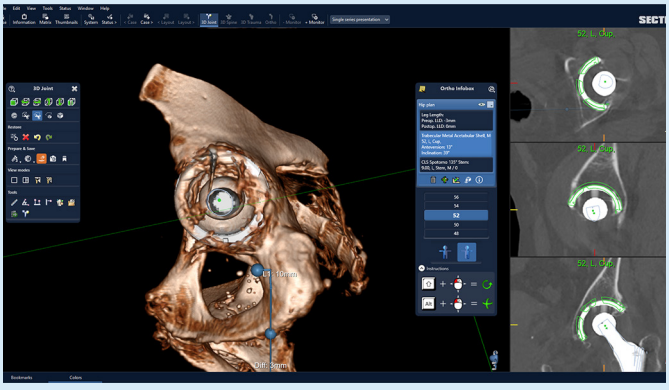


Femoral mechanical axis to neck angle

Hide metal

The 3D joint replacement solution provided by Sectra allows surgeons to temporarily hide existing metal while doing their pre-operative planning.





A useful planning system for all types of joints

The system can be used for all types of joint replacement surgery as 3D templates can be added manually and on command.

Intuitive planning for hip, knee, shoulder, spine, trauma, and revision surgery

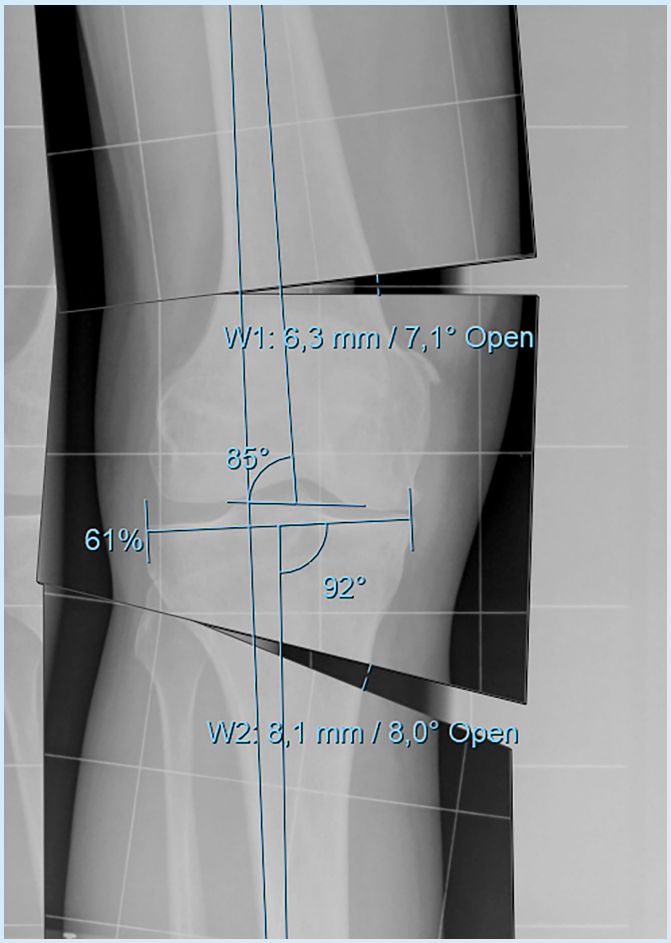
Sectra's pre-operative planning system for 2D images provides surgeons with easy-to-use guides and planning tools for all body parts. The toolbox contains a wide range of measurements and functions, including automatic and manual calibration, dedicated tools for leg-length and offset measurement, and guides for all major joints.

A complete 2D planning system

The 2D pre-operative planning system includes guides that simulate actual surgical procedures and shorten the planning process. Images can be automatically calibrated using our calibration unit for all major joints. Furthermore, with Sectra's solution, it is possible to select a prosthesis with a perfect fit for the patient from our extensive template library of more than 90,000 template views. The template library is constantly updated with the latest released version of templates from selected vendors.

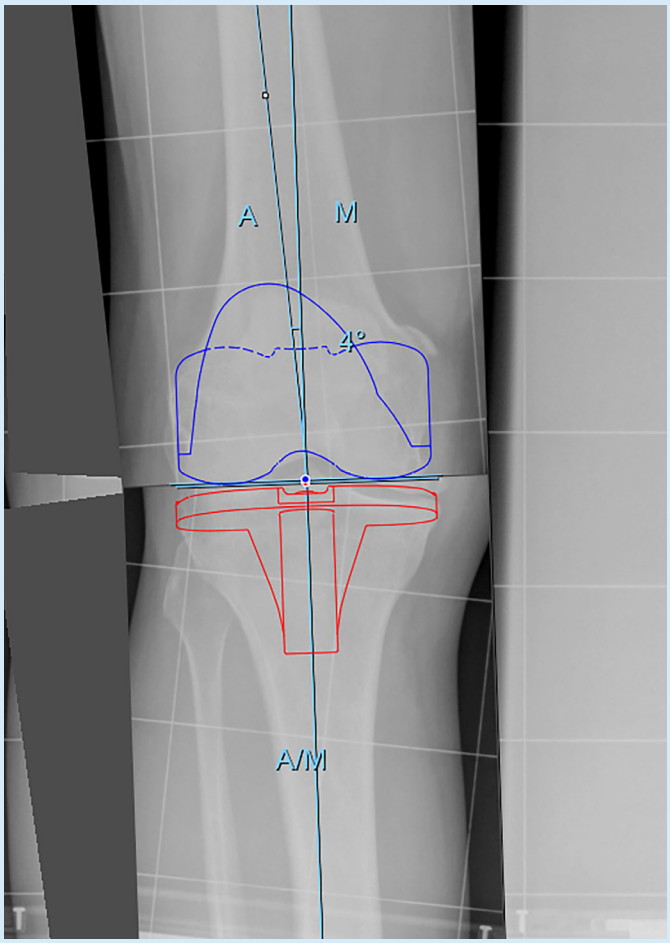
Flexible workflow

In the Sectra solution, every surgeon can work according to their own preferred workflow, with such para-meters as distance and angle measurements used throughout the planning process. The solution supports both manual planning and the use of automatic guides for all major joints. Sectra's solutions are extremely intuitive and ensure that you are quickly up and running.



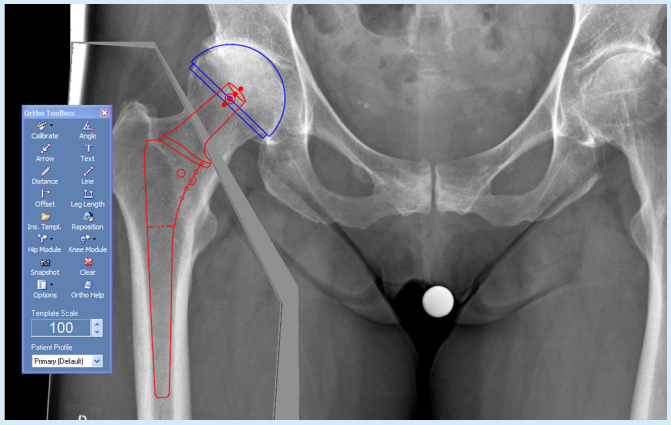
Osteotomy

The osteotomy guide saves valuable time when planning a closed or open high tibial osteotomy procedure. The osteotomy guide is used to assist you in marking resections, simulating corrections and establishing wedge angles and heights. The guide also includes all needed alignment parameters such as mLDFA, mMPTA, Mikulicz, JLCA, and mTFA. The guide can be used when planning osteotomies on other parts of the body as well.



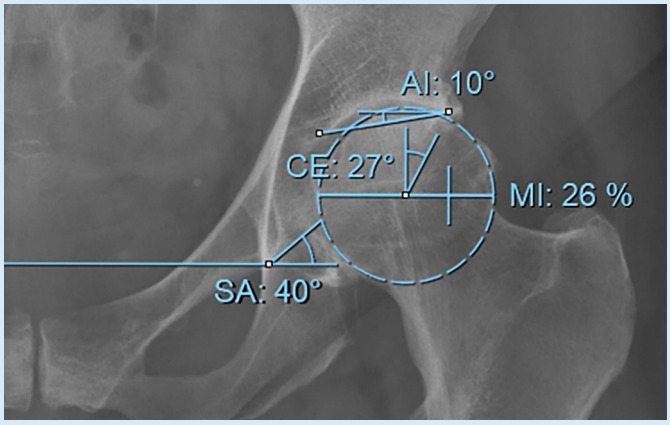
Knee

The knee guides for short and long AP images use an automatic zoom function to speed up the planning of primary prosthesis. You can easily simulate the alignment corrections and display the mechanical and anatomical axes. When using the guide for LAT view, the automatic synchronization between the AP images can be used to ensure that the prosthesis fits the patient.



Hip

The guides for planning a hip arthroplasty use advanced image analysis to suggest and place a template into the plan with a few clicks. You can choose to correct for leg length discrepancy or not and add tools to estimate offset, CCD angle and the distance from lesser trochanter to the tip of the neck.



Hip dysplasia

Measure all traditional dysplasia measurements with one guide. With only five clicks, you will receive the SA, CE, AI, and MI angles.

Bildfönster
Arkiv
Redigera
Visa
Verktyg
Status
Fönster
Hjälp
Stäng
Scoliosson, Ulrika
ANONRE3DFC10O
Ortho Toolbox
Kalibrera
Vinkel
Pil
Text
Avstånd
Linje
Offset
Benlängd
Mallar
Reponering
Höft
Knä
Axel
Rygg
Ångra
Upprepa
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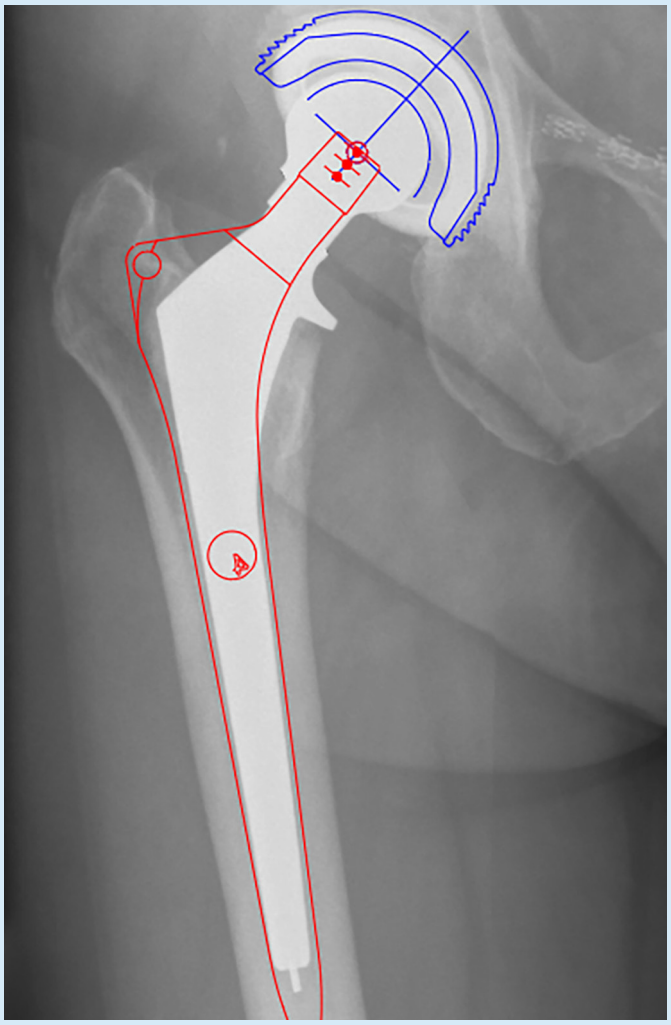
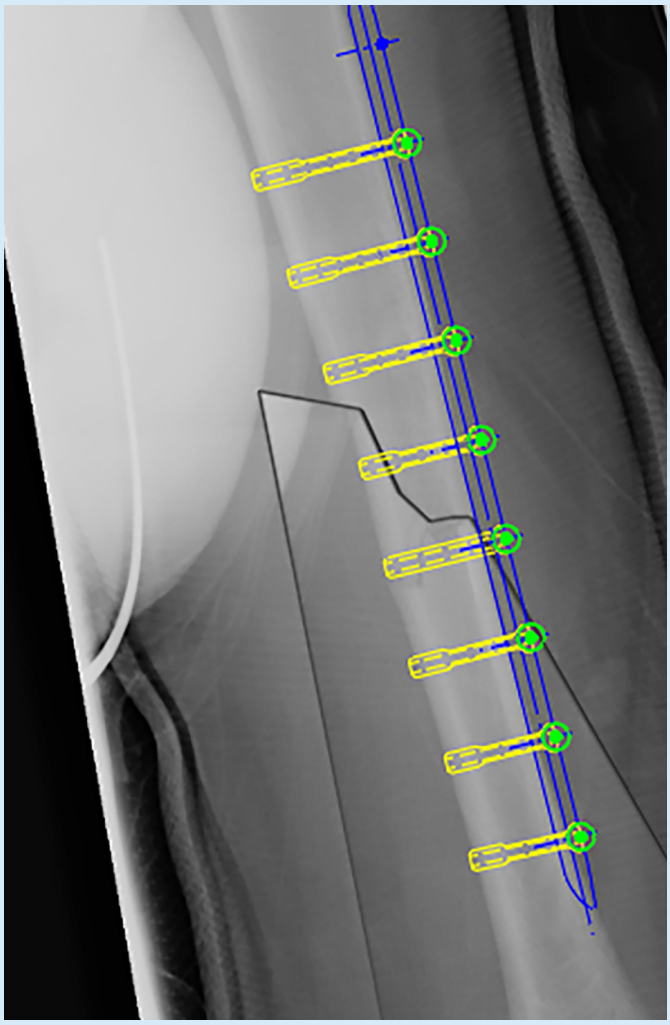


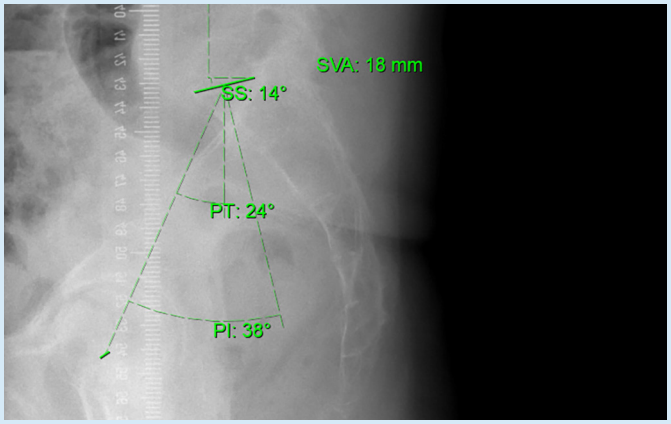
Revision

When planning for revision surgery, the different modular parts can be connected with each other to visualize a final plan. The guides for hip and knee can be used to plan and place the main parts to speed up the planning process. It is then simple to connect the extension parts. For complex cases, you can easily create more than one plan as a backup if the first strategy fails.



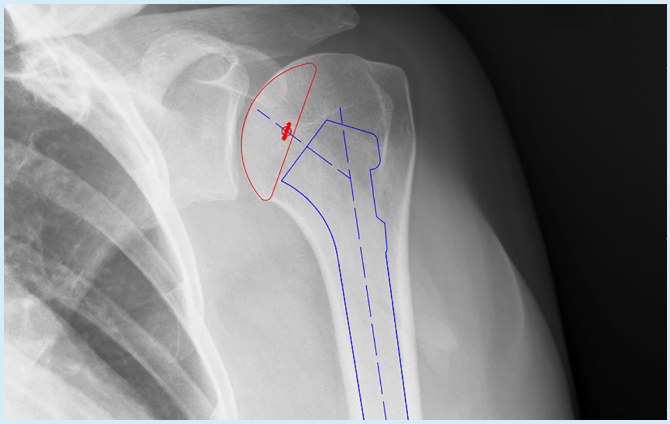
Fracture

Fracture fragments can be removed before starting templating, thus providing the user with the opportunity to simulate, measure and template on ideal post-operative anatomy before entering the operating room. Templates can be connected and manipulated as a single compound template. This simplifies planning for trauma surgery since complex arrangements of implants can easily be visualized.



Spine

The spine module provides access to fast and intuitive tools for placing plumb lines, measuring angles, sagittal balance, vertebral slip, multiple Cobb angles, and spine labeling. It is also possible to plan corrections using osteotomies.



Shoulder

For a primary shoulder case, the guide will place the stem and head of the prosthesis based on three anatomical landmarks. To optimize the placement, it is possible to change neck/head snap points and rotations of heads when the guide is finished.

Sectra Implant Movement Analysis

With Sectra Implant Movement Analysis (IMA), surgeons can find out if an implant is loose with the help of a CT scan. Patients who experience chronic pain after an implant surgery can thereby avoid unnecessary risks, such as infections and complications that may be caused by an avoidable surgery, if it turns out that the implant is not loose.

How it works

Two images of the patient are taken in a low-dose CT. For patients with hip replacements, a CT scan with internal and external hip rotation is required. For patients with spine implants, one CT scan in flexion and one in extension are required. Specially trained radiologists then analyse the images.

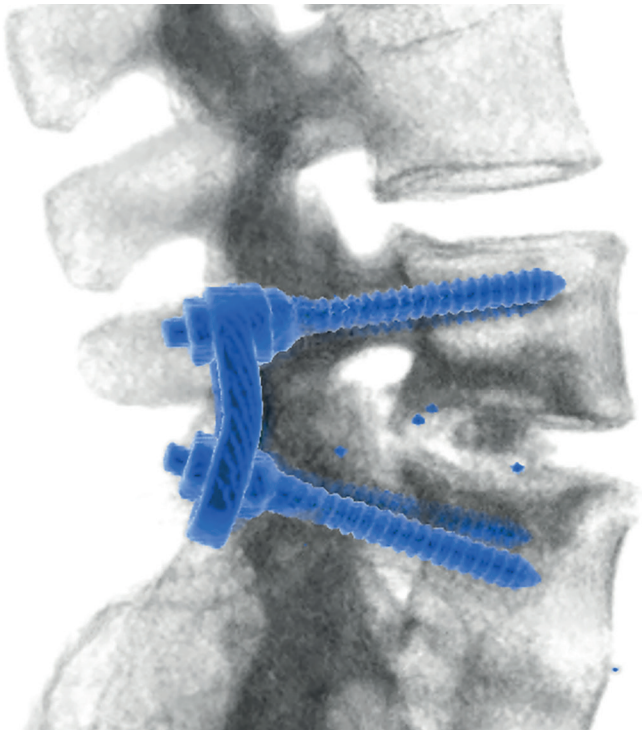
The IMA analysis will answer the question if there is a loose implant. The referral also includes images where it is possible to see exactly where the implant is moving. This means that the surgeon can immediately see what needs to be addressed.

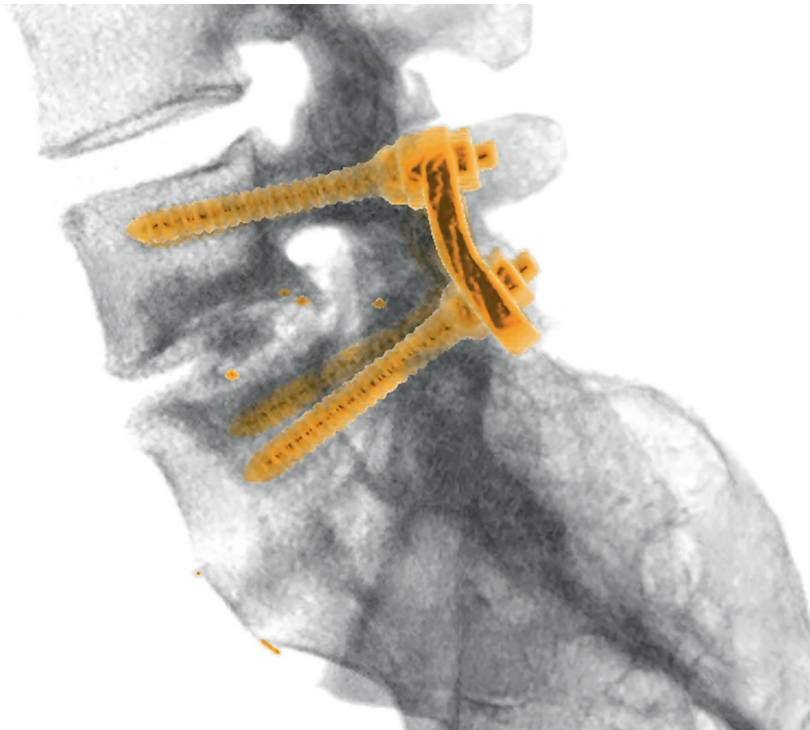
Sectra Implant Movement Analysis is primarily suitable for patients with hip or spine implants.

Key benefits

- Supports the orthopaedic surgeon when deciding if surgery will help the patient.
- The IMA analysis can be used for newly operated patients as well as patients suffering from chronic pain for a long period of time.
- If an implant is confirmed to be loose, the orthopaedic surgeon can use the referral and the images included when planning the surgery.
- In cases where the implant is not loose, patients can avoid unnecessary and risky surgeries.
- Avoiding unnecessary surgeries saves resources for the hospital.

» Watch an introductory video at **www.sectra.com/ima-film**





Sectra CTMA

Sectra's CT-based implant Micromotion Analysis (CTMA) simplifies and speeds up the process of validating new orthopaedic implants in vivo. CTMA uses CT images taken up to one or two years after implantation to measure 3D motion of an implant or bone fragment on a sub-millimeter scale. This information provides the surgeon and implant manufacturers with a strong predictor of the long-term survival of the implant.

Easy and fast workflow

When using CTMA in clinical trials, you simply use standard CT and low dose protocol when acquiring the images. CTMA requires no specialized imaging equipment and is therefore a simple procedure for staff to follow. The tool can be used on most implant models without any need for special marking of the implants or bone. The surgeon can use the CTMA system to generate accurate data that can be used to analyze the movement of an implant or bone segment over time, or under load.

Advantages of a CT-based system

The system can be used for trials of new implants as well as for research projects aimed at improving the outcome of existing implant technology, design and surgical techniques. Since standard CT equipment can be used, it is easy to acquire patient images and gather patient data from different hospitals.

» Watch an introductory video at
www.sectra.com/ctma-film

THE KNOWLEDGE TO MEET EXPECTATIONS. THE PASSION TO EXCEED THEM.

Each and every one of us working at Sectra is driven to make a real difference in everything we do. It is that difference that you, and in turn, your patients, perceive as added value over and above the solutions we deliver.

Since our first PACS deployment in the early 1990s, our focus has been solely on imaging IT products and innovation. Through experienced cooperative teamwork, we provide a better working environment for you, which ultimately results in enhanced, more effective care for your patients. Perhaps that is one of the reasons why our solutions are used so successfully by more than 1,800 healthcare providers worldwide.

KEY REASONS FOR PARTNERING WITH SECTRA

- More than 25 years' experience as a leading innovator in medical imaging IT.
- Sectra PACS ranked "Best in KLAS" for six consecutive years—2013, 2014, 2015/2016, 2017,2018 and 2019.
- High delivery reliability and vast experience in migration and integration.
- Experience with a wide range of complex, large-scale solution deployments.
- Customer-driven development ensures efficient solutions that make a difference in our users' daily work.
- Close collaboration with research centers and universities to apply leading-edge technology.
- Strong, stable public company founded in Sweden in 1978 with positive financial performance.

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SECTRA
Knowledge and passion