

A woman in light blue scrubs is smiling and talking to another woman in a pink top. They are in an MRI room, with the large circular opening of the scanner visible in the background. A monitor displaying medical data is also visible.

PHILIPS

Ingenia Elition X

MR Systems

**A revolutionary breakthrough
in diagnostic quality and speed**

A revolutionary breakthrough in diagnostic quality and speed

Every day, healthcare moves forward with innovations in clinical pathways and supporting technologies. For radiology the necessity for high productivity, an improved patient experience while ensuring excellence in imaging can be daunting. The perception is often that MR represents a trade-off between productivity and image quality. The Philips Ingenuia Elition X solution offers cutting-edge MR imaging techniques, while setting new directions for clinical research in 3.0T imaging based on gradient- and RF designs.

The Ingenuia Elition X delivers on superb image quality, and performs MRI exams up to 3 times faster¹. Fast overall exam-time is achieved by improving patient handling setup time at the bore with the touchless guided patient setup, combined with accelerations in both 2D- and 3D scanning. This has been made possible by gradient- and RF designs as well as Philips SmartSpeed. Furthermore, the Ingenuia Elition X offers an immersive audio-visual experience to calm patients and guide them through MR exams. In a study, with the use of the in-bore solution, Herlev Gentofte University Hospital in Denmark managed to reduce the number of rescans by up to 70%², allowing radiologists to handle more patients per day.

¹ Compared to SENSE imaging.

² Based on one clinical customer study performed at Herlev Gentofte University Hospital in Denmark using Ambient Experience and in-bore Connect solution. Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Ingenuia Elition X

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¹ Compared to SENSE imaging.

A confident diagnosis

- ▶ Achieve **up to 65%** higher resolution¹
- ▶ Scan your DWI images **up to 30%** faster²
- ▶ Enhance your diagnostic confidence in neuro oncology
- ▶ Unlock new territories in neurofunctional MRI

Up to 3 times faster MRI exams¹

- ▶ With no loss in image quality
- ▶ Add extra patient slots in your schedule
- ▶ Easily fit in unplanned patients
- ▶ Reduce overtime

Patient-centered productivity

- ▶ Improve staff experience
- ▶ Guided exam set-up
- ▶ Automated workflow
- ▶ Faster time to results



Dramatically improve patient experience

- ▶ Provide an immersive visual experience
- ▶ Guide your patients through the examination
- ▶ Comfort in every detail
- ▶ Reduce acoustic noise

Seamless integration of Multi Nuclei

- ▶ Six different nuclei*
- ▶ Across all anatomies
- ▶ Acquisition of proton and other nuclei, without switching coils

Enhance the value of your MR investment

- ▶ Prevent issues before they occur
- ▶ Protect your MR equipment
- ▶ Standardize your MR fleet
- ▶ Tailored financing solutions

¹ Compared to SENSE imaging.

² Compared to Ingenia 3.0T Omega HP R5.3

* Caution: Investigational device for imaging with fluorine (19F) and xenon (129Xe). Limited by federal (or United States) law to investigational use. Clinical imaging with these nuclei requires usage of a cleared drug. No FDA-cleared drugs are currently available for these nuclei.



A **confident** diagnosis

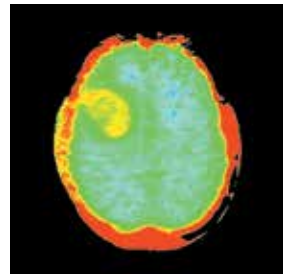
Ingenia Elition X supports confident diagnosis by innovating on all fronts. The new high-end performance gradient and RF design, combined with innovative imaging solutions such as Philips SmartSpeed and 3D APT help you reach new levels of precision in anatomical and functional clinical imaging. As a result, you can diagnose the most challenging clinical indications with confidence.

Up to 65% higher resolution

Fully redesigned gradients combined with Philips SmartSpeed acceleration technology allow up to 65% higher spatial resolution¹ in the same scan time, revealing more details. For example, speeding up isotropic 3D MSK imaging enables a switch from multi-orientation 2D imaging to a single high-resolution 3D efficient scan. It's precision made efficient.

Up to 30% faster DWI images

Ingenia Elition X's high-performance Vega HP gradients allow the most advanced imaging techniques on a 3.0T system. Diffusion scans are up 30% faster while appearing sharper². An average of 70% higher contrast resolution can be achieved in diffusion imaging². Due to a TE up to 15% shorter in diffusion imaging, SNR is further improved or used to generate higher resolution with similar scan time². All this makes Ingenia Elition X an ideal choice in clinical routine and oncology applications, even for challenging anatomies.



Enhanced diagnostic confidence in neuro oncology

3D APT (Amide Proton Transfer) is a unique, contrast-free, brain MR imaging method that addresses the need for more confident diagnosis in neuro oncology. 3D APT uses the presence of endogenous cellular proteins to produce an MR signal that directly correlates with cell proliferation, an indicator of tumoral activity. 3D APT can support trained medical professionals in differentiating low grade from high grade brain gliomas and, in differentiating tumor progression from treatment effect³.

Unlock new territories in neurofunctional MRI

Ingenia Elition X Vega HP gradients deliver up to 23% higher temporal resolution in fMRI studies as well as 30% shorter TR in diffusion imaging for excellent functional imaging at 3.0T². Ingenia Elition X lets you unlock new territories in the field of neurofunctional MRI, unraveling the connections and functional set-up of the brain. This new level of precision and our next-generation wide bore system can attract an array of new funding with human connectome style protocols, and open up research opportunities.

One processing platform for making your diagnosis

IntelliSpace Portal offers a comprehensive set of over 70 clinical applications in multiple clinical domains, including neurology, cardiology, vascular, oncology, and more. This all-round workstation provides you with the right tools when you need them.

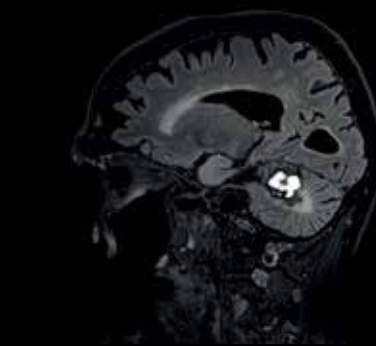
1 In isotropic 3D MSK VIEW scans, compared to SENSE imaging.
2 Compared to Ingenia 3.0T Omega HP R5.3
3 Togao et al. (2014) Neuro-Oncology. Park KJ et al. (2016) Eur Radiol



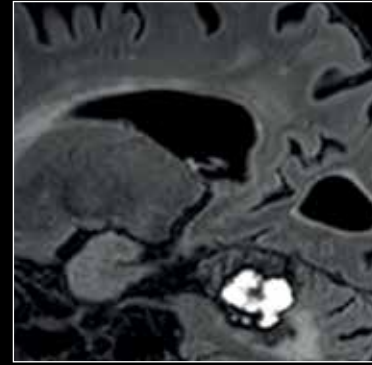
Brain



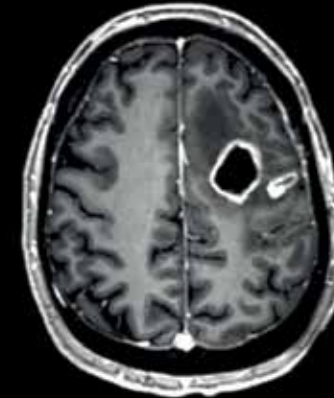
Sagittal 3D T1w TFE, 1.0 x 1.0 x 1.0 mm, 2:26 min
 Courtesy: Technical University Munich, Germany



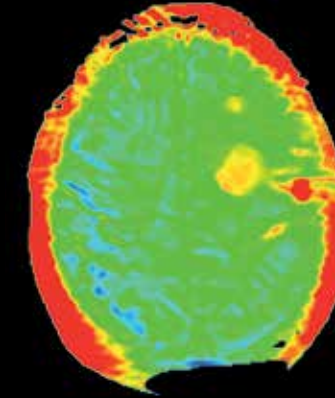
Sagittal 3D FLAIR, 1.0 x 1.0 x 1.0 mm, 3:55 min
 Courtesy: Technical University Munich, Germany



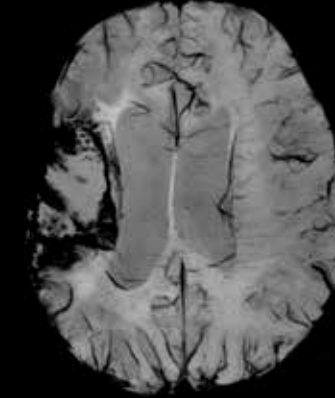
Brain



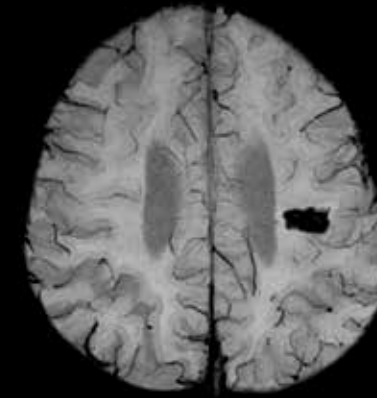
Axial 3D T1w TFE, 1.0 x 1.0 x 1.0 mm, 2:26 min
 Courtesy: Technical University Munich, Germany



Axial 3D APT, 1.8 x 1.8 x 6.0 mm, 3:45 min
 Courtesy: Technical University Munich, Germany



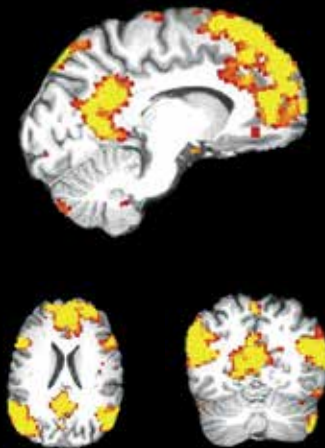
Axial SWIp, 0.7 x 0.7 x 1.5mm, 3:00 min
 Courtesy: Technical University Munich, Germany



Axial SWIp, 0.6 x 0.6 x 2.0mm, 3:00 min
 Courtesy: Kumamoto Chuo Hospital, Japan

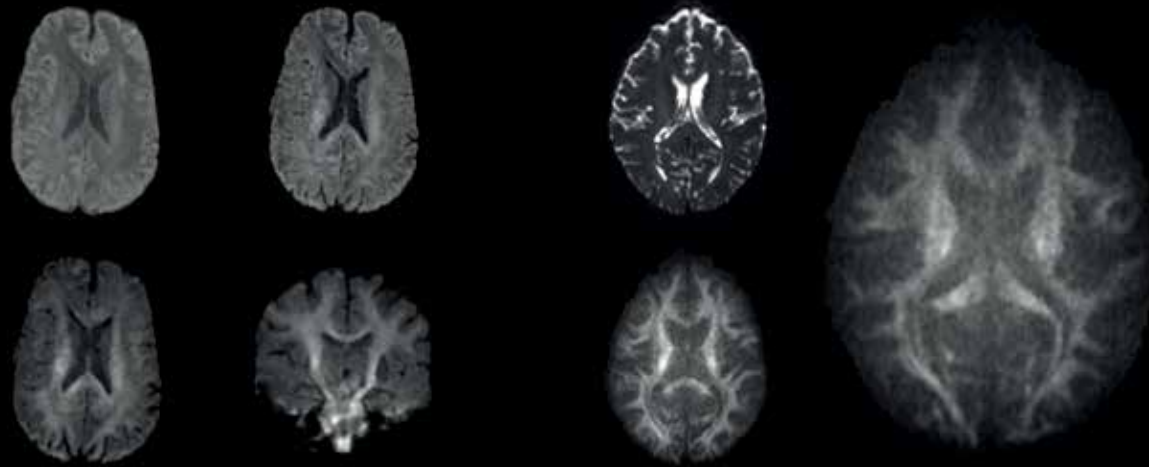
NeuroScience

Resting State fMRI - ABCD research protocol



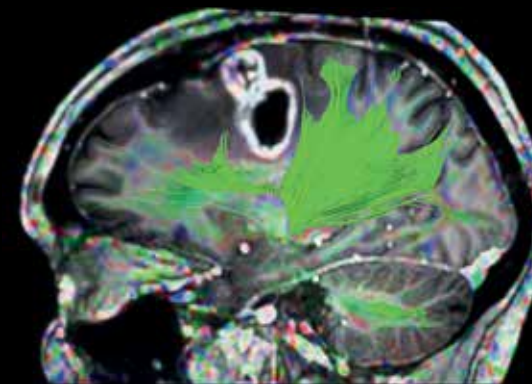
2.6 x 2.6 x 2.8 mm, 17:00 min
 TR 700 ms, MultiBand SENSE 4
 Courtesy: Academic Medical Center, Amsterdam, The Netherlands

dMRI protocol - ABCD research protocol

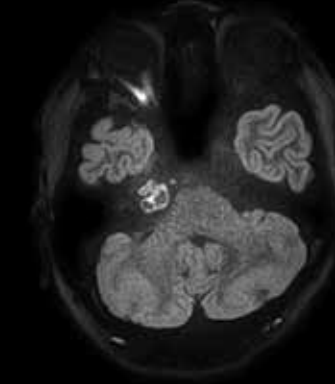


b1000 / b2000 / b3000 / b3000 reformat
 1.7 x 1.7 x 1.7 mm MultiBand SENSE 4
 TE 97 ms, 102 directions, 15:00 min

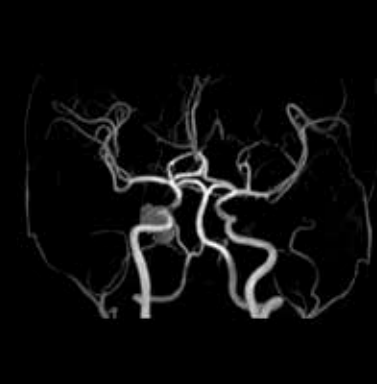
Axial DWI, 1.5 x 1.5 x 4.0 mm
 b0, 1:10 min / b5000, 2:43 min / b15000, 4:40 min



DTI 128 directions, 2.0 x 2.0 x 2.0 mm, 5:00 min
 Courtesy: Technical University Munich, Germany

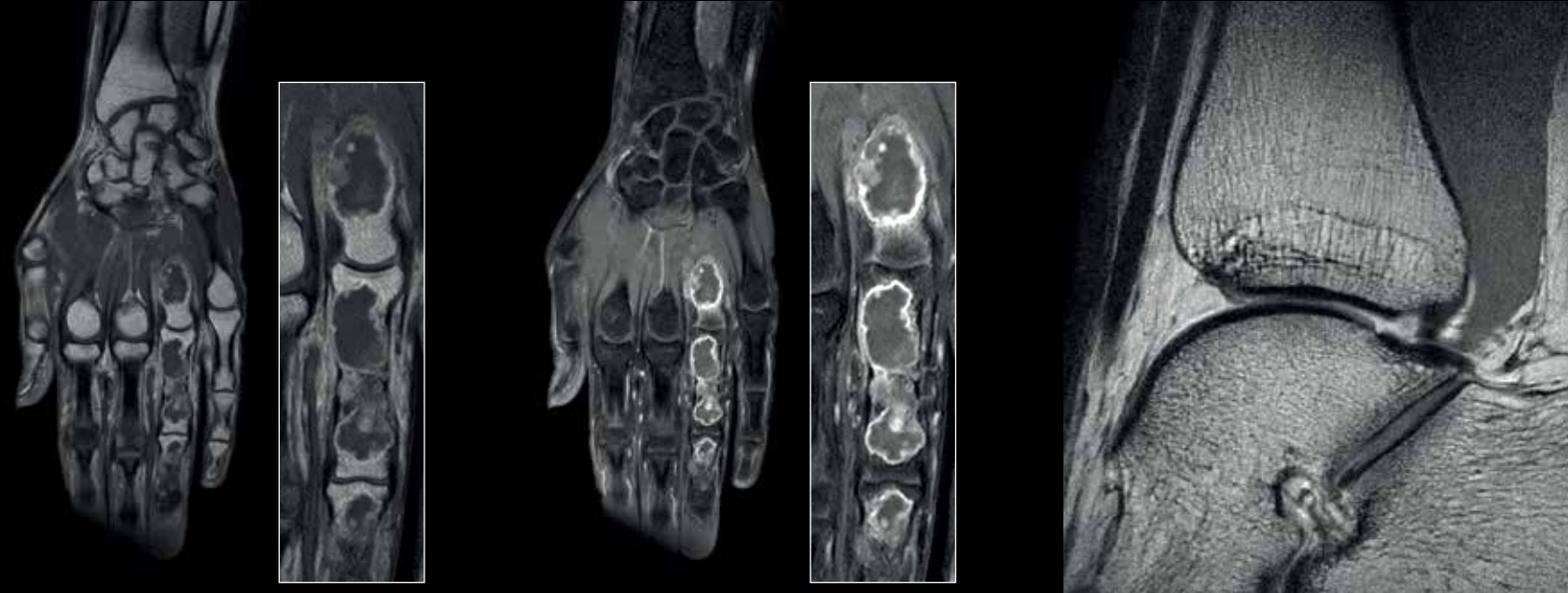


Axial DWI TSE XD (b1000)
 1.1 x 1.1 x 3.0 mm, 3:00 min
 Courtesy: Kumamoto Chuo Hospital, Japan



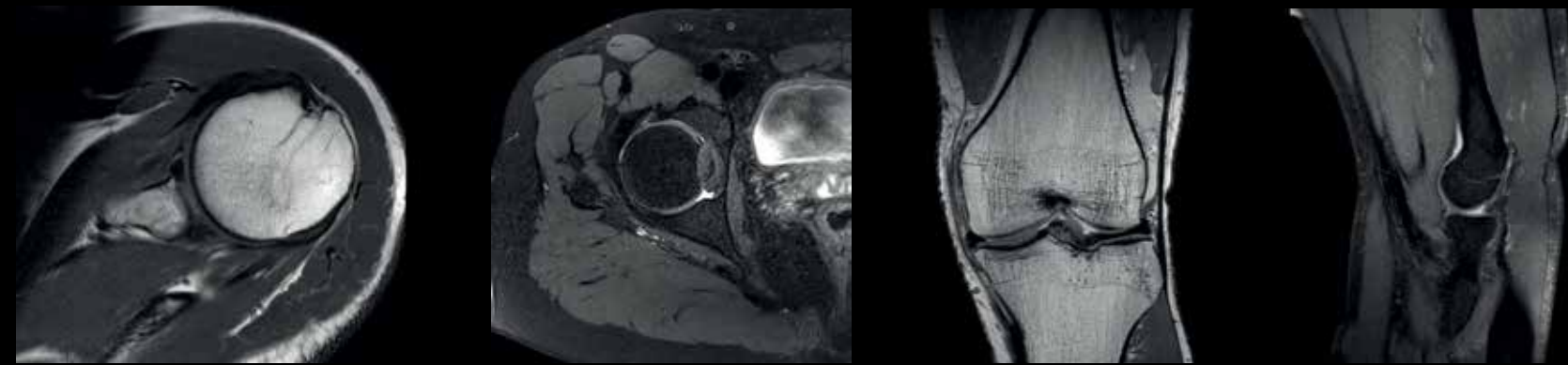
MRA CoW (MIP)
 0.6 x 1.0 x 1.4 mm, 2:39 min
 Courtesy: Kumamoto Chuo Hospital, Japan

MSK



Coronal T1w TSE mDIXON XD with gado (In Phase + Water only), 0.4 x 0.4 x 2.0 mm, 3:46 min
 Courtesy: Academic Medical Center, Amsterdam, The Netherlands

Sagittal PDw TSE
 0.18 x 0.18 x 1.5 mm, 5:05 min



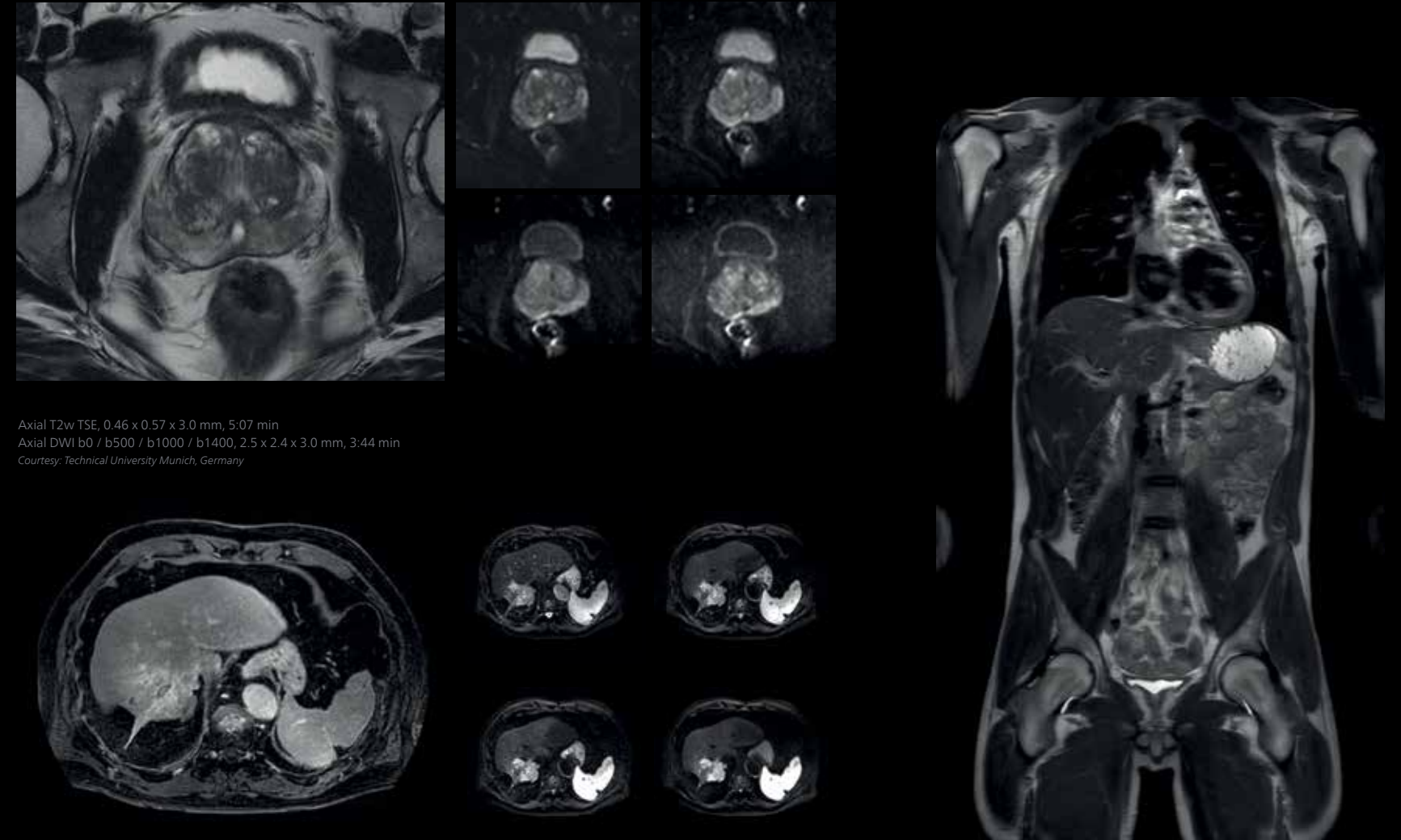
Axial PDw TSE
 0.23 x 0.35 x 2.5 mm, 1:53 min

Axial 3D PDw SPAIR
 0.8 x 0.8 x 1.0 mm, 6:54 min

Coronal PDw TSE
 0.3 x 0.3 x 1.5 mm, 5:05 min

Sagittal PDw SPAIR
 0.3 x 0.4 x 2.5 mm, 4:06 min

Body



Axial T2w TSE, 0.46 x 0.57 x 3.0 mm, 5:07 min
 Axial DWI b0 / b500 / b1000 / b1400, 2.5 x 2.4 x 3.0 mm, 3:44 min
 Courtesy: Technical University Munich, Germany

Axial T1w 3D mDIXON, 1.5 x 1.5 x 2.0 mm, 2:50 min
 Axial DWI b0 / b50 / b300 / b600, 3.0 x 3.0 x 4.0 mm, 4:03 min
 Courtesy: Technical University Munich, Germany

Coronal T2w TSE – Two stations
 1.4 x 1.6 x 5.0 mm, 1:48 min /station



Up to 3 times faster MRI exams with no loss in image quality¹

Time is one of the most precious commodities you have in your MR department.

What if we told you there was a way to recover time you have been losing during your MR examinations? And use the time you do have more wisely? Imagine how that could help you make better use of your scarce resources and better meet the demands of referring physicians.

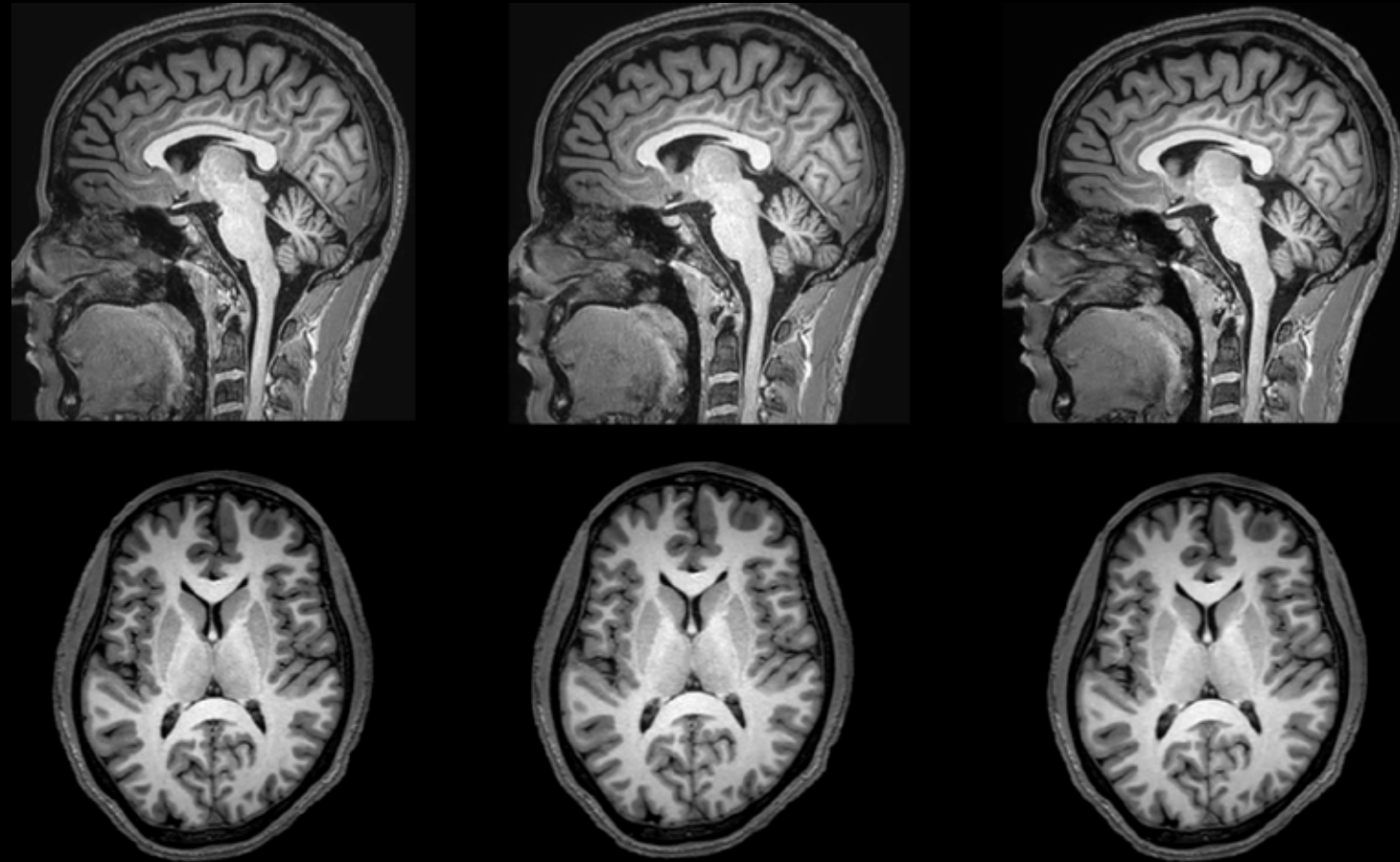
That's exactly what our acceleration technologies such as Philips SmartSpeed can do for your MR department.

SmartSpeed AI can speed up scan time nearly 3 times with no loss in image quality¹, free up time to improve your patient experience. You can use the time gained to scan more patients and reduce the cost per scan, to add unplanned patients to the schedule or free up time to improve your patient experience. It can also provide higher image quality¹ to enhance diagnostic confidence.

¹ Compared to SENSE imaging.

Up to 3 times faster MRI exams¹

With no loss in image quality



3D T1w TFE SENSE
1.0 x 1.0 x 1.0 mm
5:32 min

3D T1w TFE **Compressed SENSE**
1.0 x 1.0 x 1.0 mm
3:05 min

3D T1w TFE **SmartSpeed**
1.0 x 1.0 x 1.0 mm
2:26 min

Ultra fast 2D routine protocols

Philips SmartSpeed Knee example



Axial PDw TSE
0.6 x 0.7 x 3.0 mm
28 sec

Sagittal PDw TSE FatSat
0.6 x 0.7 x 3.0 mm
30 sec

Coronal PDw TSE
0.6 x 0.7 x 3.0 mm
28 sec

Coronal PDw TSE
0.5 x 0.6 x 3.0 mm
15 sec

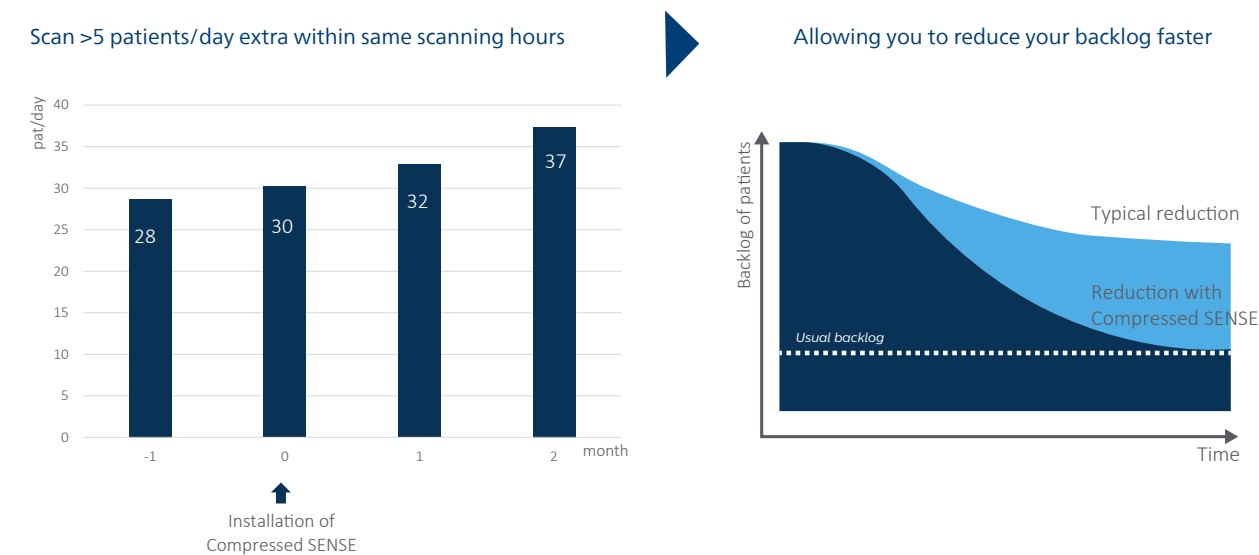
Total scan time: 1:41 min

¹ Compared to SENSE imaging.
Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Courtesy: Tokyo Metropolitan Police Hospital, Japan.
Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Add extra patient slots to your daily MRI schedule

Many radiology departments and imaging centers are looking for ways to increase the utilization of their MR equipment to meet the rising demand for MRI services. A full MRI exam performed with Compressed SENSE, for example, can save minutes compared to a conventional MRI exam. This could free up one or two extra exam slots in your daily schedule, which can result in much higher productivity and shorter waitlists without adding more operator hours.



Radiologie Dr Wagner in Gottingen , Germany can accommodate > 5 more patients per day, within the same scanning hours, after the introduction of Compressed SENSE.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

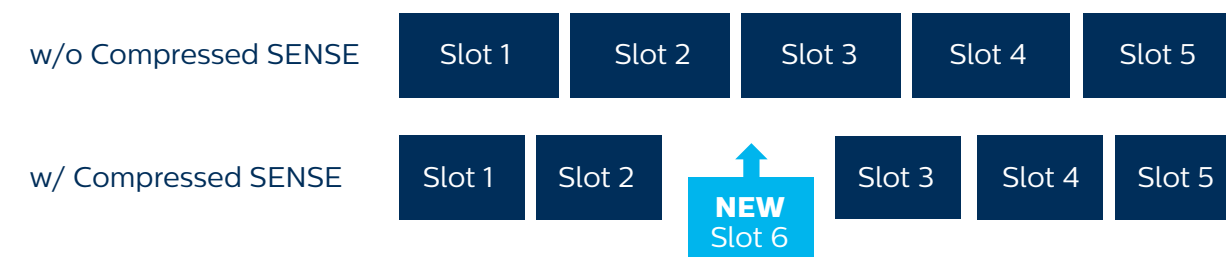
Easily fit in unplanned patients

Do unscheduled patients disrupt your daily schedule and put extra stress on your staff? With Compressed SENSE you can create a buffer to easily handle emergency cases or urgent patients that are referred on the same day. This extra capacity can help you serve patients and referring physicians faster and make daily workflow go smoother.

“We can now provide a more flexible and faster MRI service to our patients and referring physicians. For instance, when a referring physician is requesting it, we can now quite smoothly insert an additional MRI examination without previous appointment on the same day.”

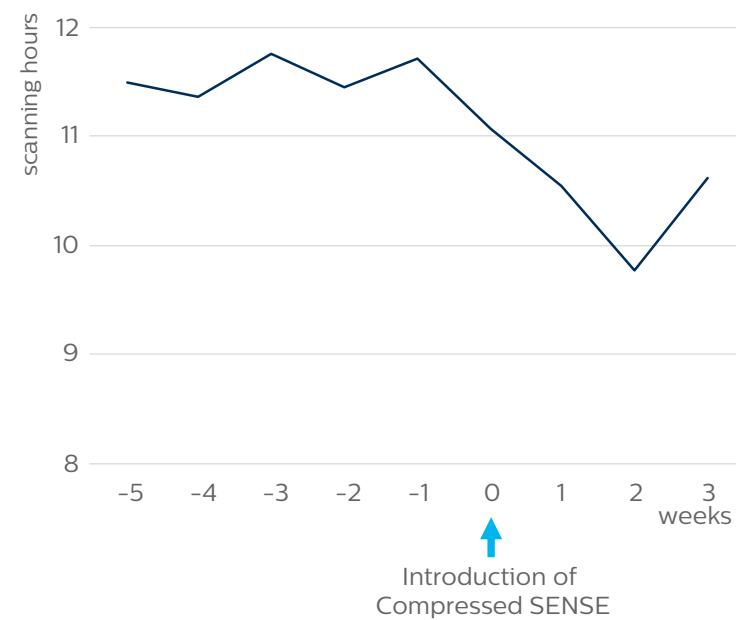
Hideki Koyasu, MD, Neurosurgical Clinic in Kanagawa, Japan

Easily fit in unplanned patients



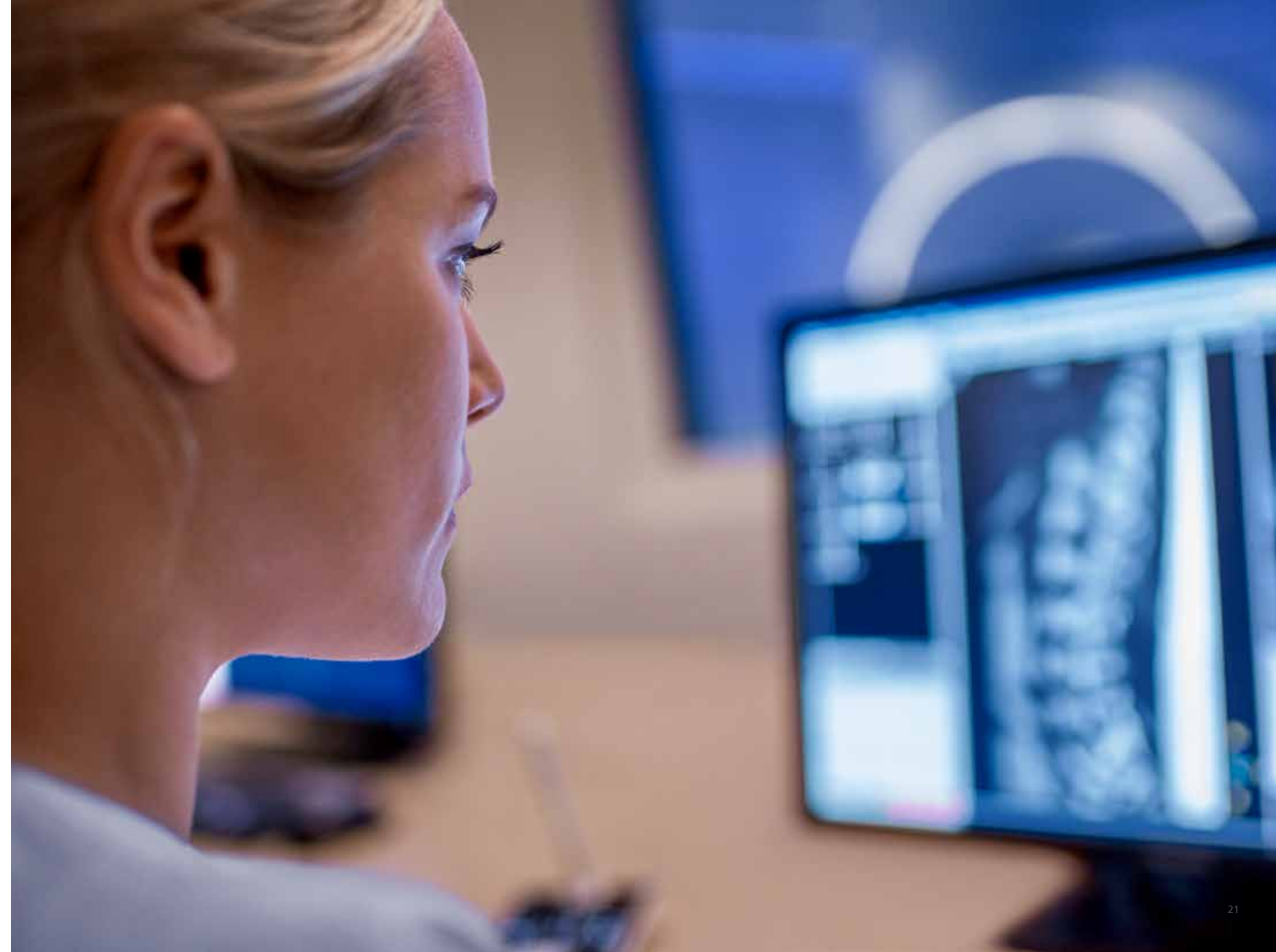
Reduction in overtime, while maintaining same patient throughput per day

Having to work overtime is a recurring issue for many radiology departments and imaging centers that can impact staff satisfaction and run-up operational costs. The stress caused by heavy workloads and overtime hours greatly contribute to burnout among radiology technologists, not to mention long-term mental and physical health issues.¹ By reducing MRI scan times and improving scheduling flexibility, Compressed SENSE helps patients and staff to get home on time. This can improve the experience for all involved.



ComputerTomography Institut in Innsbruck, Austria has been able to reduce overtime by more than one hour, keeping the same patient throughput per day, after the introduction of Compressed SENSE.

¹ Vinu, Raj. Occupational stress and Radiography. NCBI. Nov-Dec 2006. <https://www.ncbi.nlm.nih.gov/pubmed/17119177>
Results from case studies are not predictive of results in other cases. Results in other cases may vary.



Patient-centered productivity

With a growth in the elderly population and constant demands to do more with less, the pressure on healthcare providers is immense. This pressure is also evident in radiology departments and imaging centers. The increasing use of MR to diagnose a variety of conditions and illnesses has led to demands for greater efficiency, even as departments try to manage a shortage of MR operators and variability in staff expertise. Too often, it seems that productivity is at odds with giving patients the time and attention they desire.

With Smart Workflow, you can achieve high productivity while enabling your staff to focus on patients. It reduces and simplifies the number of steps needed in a conventional MR exam workflow, using technology to guide and coach where required, and automate where possible. An end-to-end workflow solution that directly boosts efficiency through reduced variability and task automation, while supporting a better patient and staff experience, resulting in patient-centered productivity.



Smart Workflow in the exam room

“The entire workflow is smooth: Patient positioning and setup; launching the scan as soon as we leave the exam room; the intuitive touchscreen on the gantry; Touchless patient sensing... All of these things are much better than on our old system.”

Laura Barlow, RTMR
MRI Technologist
Supervisor at the University
of British Columbia



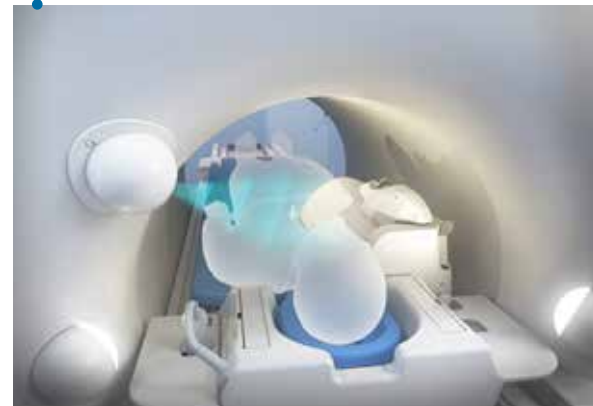
Guided exam set-up

Coaching and visual guidance are provided at the front of the magnet façade



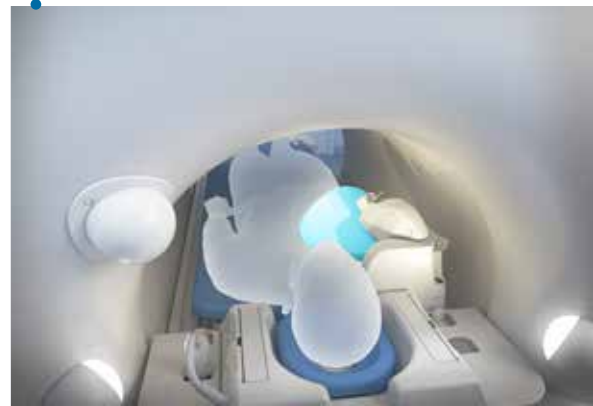
Auto patient centering

Region of interest is automatically placed in the iso-center of the magnet



Touchless respiratory-triggering

Patient's breathing is detected without any operator interaction



Auto coil element selection

Optimal elements are selected automatically based on the anatomy planning



In-room exam start

Exam start can be initiated with a single touch of at the patient's side

“We don't have to manually direct the patient to breathing and not breathing. We can go ahead and let the machine do the work of the breathing instructions while we continue our planning of the exam.”

Carlos Avila, RT
Technologist at Miami
Cardiac & Vascular Institute

Smart Workflow in the control room



Confidence for MR Conditional implants

Step-by-step guidance to enter the condition values as specified by the implant manufacturer



Automated planning, scanning and processing

Fully automated geometry planning, coil element selection and execution of complete MR exams



Up to 3 times faster imaging¹

Breakthrough acceleration technique delivering image quality and speed without compromise



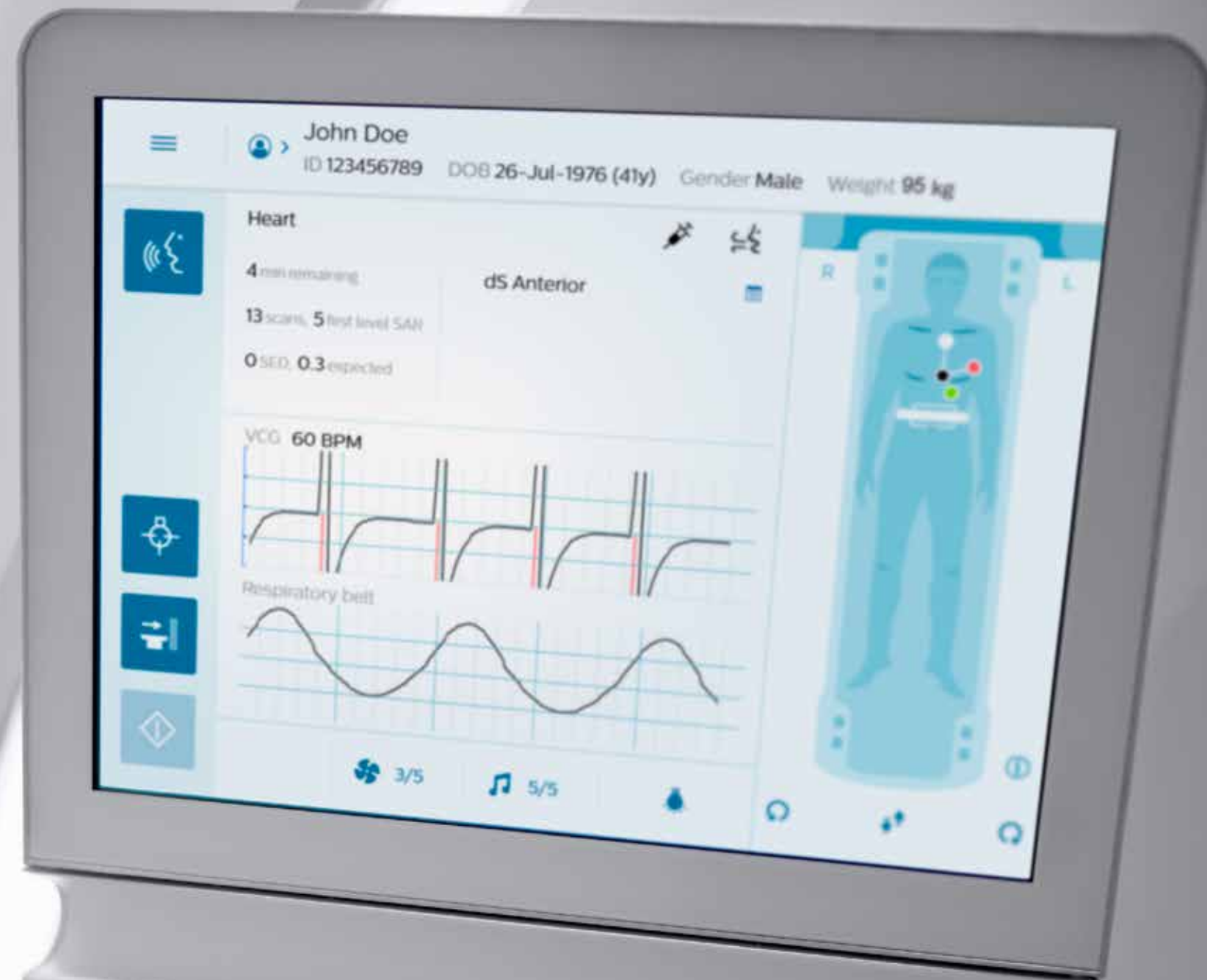
Automated patient coaching

Patients are guided via announcements of scan duration, table movements and breath hold instructions



Plan your day in advance

Dashboard to plan examinations before patient arrival, allowing you to stay on schedule



A virtual coach **guiding exam set-up**

Increase staff confidence and speed up patient set-up through automated real-time guidance and insights on the details of the current patient study. Achieve high quality results, independent from staff's expertise level. VitalScreen provides guidance at your staff's fingertips. Two 12-inch interactive touchscreens on the scanner provide coaching and visual guidance on recommended patient position, study laterality, coil and accessory placement. Moreover, feedback is provided on important exam details, including physiology signals (both VCG and respiratory) and – if applicable- contrast usage and breath- hold guidance.

Put your patients at ease, while manual steps in the workflow are automated

Free up your staff from monotonous, manual steps and enable them to focus on the patient through automatic placement of the region of interest in the scanner iso-center. The manual use of a laser light visor for iso-center positioning has become obsolete. VitalScreen automatically detects landmarks for selected anatomies and places the region of interest in the iso-center of the magnet. Once the patient is positioned on the table, only the push of a button is required to position the patient in the center of the bore.

Increase productivity and free up time for other tasks

Start exams as soon as possible, eliminating extra steps for your staff and decreasing the time the patient has to spent in the magnet, resulting in a more positive patient experience. VitalScreen allows staff to initiate the exam with a single touch of a button at the patient side. The exam starts immediately after the operator has closed the exam room door, so no time is wasted.

Continuous and robust respiratory signal providing **superior image quality**

Relieve your staff from the burden of positioning – and re-positioning – a respiratory belt. Positioning a belt shifts the operator’s focus from the patient to the technology at a moment when it is critical that the patient is comfortable and reassured. Enjoy optical sensing and AI¹ to automatically detect patient respiratory patterns. VitalEye touchless patient sensing provides a fast detection of patient’s breathing without any operator interaction. With VitalEye, the technologist no longer needs to set up an old-fashioned respiratory belt but receives a continuous and robust respiratory signal without any interaction. This revolution in touchless patient sensing helps your staff to keep a caring eye on your patient. The quality of the physiology signal detected by VitalEye is better than a belt-based approach providing superior image quality, for a broad range of patient sizes.

“It always works, and it’s always there.”

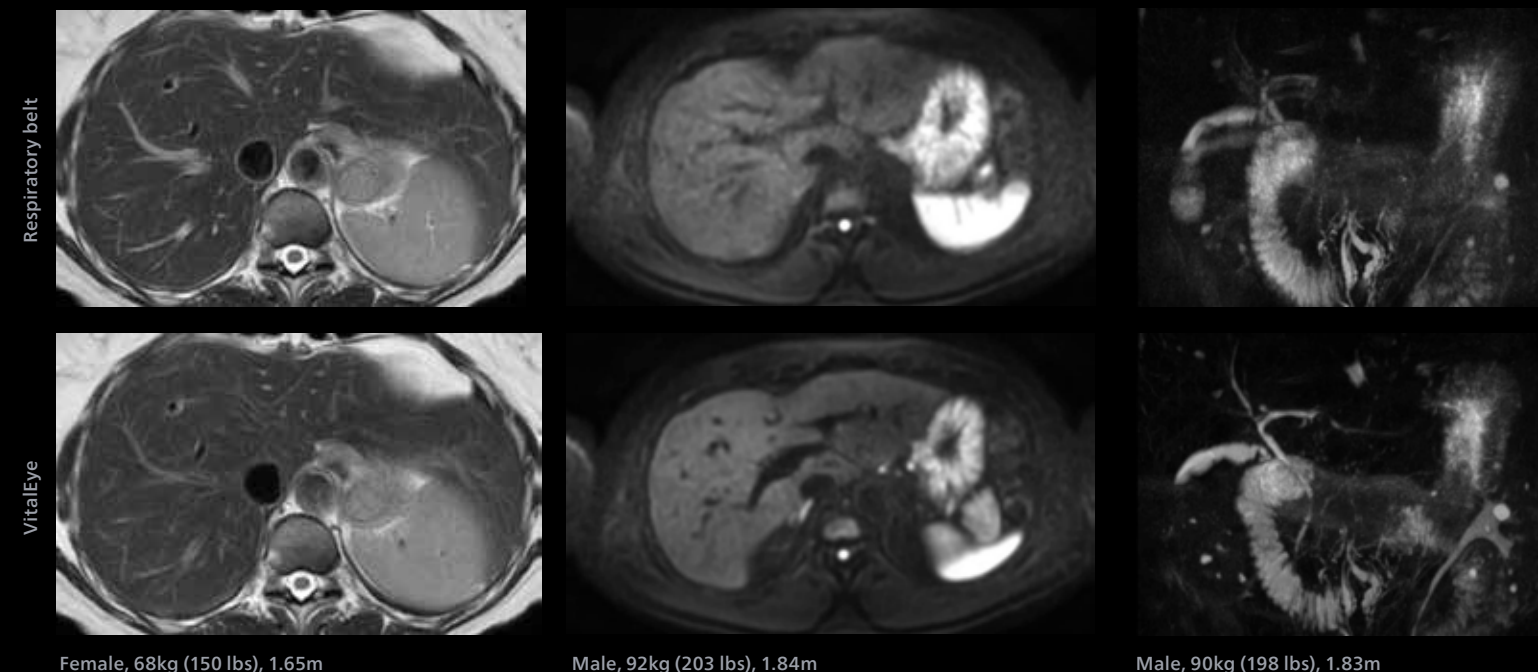
MR operator, University of Bonn, Germany



¹ AI stands for Artificial Intelligence, according to the definition of AI from the EU High-Level Expert Group.

Touchless patient sensing

Superior image quality with VitalEye¹, consistently



Female, 68kg (150 lbs), 1.65m

Male, 92kg (203 lbs), 1.84m

Male, 90kg (198 lbs), 1.83m

¹ Compared to Philips belt-based signal. Requires an unobstructed line of sight. Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Departmental workflow in the control room

MR Workspace is the key to help alleviate technologists' workload so they can focus beyond just the monitor and on what really matters: the patient. Designed with deep knowledge of day-to-day MR operations, MR Workspace supports efficiency and staff satisfaction in the control room through intelligence, guidance and ease of use. Technologists can prepare exams before patients arrive and aim to achieve consistent quality regardless of experience, by using Protocol Assistant, an AI¹-driven solution that learns your protocol preferences and suggests the most appropriate ones based on clinical indication.

Advanced visualization includes step-by-step guidance so technologists can perform advanced visualization to obtain more² diagnostic information. Thanks to dual screen set-up technologists never lose sight of their current patient, even while parallel tasking. This allows to finish post-processing without toggling between screens and without delaying the next patient.

The intuitive interface, large display of clinical images and essential parameter reveal contribute to outstanding ease-of-use. In addition, MR Workspace helps to keep schedules on track and makes parallel tasking easy so technologists can focus on the current patient.

With MR workspace we aim to support you to:



Increase schedule efficiency



Deliver consistent image quality



Improve staff experience



Reduce training time



Provide faster time to results

¹ According to the definition of AI from the EU High-Level Expert Group.

² The addition of step-by-step guidance and automation of routine and complex post-processing applications can now be performed by the technologist on the console, saved via bookmark functionality, and handed off to the radiologist, which reduces time to results.



Know what is coming your way every day

- ▶ Full visibility and control over daily schedule
- ▶ Examination preparation before patient arrival
- ▶ Alerts on patient conditions and schedule changes



Count on image quality. Every, single time

- ▶ Guided and automated workflow
- ▶ AI¹ Protocol Assistant suggests the most used protocol
- ▶ Real-time quality control



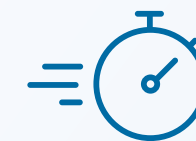
Give your staff what they need to do the job right

- ▶ 80% of examination planning is fully automated
- ▶ 70% of the display is dedicated to presenting clinical images in crisp detail
- ▶ Harmonized user experience with IntelliSpace Portal Advanced Visualization



Fast forward from learning to doing

- ▶ Integrated AI¹ assistance, task guidance, and automation
- ▶ Step by step coaching towards AV analysis
- ▶ 50% reduction in on-screen parameters



Be known for fast results

- ▶ Results sent to PACS in 30% less time²
- ▶ Automated AV segmentation, calculation, and map generation
- ▶ Comprehensive set of integrated high-end and routine AV applications

¹ According to the definition of AI from the EU High-Level Expert Group.
² Compared to R5 software.



Dramatically improve the **patient experience**

Your patients are at the heart of Ingenia Elition – which includes an MR experience that enhances comfort and compliance. With up to 80% acoustic noise reduction¹, voice guidance, Immersive in-bore visuals and a comfortable table mattress, Ingenia Elition helps your patients feel at ease, resulting in smooth, fast exams.

Provide an **immersive visual experience**

Your patients' scanning experience is significantly enhanced with Ingenia Elition. Designed to offer a relaxing sensory experience, Ambient Experience provides positive distractions for patients by incorporating dynamic lighting, projection and sound, contributing to a positive, engaging environment to benefit quality of care. From the moment a patient is moved into the scanner (the point at which people report the most stress), through completion of the scan, the In-Bore Connect solution can help patients to relax, follow directions and minimize motion. In a study, conducted using our in-bore solution, Herlev Gentofte University Hospital in Denmark managed to reduce the number of rescans by up to 70%¹. A case study at Radiologisches Zentrum am Kaufhof, Lübeck, Germany showed that the number of patients needing sedation was reduced by 80%².

“We’ve had a lot of patients provide compliments on the environment. We have the Ambient solution in there that creates a soothing environment.”

Carol Melvin, MD, Miami Cardiac and Vascular Institute





Comfort in every detail

Because no detail is too small when it comes to helping your patients feel comfortable, Ingenia Elition includes the ComfortPlus mattress. On average, 90% of patients in severe discomfort find it easy to lie still on the ComfortPlus mattress. Overall comfort for this group of patients can increase by up to 36%.¹

“The most frequent comment we are getting from our technologists, is that for patients who have had scans on other Philips scanners, this new mattress is really significantly more comfortable.”

Dr. Oswald, Hennepin County Medical Center

Put your patients at ease and guide them through the examination

Be confident that your patients know what to do and what to expect through automated, consistent instructions, relieving some of the anxiety of an MR exam. AutoVoice supports exam compliance by guiding your patients through the MR examination. Including automatically announcing scan duration and table movements in your choice of 30 languages and dialects. In addition, providing breath hold instructions, with either manual timing or timing synchronized to fit the patient's respiratory cycle.

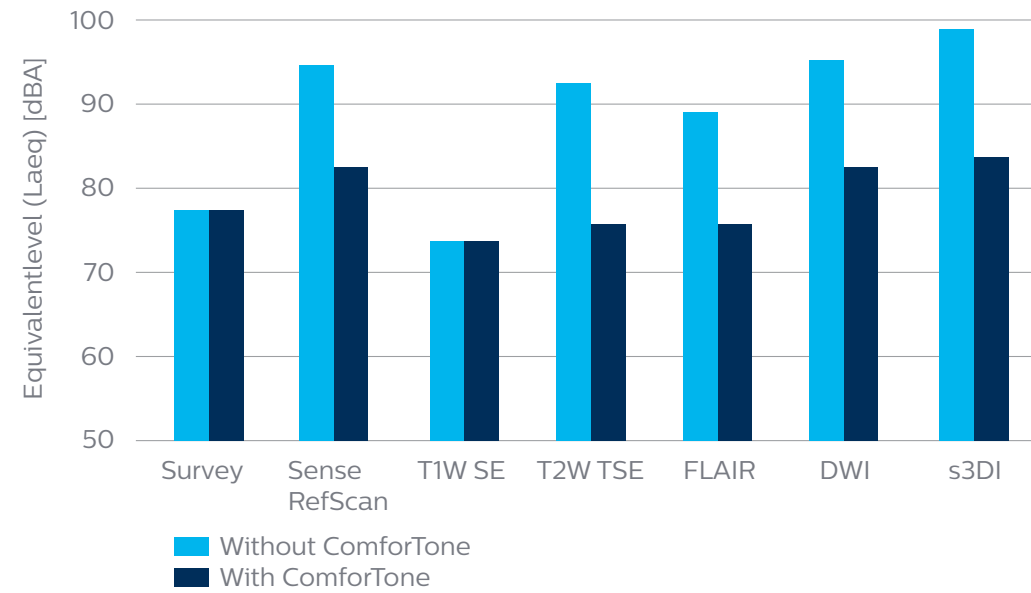
“AutoVoice enables us to shift our focus from having to manually give the breathing instructions to the patient to now planning the exam.”

Carlos Avila, RT, Miami Cardiac and Vascular Institute, USA

¹ Compared to using a standard mattress.

Reduce acoustic noise for your patient

No matter how short the exam, a noisy MR scanner can make it seem unbearably long. The Philips unique ComforTone solution achieves up to 80% reduction in acoustic noise¹ with similar image quality and contrast within the same time slot. You can use ComforTone in routine exams such as brain, spine and MSK. Thanks to our ready-to-use ExamCard protocols, ComforTone is simple to implement and use, requiring just a few clicks to get started.



¹ Compared to scanning without ComforTone
Results from case studies are not predictive of results in other cases. Results in other cases may vary.





Seamless integration of **Multi Nuclei**

Multi-nuclei (MN) imaging and spectroscopy is a key area of leading-edge clinical investigation. However, it typically involves a different software version, cumbersome user interface, and a dedicated coil. And scan times tend to be quite long, which can disrupt day-to-day imaging throughput. To advance clinical insights in this promising area, Philips has made multi-nuclei imaging and spectroscopy become part of your daily clinical workflow.

Designed for out-of-the-box implementation, our Multi Nuclei solution delivers the confidence to explore new imaging pathways and the speed to integrate multi-nuclei studies into your day-to-day workflow.

Six different nuclei, across all anatomies

Adding Multi Nuclei to your MR 7700 opens a window of research into other nuclei, in search of metabolic and functional information. It allows you to perform clinical imaging, spectroscopy and research studies of six different nuclei (1H, 31P, 13C, 23Na, 19F and 129Xe). Simply put, our Multi Nuclei solution can be used across all anatomies.

Simply drag-and-drop multi-nuclei protocols into your ExamCard

We've made it easy for your operation, with a seamless integrated workflow for multi-nuclei image acquisition, spectroscopy, reconstruction, and viewing. Rather than a complex process, multi-nuclei studies have become a simple protocol that can be "dragged and dropped" into your ExamCard. How much simpler can it be? The nucleus is just a scan parameter like any other sequence parameter. A single ExamCard can be used to run both proton and non-proton imaging and images can be checked on the console before the patient even leaves the room. Reconstruction and viewing of non-proton images or spectra, as well as the process for sending the data to PACS is fully integrated, so workflow does not differ from proton imaging. Easy export of multi-nuclei data is supported for enhanced DICOM, SPAR/SDAT, and XML-REC.

Imaging of proton and other nuclei, with one single head coil

In addition to a seamless user interface, the dual tuned head coil enables brain exams, including acquisition of proton and other nuclei, without switching coils. This allows you to schedule your multi-nuclei studies as part of your clinical exam time slots. A full brain study, including both proton (1H) and sodium (23Na) imaging can be completed in 30 minutes¹, all organized in one ExamCard using the same dual tuned head coil. A sodium (23Na) brain exam can be completed in less than 15 minutes². Transmit-receive flex coils are available for carbon (13C), phosphorus (31P), and sodium (23Na) scans. The ExamCard interface immediately recognizes these multi-nuclei coils. A sodium (23Na) knee exam can be as fast as 15 minutes³. Improved SNR and simplified spectra⁴ can be achieved for phosphorus (31P) and carbon (13C) spectroscopy by combining body coil decoupling, with the transmit-receive surface coils.

* Caution: Investigational device for imaging with fluorine (19F) and xenon (129Xe). Limited by federal (or United States) law to investigational use. Clinical imaging with these nuclei requires usage of a cleared drug. No FDA-cleared drugs are currently available for these nuclei.

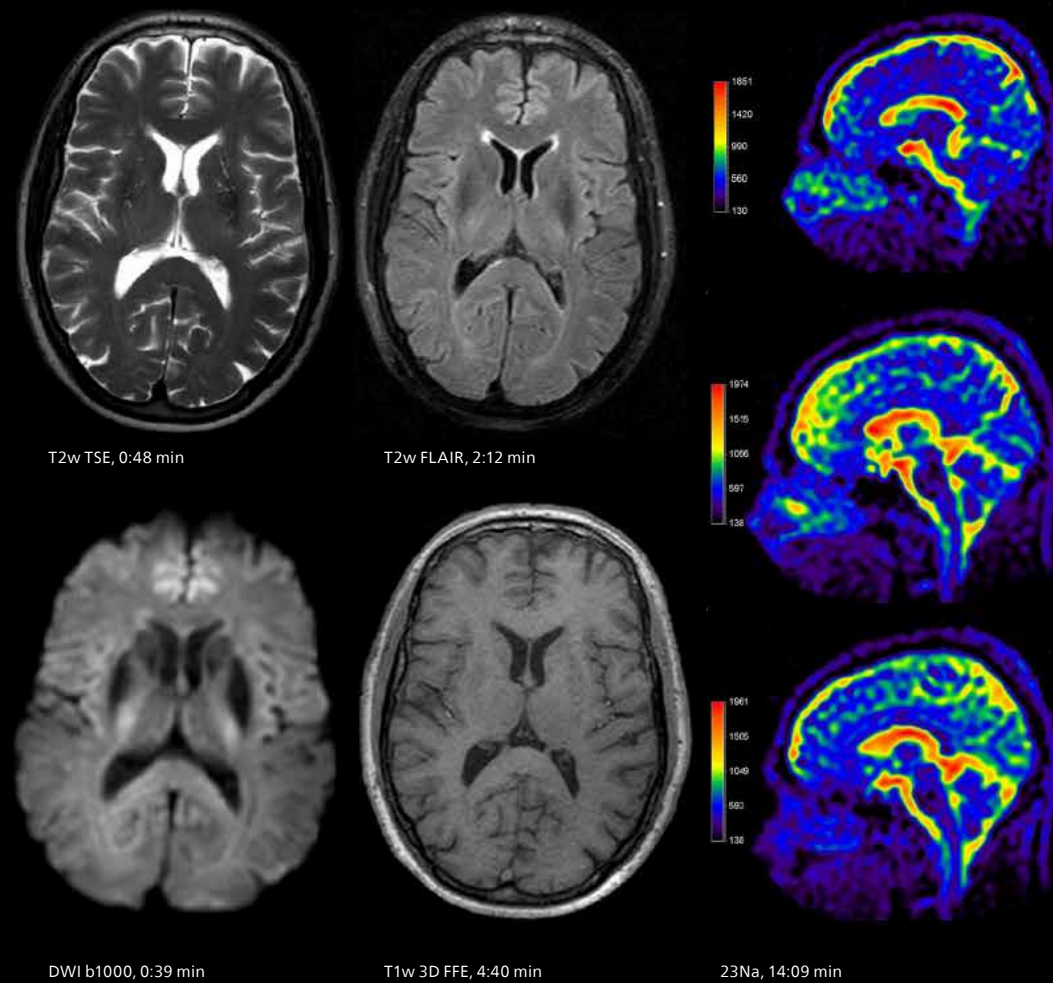
¹ Measured from start of first scan to end of last reconstruction. Includes 1H (T2w TSE, T2w FLAIR, SSh DWI, and 3D T1w FFE pre&post) + 23Na (with a voxel size <= than 4mm isotropic).

² For 4 mm isotropic voxels.

³ For 3 mm isotropic voxels, slice coverage > 95 mm.

⁴ Compared to non-decoupled spectroscopy results.





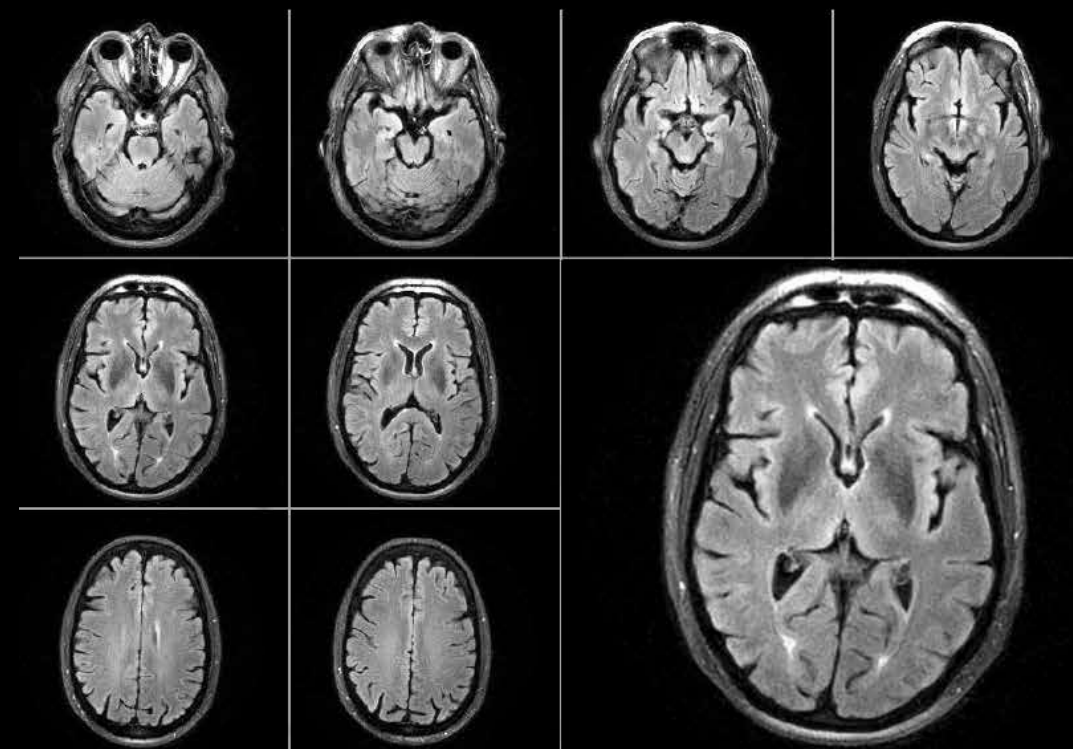
Include ^{23}Na imaging into your daily clinical protocol

Brain MultiNuclei		00:27:32
<input type="checkbox"/>	T2w TSE	tra
<input type="checkbox"/>	T2w FLAIR	tra
<input type="checkbox"/>	DWI	tra
<input type="checkbox"/>	3D T1w FFE	tra
<input checked="" type="checkbox"/>	^{23}Na	sag

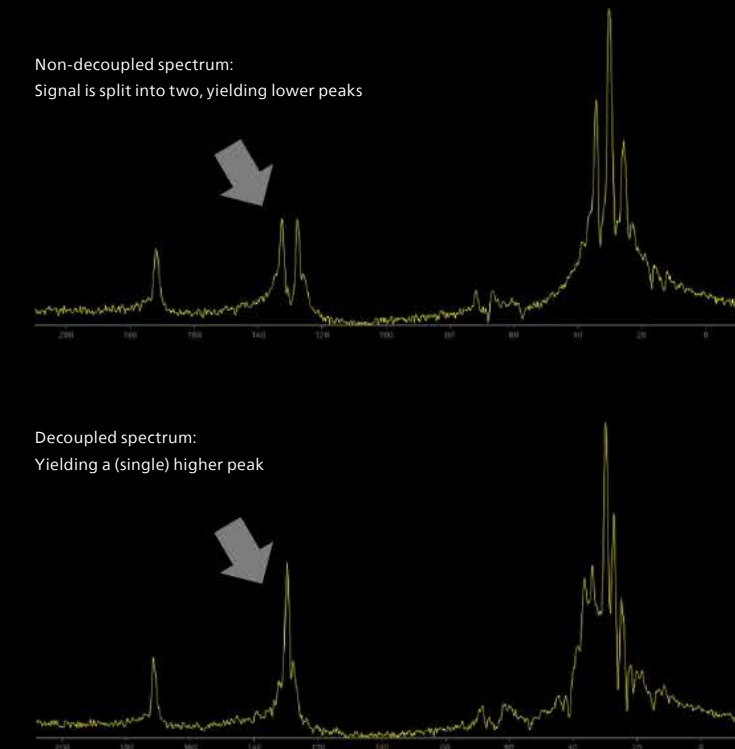
Routine Brain examination including ^{23}Na imaging as well as pre and post contrast T1w scans in under 30-minutes using a dual-tuned $^1\text{H}/^{23}\text{Na}$ head coil¹

¹ For 3 mm isotropic voxels, slice coverage > 95 mm.
Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Identifying metabolism with ^{13}C spectroscopy

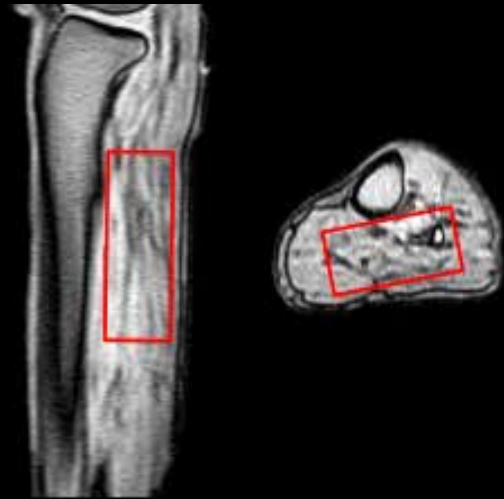


(Proton) FLAIR imaging using the dual-tuned ^{13}C head coil

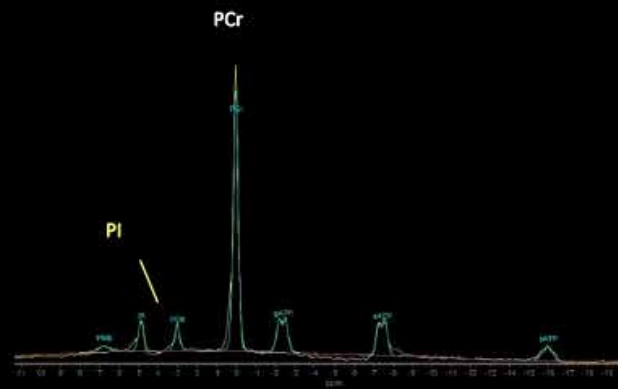


^{13}C natural abundance spectroscopy of the full brain. Most ^{13}C signal is coming from the fat. Decoupling was done to enhance the SNR of the peak detection.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.



Planning of the spectroscopy voxel in the calf-muscle



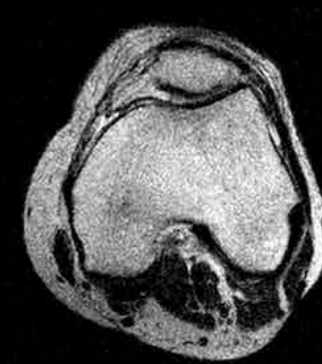
Single 31P spectrum of the calf-muscle showing the PCr and PI peaks

Dynamic muscle metabolism using 31P spectroscopy

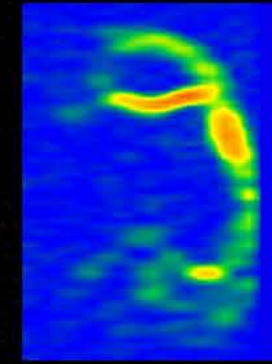


Dynamic 31P spectroscopy of the calf-muscle (5sec/acq, 50 dynamics) showing how the signals of PCr and PI change during a calf-muscle exercise

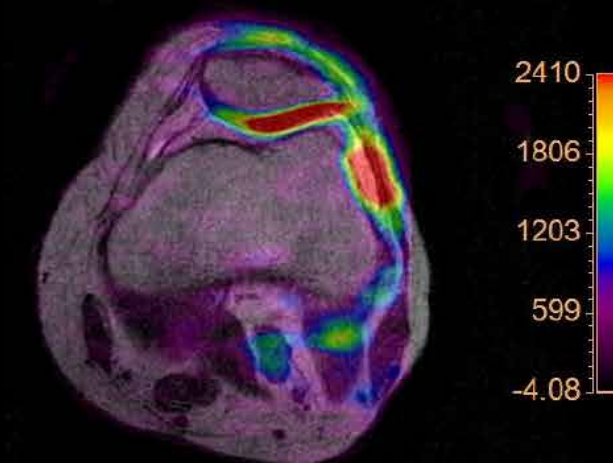
Metabolite imaging, across all anatomies



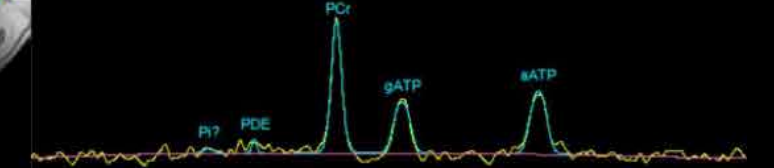
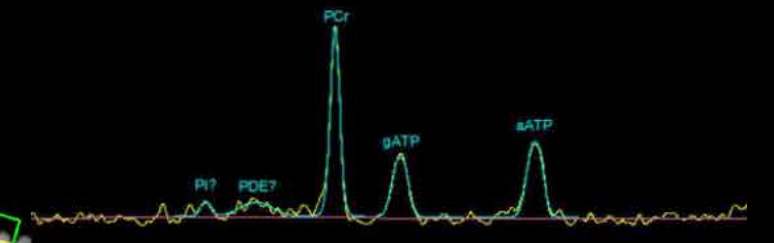
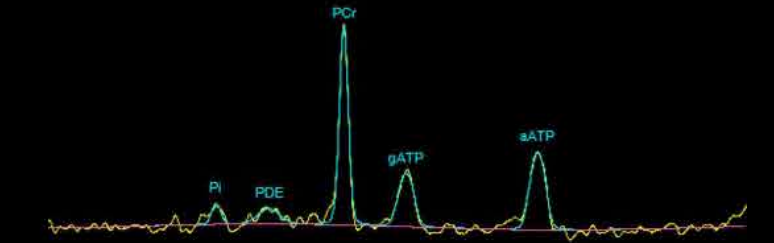
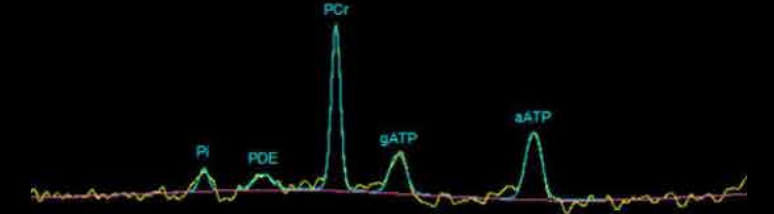
Anatomical imaging (1H body coil)



Functional 23Na imaging of the knee with a laterally placed flex coil Na-140



23Na imaging, overlaid on 1H anatomical imaging Sodium (23Na) knee exam can be performed as fast as 15 minutes. The sub-millisecond TE acquisition for sodium (23Na) imaging facilitates imaging of short T2-signals.




31P, cardiac triggered, 1D CSI of the heart Using flex coil P-140 with the patient in prone position

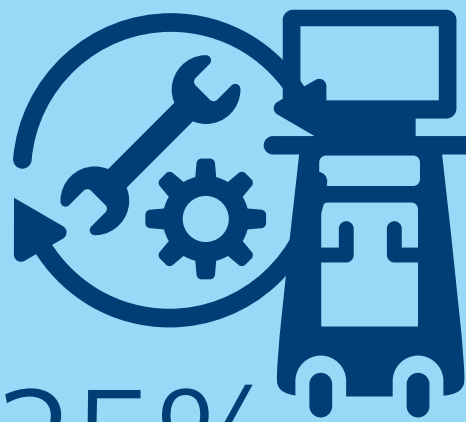
Enhance the value of your MR investment


Imaging is both a clinical and an economic challenge. You need to manage a host of financial obligations and opportunities, all while keeping your focus on your patients. We can help, by putting together a package of offerings that keep total cost of ownership in check while providing you with tailored solutions for maintenance, fleet management, cybersecurity, education and financing.



500 
 parameters are
 monitored on an MR

+90,000
 remote connections across
25,000
 healthcare facilities in
139
 countries³


25%
 connected Philips
 MR service cases² are
 resolved before they
 cause downtime, due to
 proactive monitoring

>50% 
 of MR service cases
 are resolved remotely¹



Prevent issues before they occur

Scanner downtime can disrupt your schedule and delay patient care. We offer maintenance agreements that are suited to your needs, enabled by the latest service innovations and including an uptime guarantee. We prevent issues before they occur through proactive remote monitoring, remote diagnostics and remote and field service support. With e-Alerts and other remote data, we monitor more than 500 parameters of your MR system from a distance, detecting and resolving issues without impacting your department's operations. In fact, more than 50% of MR service cases are resolved remotely.¹ Our Philips-qualified service experts can also proactively resolve issues on-site, fix your system before it causes any disruption, and provide reliable and knowledgeable support.²

Protecting your MR equipment from patient data breaches and cyber-attacks

Protecting patient health information requires constant vigilance. To keep health information and medical devices secure, we employ best practices in medical device security. Our multi-layered defense barriers include security policies, procedures, access controls, technical measures, training, and risk assessments. The Technology Maximizer Plus subscription program conveniently keeps your MR systems up-to-date through access to the latest cybersecurity patches and mandatory safety fixes via regular and ongoing software upgrades and hardware refreshes.

¹ For the Philips diagnostic imaging installed base
² Based on data collected between July '18 and July '19 on all service events registered on remotely connected Philips MR systems [globally]. Downtime does not include time due to planned maintenance
³ Based on global Philips only data.

¹ Based on global Philips-only data.
² Requires minimum maintenance contract. Conditions apply. Offerings are available in selected countries and for selected products only.

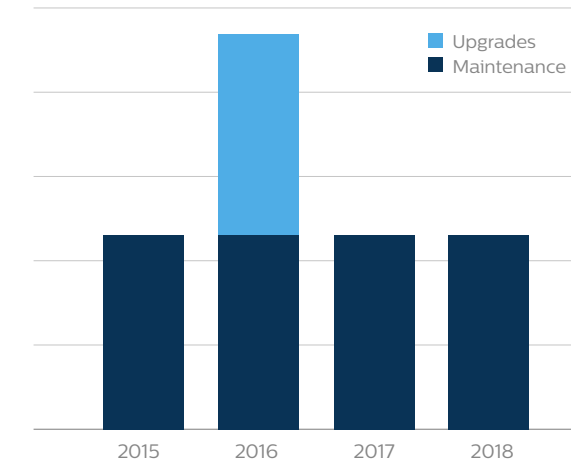
Standardize your MR fleet at a fixed annual cost

If you own more than one Philips scanner, standardizing under the same software release can enhance efficiency through one user interface for operators to learn and use the same ExamCards across multiple scanners. The Ingenia Elition is delivered with the latest available software release, providing a perfect opportunity to upgrade your fleet to this release and enter into a Technology Maximizer Plus subscription program.¹ Under the program, your Ingenia Elition and the rest of your fleet will receive software updates whenever available, giving you the benefits of software improvements and cyber-security advances while maintaining all your MR systems on the same level.

“It was consistently a challenge to plan for annual upgrades and predict their costs. Thanks to Technology Maximizer, we can now continue to have the latest versions of software for all of our MRI systems.”

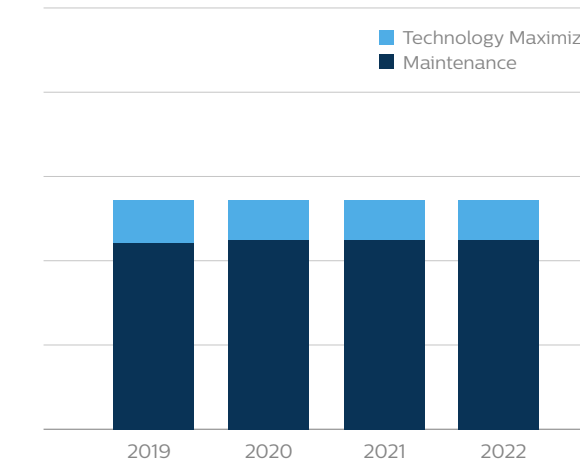
Eliseo Vañó Galván, MD, Cardiovascular radiologist, Chairman of the CT & MR Department at Hospital Nuestra Señora del Rosario, Madrid, Spain

Cost of maintenance and upgrades in **previous years**



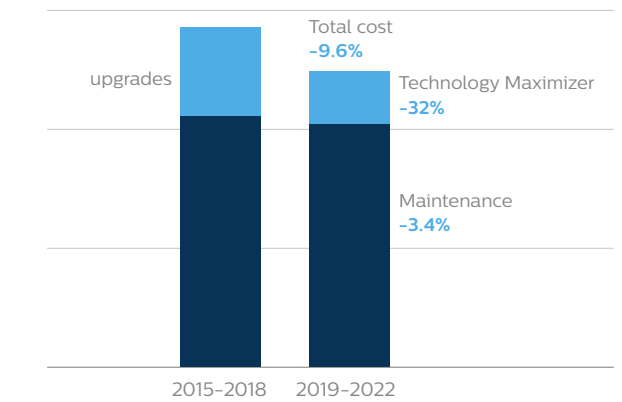
- Large variation in annual cost
- Upgrading once in 4 years

Cost of maintenance and upgrades with **Technology Maximizer program**



- ✓ Fixed annual cost
- ✓ Yearly updating

Reduction in accumulated cost of maintenance and upgrades over 4 years
Before vs with Technology Maximizer



- ✓ Technology Maximizer saves cost and provides more frequent updates

Achieve excellence through **ongoing education**

Delivering consistent healthcare day-in and day-out is a challenge, particularly when faced with staff shortages and the need to cross-train department personnel. Our Philips MR Healthcare Education can help unlock the full potential of your staff, technology, and organization through innovative and meaningful healthcare education, delivered on-site or as e-Learning. For example, the Philips MR Technologist Development Program at Burjeel Hospital for Advanced Surgery (BHAS), a leading orthopedic and joint care center in Dubai, UAE, resulted in an average of 30% improvement in image quality across all procedures.¹ Team knowledge increased 30-40% in the key areas of patient care¹, imaging procedures, data acquisition and physics of image formation. The comprehensive, clinically-relevant courses, programs, and learning paths are designed to support clinical excellence, enhance operational efficiency and provide high-quality patient care.

Tailored financing solutions in line with your cash flow needs, budgets, and business strategy

Providing access to best-in-class healthcare is a leading priority for facilities like yours around the globe. At the same time, financial security and protecting your assets over time are also high on the agenda. To manage your financial challenges, you need to know whether your healthcare investments are sustainable – and how to get the most from your equipment. Financing your Ingenia Elition helps you exchange variability and unpredictability for visibility and certainty. This helps you avoid the burden and risk of upfront expenditures and benefit from transparent, predictable cost structures. As a result, you can manage and plan budgets more efficiently and free up capital that would otherwise be tied up in fixed assets.

¹ Results from case studies are not predictive of results in other cases. Results in other cases may vary





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