



Into the Blue

Olympus, the John Flynn Private Hospital, and Dräger have opened one of the world's most advanced **VIDEO OPERATING ROOMS** in Australia.

Entering the sliding doors is rather like stepping on board a submarine: sea-blue walls; cobalt-colored light; on the floor, a steel-blue circle demarcates the surgical team's radius of action. Anesthetist Steven Koh is busy putting a patient to sleep, while ENT physician Mark Courtney is discussing the next procedure with the nurses. Assistants are laying out instruments and positioning monitors and blue-bordered spotlights. The maritime ambiance in Endoalpha OR at the John Flynn Private Hospital on Queensland's Gold Coast has nothing to do with the nearby Pacific Ocean. The color aids cool concentra-

tion and relaxed work. It also symbolizes a completely new type of operating room: from here, operations are recorded on camera and sent out on the Internet in real time to specialists all over the world. Discussion and questions are actively encouraged. "This operating room is one of the first of its kind and it certainly won't be the last," says Dr. Ray Randle, whose ideas and persistence have helped the globally networked video OR become a reality.

Looking over doctor's shoulder

From the ceiling of the 'blue salon', a wide-angle camera captures the prep-

arations. In the center of the Dräger Polaris 760, an LED luminaire, a second camera focuses on the patient's ear which is to be operated on. This more detailed camera transmits high-definition (HD) images of every one of the surgeon's interventions onto screens in the room. Vessels, organs, incisions, and procedures can all be seen crystal clear. And all of it can also be viewed on the hospital's website. Students in Europe and India – as well as medical specialists in the USA – can watch the procedures live and pose questions about the surgeon's methods and technology. What happens in the operating room is of

PHOTO: MICHAEL AMENDOLIA



Operating room in Queensland: medics around the world benefit from video broadcasts

course not for everybody. It does allow a specialist in Germany to watch the Australian surgeon perform a complex joint reconstruction, and it does allow a Chinese student to learn more about a urological operation which is not yet well known at his university. But you may not look over the doctor's shoulder without authorization. To protect patients' privacy, there are complex security barriers which allow only registered users to view the online broadcasts.

Orthopedic surgeon Randle normally makes between 12 and 15 international trips each year – especially to the USA, Germany, and Asia – to share his work with colleagues and students. They are interested especially in 'Randle's Knee', the Australian physician's special prosthetic operative technique which is as difficult as it is successful in achieving swift healing results. Little wonder that others wish to learn from

him. "But all the travelling I do costs time and energy – and it can also have drawbacks," explains Randle, while behind him the OR is prepared for a new patient. For organizational reasons, he and his team are working today in the neighboring operating room. Ten new knee joints are on the agenda. An average Friday's work.

Third camera on the forehead?

Meanwhile, in the blue operating room opposite, Dr. Courtney acquaints himself with the new technology. "It always takes a little while for a team to accustom itself to a new setting," he says, adding in jest: "We ENT doctors could almost do with a third camera on our foreheads, since we move our heads less than orthopedists while we work, and we sometimes bend closely over our patients. Unfortunately that means we can easily block the camera's view."

During the next patient, two special monitors show Courtney and his opposite assistant, Stephanie Gant, exactly how the endoscopic operation on the nasal septum is proceeding. During this procedure the lights in the operating room are dimmed to blue and the screens become the surgeon's second pair of eyes. For orthopedists and internal medicine specialists, the detailed camera integrated into the OR luminaire is especially useful. A replaceable, sterile casing protects the objective which focuses automatically onto the area of the body being treated.

"We often invite doctors for training: Australians, of course, but also colleagues from other continents," says Randle. "Educational trips of this kind are naturally expensive, and then there are the difficulties of visas and scheduling. Our online broadcasting technology allows us to reach a lot more people," >

Organs and vessels are shown in detail on the HD display

> he says, and explains another benefit: “Before now, a doctor might have been able to observe one or two operations during a visit. But now there is a timetable online which allows doctors to study an operation as often as they want, at times that suit them. The heightened learning experience gained by watching something repeatedly represents an enormous step forward.” It also allows difficult situations to be discussed directly if the operation is live. As well as the cameras, there are microphones connected up. “I’m used to explaining what I’m doing while I work, and why I’m doing it that way,” says Ray Randle. “It doesn’t bother me if people ask questions while I’m busy.”

When the first patient was operated on in Operating Theatre 1 (OT 1) two years ago, it was the fulfillment of five years of hopeful thinking on the part of the orthopedist. “The first crucial thing was the top-quality of the HD images. Partially focused shots would not have been any use to anybody for this purpose.” Next of all the finances had to be secured. After that there was logistical mountain to climb: hospital reality, architecture, new technology, and modern design all had to be brought into alignment. Dräger Australia had to work for two years with Olympus system integration experts and Ramsay Health, which operates the John Flynn Private Hospital, to come up with optimum solutions for the project. “The result met our expectations at first, then it exceeded them,” says John Cotroneo, who manages Dräger’s infrastructural department in Australia. He shows us a photo of the room before it was converted: a kind



Dr. Ray Randle is the father of the video operating room and also a talented teacher



ENT specialist Dr. Mark Courtney focuses all of his senses on the procedure

of storage room with neon lights and a problematic ceiling, hardly recognizable now that it has become a blue, high-tech operating room. Cotroneo is also very satisfied with the way the rest of the pilot project went: “We have since installed other Polaris systems in the John Flynn Private Hospital, equipped several new gastroenterological and endoscopic operating rooms, and furnished other operating rooms in other hospitals as well.”

Relaxed eyes see more

Four months after the first operation in John Flynn’s new operating room, the

teams had accustomed themselves to the peculiarities of the blue operating room. “We had to wean ourselves from kicking open the doors,” laughs anesthetic nurse Joanne Death. For hygienic reasons, doors in hospitals are often opened using only the foot, but the modern sliding doors here are not like that. They slide silently aside at the press of a button and close automatically after a delay. But to allow the former foot method to be used if needs be, rubber pads with sensors beneath them have been attached next to the doors.

The blue color creates the ideal contrast for the cameras, and it also has a calming effect and relaxes the eyes, which is especially useful in the concentrated atmosphere of an operating room. For anesthetists, however, it means concentrating harder: veins and the skin-color of the patient are harder to make out in blue surroundings. “The monitors do of course provide us with exact details of heart rate, blood pressure, and the patient’s state. But my observations provide additional information,” says anesthetic nurse Joanne Death.

“That is why we don’t always turn on the blue light,” says Ray Randle. But even when he switches to the white Polaris lights, the blue glass walls reflect a cool brilliance. The screens stand out from their dark-blue surroundings. Viewers around the world can study the OR arrangement through the wide-angle camera, whether the light is blue or white, although they are more likely to remain glued to the detailed camera, which shows the bodily parts being treat-

PHOTOS: MICHAEL AMENDOLA

ed and the surgeons hands. One of the advantages of this camera is that it also helps the team in the OR. “Last week, the camera showed a lengthy aorta operation on the wall screen,” recalls Priscilla Vanwyk, who is currently making the transition from ward to OR nurse. “I was able to follow everything very exactly on the screen, see the organs and vessels as I had never seen them before, and watch carefully how and where the assisting nurses placed the clamps.” In a conventional operating room, the surgeon’s shoulders often block the view for OR nurses.

Pioneering work

That one of the world’s most advanced live operating rooms should open in Queensland’s John Flynn Private Hospital of all places is an honor indeed to that institution’s namesake. Flynn was a pioneer of innovative technology and played an important part in Australian medical care. In 1911 he opened the first Bush hospital, and 15 years later the Australian realized his visionary idea of airborne doctors who could be called into the Outback by telegraph. Flynn’s Flying Doctors (see also page 5) have to this day flown 27 million kilometers annually to treat up to 750 patients each day in far-flung regions of the continent. The Endoalpha OR has reduced doctors’ airmiles, but it still sends medical knowledge and skills out into the big wide world.

Julica Jungehülsing



Product info:

And then there was light –
Dräger Polaris OR lights.

www.draeger.com/108/polaris



Almost like a television studio – but this room is primarily an operating room, equipped with high-tech medicine for the best possible treatment



Almost shadow-free and with a bright beam – the Dräger Polaris OR light casts the patient in the right light