SIEMENS

UKBB
Universitäts-Kinderspital beider Basel

Cooperation

Siemens International Reference Center Pediatric MRI

www.siemens.com/skyra

University Children's Hospital Basel

Siemens International Reference Center Pediatric MRI

Answers for life.

Partnering for pediatric care

Our partnership with Siemens has allowed us to introduce leading MRI technology in our practice. MAGNETOM Skyra shows that Siemens understands the needs for pediatric imaging and that 3T imaging can be brought into our clinical routine.

Jacques Schneider, MD

Head of the Radiology Department

University Children's Hospital, Basel, Switzerland

University Children's Hospital Basel

Located in the heart of Switzerland's largest cities, the University Children's Hospital Basel (Universitäts-Kinderspital beider Basel – UKBB), is a highly modern facility that also offers kid-friendly and welcoming environment. It is an independent academic institution dedicated not only to pediatric medicine but also education and research. Serving nearly 6,400 inpatient infants, children and teens, as well as 80,000 outpatient cases per year, the UKBB is an important healthcare provider for the Northwest Switzerland region.

The roots of UKBB stem all the way back to 1862. In 1999 the hospital as it is known today was formed by combining two institutions from the Basel region. In 2011 the colorful, modern facility was opened, allowing it to offer its pediatric patients the care fit to their special needs. The hospital offers a complete spectrum of care, with specialties in chronic lung disease, orthopedics and surgery, as well as oncology. In the Radiology Department, neurology is the MRI main specialty.

The Radiology Department at UKBB offers various imaging modalities including ultrasound, computed tomography, digital X-ray, as well as magnetic resonance imaging. In MRI alone, over 1,500 examinations are performed each year.

University Children's Hospital Basel

Pediatric MRI is a complex application field of very high importance that has seen numerous developments over the past several years. This is only possible through close collaboration with clinical experts and industry. As a leading pediatric institution, we are honored to work with UKBB to bring high-end MRI technology into the clinical routine and provide excellent pediatric care.

Bernd Ohnesorge, CEO
Magnetic Resonance
Siemens Healthcare
Erlangen, Germany

Siemens Healthcare, Magnetic Resonance

Siemens Healthcare is one of the world's largest suppliers to the healthcare industry and a trendsetter in medical imaging, laboratory diagnostics, and medical information technology. Siemens offers its customers products and solutions for the entire range of patient care from a single source – from prevention and early detection to diagnosis, and on to treatment and aftercare. By optimizing clinical workflows for the most common diseases, Siemens also makes healthcare faster, better and more cost-effective.

As a business unit of Siemens Healthcare, Magnetic Resonance offers one of the most innovative and comprehensive imaging portfolios for users around the world – powered by Tim 4G, Total imaging matrix technology in the 4th generation, and Dot (Day optimizing throughput). Together, these technologies redefine productivity in MRI. Furthermore, Siemens was the first to deliver 70 cm Open Bore systems for 1.5T and 3T field strength, and also offers one of the broadest ranges of clinical applications in the industry. Leading. With MAGNETOM.

Siemens Healthcare

Pediatric MRI at 3T

MAGNETOM Skyra

Figure 1:
The UBB offers a wide range of neurology applications. Advanced coil technology allows excellent anatomical resolution.

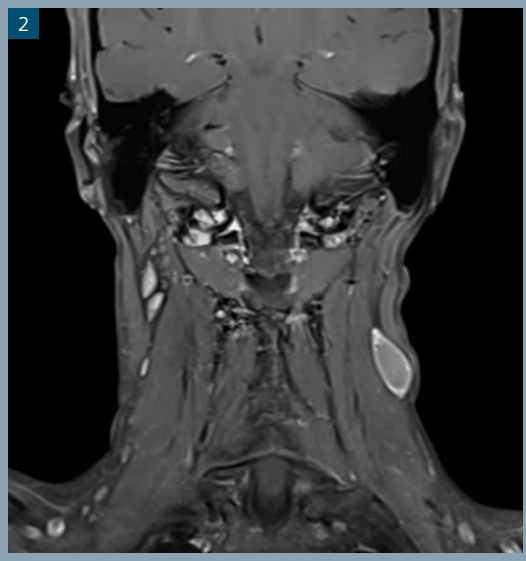
Figure 2:
MAGNETOM Skyra offers head/neck imaging with several fat suppression techniques to choose from including SPAIR (Adiabatic), DIXON, Inversion Recovery, and spectral suppression. This results in excellent, uniform fat suppression. Head/Neck 20 can be easily combined with the Spine 32 for extended coverage.

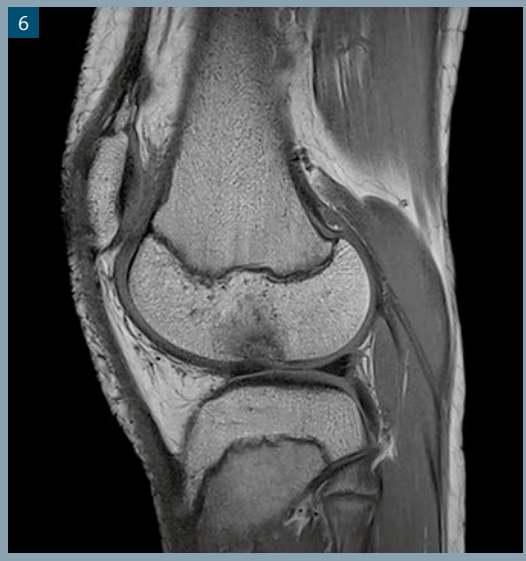
Figure 3:
High resolution and fast body imaging with 30 channels due to the combination of the standard coils Body 18 and Spine 32.

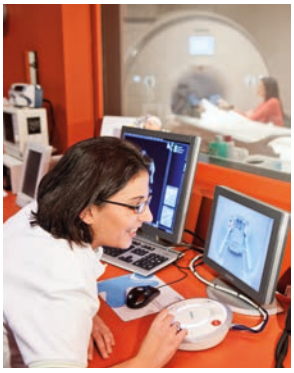
Figure 4:
The Radiology Department at UBB can visualize vessels (up to whole body) to support therapy planning. Techniques without contrast medium are also available for certain risk patients.

Figure 5:
A variety of options are available for excellent hip imaging including the 30 channel combination of the Body 18 coil and Spine 32 coil or a 4-channel Flex coil can be wrapped around an individual hip for focused signal.

Figure 6:
Fast, high resolution knee imaging with the Tx/RX 15 channel Knee coil.







MAGNETOM Skyra 3T and its Tim Dockable Table enable examination time to be decreased – benefiting the little patients, their families, and the radiology team.

Top-of-the-line 70 cm 3T imaging

UKBB acquired its MAGNETOM Skyra system in 2010 with high expectations for its MRI system. In pediatric imaging it is essential that the system be designed for optimized patient comfort to ease the scanning experience. Examinations need to be as fast as possible, not only in acquisition, but also in preparation for the scan. As the facility cares for a broad range of indications, the system had to have a broad application portfolio. Expectations were exceeded with MAGNETOM Skyra, the top-of-the-line 70 cm 3T system.

Excellent images, consistently

Dr. Jacques Schneider, Head of the Department of Radiology, reports great satisfaction. "Image quality from head to toe on MAGNETOM Skyra is exceptional." Tim 4G integrated coil technology plays a considerable role in image quality, offering up to 204 coil elements with 48 RF channels at UKBB, which results in a dramatic increase in SNR.

In terms of consistency Dr. Schneider and Head Technician Christelle Reymann explain the benefits of scanning with Dot technology. "Dot allows us to generate reproducible scans and introduce a degree of standardization. This is very important, as we scan children numerous times over their developing years and we need be sure we get consistent scans over time," explains Reymann.

MSK, neuro, and oncological imaging

Neurological imaging at UKBB accounts for a great deal of scans. "With the integrated spine coil in the patient table as well as the 18-channel Body Matrix coil, fetal brain and spine imaging can be done with excellent visualization," says Dr. Schneider.

The Brain Dot Engine is also used routinely in the department. Christelle Reymann explains, "We have been able to decrease scan time and increase image consistency with the Brain Dot Engine." The radiology team has also been able to create personalized exam strategies within Dot for specific age groups – allowing to them integrated their standards of care, while improving efficiency. Dr. Schneider further explains that due to the consistent high image quality, his radiology team is able to increase its diagnostic confidence – leading to more referrals, also in the form of a second opinion.

MAGNETOM Skyra 3T offers a comprehensive collection of protocols for orthopedic imaging such as joint or spine imaging. High channels orthopedic coils such as the 16-channel Foot/Ankle coil or the 15-channel transmit/receive Knee Coil result in excellent imaging quality.

Children are often unable to hold their breath and faster scanning times are key. Also for those that need to be sedated. With faster scanning times, the length of sedation can also be decreased. The Abdomen Dot Engine improves bolus timing accuracy, speeding up scan time. High channel coils enabling parallel imaging are also important factors. Dr. Schneider and his team also use the latest parallel imaging techniques. "With parallel imaging we have decreased scan time and increased image quality – vital factors for pediatric abdominal imaging."

A kid-friendly environment

Especially for children and fetal imaging, an MRI system must be equipped with features designed to enhance the patient experience and increase overall acceptance rates. In pediatric imaging, patients are often sedated in order to complete the examination. This is also the case at UKBB. However, with various features on MAGNETOM Skyra, the team has been able to increase acceptance rates and decrease sedation rates.

Comfort is key

Dr. Schneider explains that high image quality and optimized pediatric protocols were not the only important factors in the decision to purchase their 3T scanner. It had to be a system that also helped the radiology team stay true to their commitment of creating an inviting and comfortable atmosphere for children.

MAGNETOM Skyra's 70 cm Open Bore, the ultra short magnet length and the appealing design help reduce not only anxiety for the patients, but also the parents. For the radiology team this contributes to greater image quality, as the anxiety-related movement is minimized. Tim 4G coils are also lightweight, helping further ease the set-up process and scan experience for the patient and technologist.

The radiology team takes a great deal of care in preparing the patients for the scan. The parents may be allowed to stay in the room and in terms of the scanner, "The fact that the children can see there name on the scanner display helps them feel more comfortable, and in the end helps shorten our preparation time," explains Reymann.

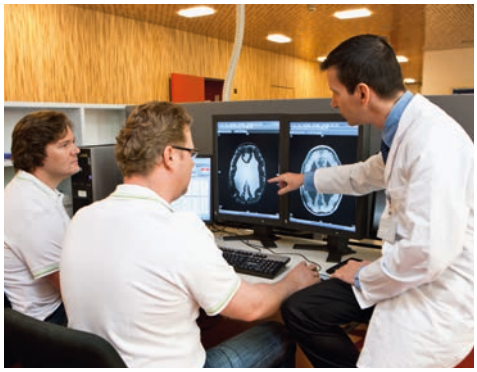
Faster scanning times

The productivity advantages built into the MAGNETOM Skyra systems prove to be of great benefit not only for Dr. Schneider and his team. Although UKBB offers support for the parents during examinations, shorter scanning times are also of great importance for not only the radiology department, but also the patients and their families.

Faster scanning times begins with patient positioning. UKBB uses the Tim Dockable Table, "Using the dockable table, we are able to prepare the patients for their scan in a different room, which helps enable a more comfortable scan experience," says Dr. Schneider.

Setting up the scan at the scanner is sped up with the easy patient positioning thanks to ergonomic Tim 4G coils. The coils have DirectConnect and SlideConnect functionality, eliminating the hassle of cables, allowing the coils to be connected with just one hand, and giving the technologist more focus on the small patients.

Dot also contributes to faster scanning times. Various engines for dedicated body regions have greatly helped in decreased scan time with the help of intuitive guidance. "One of the great benefits we have seen from the Dot technology is that we have been able to integrate our standards into every scan," adds Dr. Schneider.



Exchanging knowledge and experience

As a Siemens International Reference Center, UKBB has the opportunity to share its clinical achievements with radiologists and interested parties from around the globe. Customers can visit the hospital to experience first-hand how MAGNETOM Skyra is being put into clinical use and its suitability for pediatric imaging.

Visits from around the world

As part of a relatively new facility, Dr. Schneider and his team are looking forward to greeting customers and sharing their experience with the system. Especially in the field of pediatric imaging, practice sharing is all the more important. The radiology team is convinced their insights gained with MAGNETOM Skyra can also be of benefit for further radiology departments and pediatric researchers, especially in the field of pediatrics.

In addition to sharing clinical insights, visitors will also have the chance to see UKBB's efficient MR workflow, which helps to address the demanding requirements in healthcare, especially those of a large university hospital. Visitors will also be able to experience first-hand how Dot and its various Dot engines have helped optimize the MR workflow at the Institute of Clinical Radiology and Nuclear Medicine very quickly and increased the department's productivity further.

Partners for pediatrics

Siemens is committed to providing its customers with the highest quality in medical imaging. As a leading hospital for pediatric imaging, Dr. Schneider and his team insist on working with leading MRI technology, optimized for pediatric care. They have worked closely with Siemens to utilize protocols and technology that enable them to provide outstanding pediatric care. Dr. Schneider states, "Working with Siemens has helped us to provide innovative imaging services and excellent pediatric care."

As a partner for excellent pediatric care, Siemens strives to meet the demands of its world-class customers in today's clinical and healthcare environment. Bernd Ohnesorge, CEO of Siemens Magnetic Resonance explains, "Pediatric MRI is a complex field that has seen numerous developments over the past several years. This is only possible through close collaboration with clinical experts and industry. As a leading pediatric institution, we are honored to work with UKBB to bring high-end MRI technology into the clinical routine and provide excellent pediatric care."

Pediatric MRI is more than just imaging in smaller dimensions. This challenging field has seen dramatic improvement with more efficient and innovative clinical applications. Of course, these types of developments are only made possible with close collaboration with leading medical institutions. As Dr. Schneider sums up, "Our partnership with Siemens has allowed us to introduce leading MRI technology in our practice. MAGNETOM Skyra shows that Siemens understands the needs for pediatric imaging and that 3T imaging can be brought into our clinical routine."

Further Information

MAGNETOM Skyra with integrated Tim 4G and Dot technologies is the top-of-the-line 3T scanner with an 70 cm Open Bore, delivering excellent image quality while increasing productivity. Broad application range and patient-comfort features enable this system to bring 3T to e.g. pediatric imaging. Further advantages include:

- *Faster and easier exam set-up with Tim 4G*
- *Lightweight and flexible to use Tim 4G coils for increased patient comfort*
- *Increased consistency with the help of Dot*
- *Confident scanning thanks to the guidance of Dot*
- *Patient-friendly design increase acceptance and decrease scan timet*
- *Increased productivity with Tim 4G and Dot*

With MAGNETOM Skyra, Siemens brings an optimal 3T solution for e.g. pediatric imaging.

If you are interested in visiting the Reference Center, please contact your local sales representative.

On account of certain regional limitations of sales rights and service availability, we cannot guarantee that all products included in this brochure are available through the Siemens sales organization worldwide. Availability and packaging may vary by country and are subject to change without prior notice. Some/All of the features and products described herein may not be available in the United States.

All devices listed herein may not be licensed according to Canadian Medical Devices Regulations. The information in this document contains general technical descriptions of specifications and options as well as standard and optional features which do not always have to be present in individual cases.

Siemens reserves the right to modify the design, packaging, specifications, and options described herein without prior notice. Please contact your local Siemens sales representative for the most current information.

Note: Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

Please find fitting accessories: www.siemens.com/medical-accessories

MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician must evaluate the benefit of the MRI examination in comparison to other imaging procedures.

Local Contact Information

In the USA
Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway
Malvern, PA 19355
Phone: +1 888-826-9702
Phone: +1 610-448-4500
Fax: +1 610-448-2254

In China
Siemens Medical Park, Shanghai
278, Zhouzhu Road
SIMZ, Nanhui District
Shanghai, 201318,
P.R. China
Phone: +86-21-38895000
Fax: +86-10-28895001

In Japan
Siemens Japan K.K.
Gate City Osaki West Tower
1-11-1 Osaki, Shinagawa-ku
Tokyo 141-8644
Phone: +81 3 5423 8411

In Asia
Siemens Pte Ltd
Healthcare Sector
Regional Headquarters
The Siemens Center
60 MacPherson Road,
Singapore 348615
Phone: +65 6490-6000
Fax: +65 6490-6001

Global Business Unit
Siemens AG
Healthcare Sector
Magnetic Resonance
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84-0

Global Siemens Headquarters
Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

Global Siemens Healthcare Headquarters
Siemens AG
Healthcare Sector
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84-0
www.siemens.com/healthcare

Legal Manufacturer
Siemens AG
Wittelsbacherplatz 2
DE-80333 Muenchen
Germany

Order No. A91MR-9013-10C-7600 | Printed in Germany | CC 850 08130.5 | © 08.2013, Siemens AG

www.siemens.com/healthcare