

Reference report mediCAD

Greater certainty with digital pre-op planning

Surgeons who work in German hospitals or perform orthopedic operations as a registered doctor are familiar with the stringent requirements for documentation. Having access to complete pre-op planning documentation is also increasingly important for treating patients who experience post-operative problems. Even for this reason alone, the number of hospitals and practices that plan primary and corrective interventions digitally continues to grow.

Digital pre-op planning with Hectec mediCAD

Kreisklinik Gross-Gerau is a regional hospital located southwest of Frankfurt, Germany. It has been using the mediCAD planning program for pre-op planning since 2010. mediCAD was developed by Hectec GmbH, a Landshut, Germany-based software company that specializes in this field. Version 3.5 was released in 2015. Release of version 4.0 is anticipated in early 2016. The program covers the entire pre-operative planning process for extremities and the spinal column. Special features of mediCAD include bilateral deformity corrections according to Dror Paley, automated corrective osteotomies near the hip joint, intertrochanteric osteotomies for planning operative extensions of the femoral head into the joint socket on patients with hip joint dysplasia, direct transfer of all planning data to EndoDok, and automatic detection of the calibration sphere, saving the surgeon the need to scale the image. The software integrates mobile devices, giving doctors immediate access to planning data from virtually anywhere.



Kreisklinik Gross-Gerau is a communal health center in central Germany that serves its community and the surrounding region with stationary and ambulatory medical care.

Gross-Gerau Kreisklinik serves the community of Gross-Gerau and surrounding region with stationary and ambulatory medical care. As a communal health center, the hospital provides local medical care for acute illnesses, accidents, and diagnostic examinations. Holistic maternity care is another area of focus. Approximately 9000 patients were treated at the hospital in 2012. As a certified trauma center, the Department for Orthopedic and Trauma Surgery has a large outpatient center with a shock room for providing emergency treatment of severely injured patients.

The team of doctors includes a head physician, three senior physicians, and eight assistant doctors who perform trauma surgery around the clock and consult with patients on orthopedic and trauma-related questions. New operating rooms with clean room technology and cutting-edge equipment are available for operating on joints. For the past five years, the department has used „Hectec mediCAD“ during pre-operative planning of primary and corrective prosthetics for hip and knee operations. Before then, they relied on radiographs and templates for planning purposes. Even attending doctors from the surrounding areas plan digitally. Every year approximately 300 hip and knee operations are planned in this way, about 10% of which are corrective procedures.

Greater certainty and higher precision

During these five years the doctors at Gross-Gerau have learned the value of having a fast way to gain an overview of suitable implants through digital planning, particularly with respect to implant size and resection heights. During corrective procedures, the congruence between digitally planned implant sizes and resection heights is approximately 90%. During primary implants, congruence of nearly 100% is commonplace. For hip prosthetics, in particular, digital planning allows for precise estimation of the shaft circumference. Ali Noufal, acting Chief Doctor, explains: *„With this software I can perform precise estimations of how much I can rasp without the risk of splitting the shaft. Digital planning gives me much greater peace of mind than the old method of radiographs and templates.“* Measurement errors are eliminated and every step of the planning is stored for retrieval at any time.

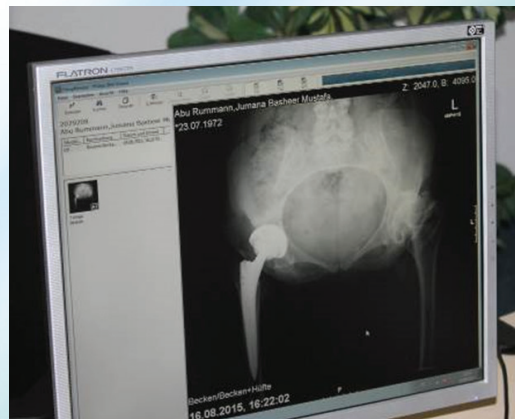


Acting Chief Doctor Ali Noufal: *„I also operate in other countries where there's no access to digital planning. That's when I really realize what a benefit it is for the surgeon and how much it improves quality for the patient.“*

Reducing patient fear

The doctors at Gross-Gerau have discovered that they are not the only ones who benefit from digital pre-op planning. Surgeons who switch from templates to mediCAD have a much simpler and comprehensible way to explain to patients exactly what they intend to do during surgery. In Dr. Noufal's experience, using digital planning in this way greatly increases trust in the doctor and this gets more patients into his office. For example, many patients are afraid of having uneven legs after the operation. But with digital planning, these fears are easily addressed, and the sick leg can be compared to the healthy leg with precision. Transferring the geometry of the healthy leg to the sick one is also quite simple.

Digital planning is particularly useful for treating patients with pronounced hip dysplasia, as it enables exact determination of depth and angle. This is true also for difficult symptoms, which commonly appear on patients from other countries.



Digital planning is particularly useful for pronounced hip dysplasia because it lets the surgeon determine depth and angle reliably and with precision.

Significant time savings

The ability to save time is another benefit of digital planning. It delivers much more precise results in much less time. According to the experiences of the hospital, a practiced surgeon needs only about two minutes to plan a hip or about five minutes for a knee. But even less experienced surgeons require no more than ten minutes with digital planning. And this includes the accurate documentation that the program generates automatically. Documentation is legally mandated, but cannot always be produced in the required scope and with the necessary accuracy when conventional planning is used. When standard implants are used, time savings are even greater. By comparison, conventional planning takes fifteen to thirty minutes.

The program is easy to use and does not require a long period of practice or training. Experience in Gross-Gerau has shown that just one or two planning sessions are needed in order to use the program effectively. After another two or three collaborative sessions even novices have enough skills that they can work independently with success. For Dr. Noufal, mediCAD has become indispensable for his daily work: *„I also operate in other countries where there's no access to digital planning. That's when I really realize what a benefit it is for the surgeon and how much it improves quality for the patient.“*