

# HELIOS clinical group: virtual surgery for young physicians



The HELIOS group of clinics puts a lot of emphasis on a solid and high quality medical education. Therefore, they started an educational initiative in 2011. One of the main goals of this initiative was to prepare young surgeons in an optimal way for their first endoscopic procedures via training on a virtual reality simulator. Since the introduction of the simulation training it has become mandatory and an inherent part of education and advanced training of all medical personnel.

In the urologic field, most of the procedures are being done endoscopically today. The traditional approach in the surgery of the urinary tract is to proceed through the urethra into the bladder. Modern, fine and above all flexible instruments allow for diagnostic and therapeutic procedures up to the excavation system of the kidneys. These surgeries include the removal of stones, tumors in the urinary tract and the treatment of benign prostate hyperplasia. Today, those surgeries are being conducted as video endoscopy.

**No urologist should complete the entire learning curve of 50 - 200 operative procedures on a patient today. A structured training on simulators can reduce this up to 50%.** Endoscopic techniques call for a special education of the urologists performing these procedures as they have a very long learning curve. Learning by doing of complicated techniques belongs to the past. Training centers with dry labs, wet labs and animal cadavers are the basis for an effective education, as well as coaching programs. In addition, the high degree of standardization of specific operations makes them suitable for simulation which in turn makes complex, costly labs and trainers redundant.

**The HELIOS group of clinics has 15 complete urologic departments that perform more than 3'000 transurethral procedures on bladder and prostate per year and also train residents on these procedures.** A maximum of 15 residents per year complete their education as medical specialist in these 15 departments. For their training as well as for the experienced surgical personnel, a simulator is placed at the disposal of each clinic for six weeks each year. During this time, the head physician conducts a training program. In his or her first year, every surgeon who wants to conduct transurethral resection has to perform 50 documented procedures on the simulators.

**Every surgeon in training has to have documented and evaluated 50 simulated procedures before their first transurethral resection.** Twice a year central educational days are being conducted for 5 - 8 residents, led by two head physicians of HELIOS clinics. During this training, every assistant does at least ten resections under guidance and evaluation. The simulation-based education is accompanied by a questionnaire about the satisfaction of the residents and the effect on real live surgeries. Virtual surgical simulation is an inherent part of urologic education at HELIOS and documented as such in the catalogue for continuing education.

## Question for the urology department: Why simulation?

*„The section urology has studied the possibilities of simulation in transurethral surgery since autumn 2010. We have tested different systems and then voted in favor of this simulator. We recommend the integration of simulation in the first and continuing education of urologists in the HELIOS group.*

*We consider the documented completion of a minimum number of simulated procedures as useful before any real intervention. Simulated procedures can be done locally, regional and central via self study or in courses. This makes sense to ensure an optimal utilization of the simulators. Other sections (gynecology) participating in this program is realistic and reasonable.“*



## Interview

Dr. med. Graf Popken, MD

Head physician at the clinic of urology and Head of the prostate center at the HELIOS clinic Berlin-Buch

**Dr. Popken, how many young surgeons do you train per year?**

*At the HELIOS clinic Berlin-Buch we have six residents in different stages of their education. In addition, every staff member has the obligation to participate in at least one personal and medical continuing education per year. Since the introduction of simulation training it has become mandatory and an inherent part of the first and continuing education of all medical staff.*

**Which skills can physicians acquire on simulators that they can put to good use later on in the operating room, on a real patient?**

*All of them!! The technique, a structured approach, as well as the enhancement of every operational step shouldn't be learned on the patient, but can now be trained on a simulator. One big difference to traditional training methods is that surgeons learn surgical techniques much faster and with less complications.*

**The fight for talent doesn't stop in the medical field. What can you offer young physicians that others maybe don't?**

*We offer our concept for education and continuing medical training that we are convinced of. This includes the measures stated above, and also takes into account the personal development of each resident. Surgeons in training give us positive feedback on the modern simulation training - without exceptions.*

**You are part of the development of a new TURB module for your simulators, for the removal of bladder tumors. What do you expect from it?**

*I expect the same effect that the TURP module had: fast, effective and safe training for a surgical procedure, BEFORE a physician in training goes into the OR to do surgery on a real patient.*

**There will be a version with active tactile feedback for the laser enucleation simulator soon. How valuable will this be in your opinion?**

*For doing surgery and handle natural tissue, haptics and tactile feedback are essential for success. It doesn't only matter what you see and hear, but also what you feel. These complex factors are one of the reasons for long and very individual learning curves. Adding tactile feedback to simulation training will be a huge enhancement.*

**How does surgical education look like in your ideal world?**

*Every procedure can be simulated with numerous levels of difficulty. As in real life surgery, the trainer and experienced physician can correct the trainee directly and smooth - just like in driving school.*



HELIOS is more than the pure sum of its locations. The strong network consisting of 74 clinics, the intensive knowhow exchange among colleagues across departments and the fast implementation of innovations guarantees the best possible health care for all patients.

HELIOS analyses the quality of medical treatments and uses this as a basis for constant improvement. Accuracy, transparency and honesty are the determining factors in our daily medical routine.

HELIOS offers competence in all fields of patient care, ranging from ambulant and stationary acute care over rehabilitation to geriatric care.

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