Patient Experience

At Rigshospitalet in Denmark an off-field scanner replica has been set up with the aim of reducing anexiety and general anesthetic. Page 6.

Precision Medicine

Read about one of the most advanced labs in the aviation sector, facilitating COVID-19 testing for travelers. Page 3.

Service and Support

Virtual technology makes the delivery of service and support highly efficient, using Augmented Reality visualization. Page 22.

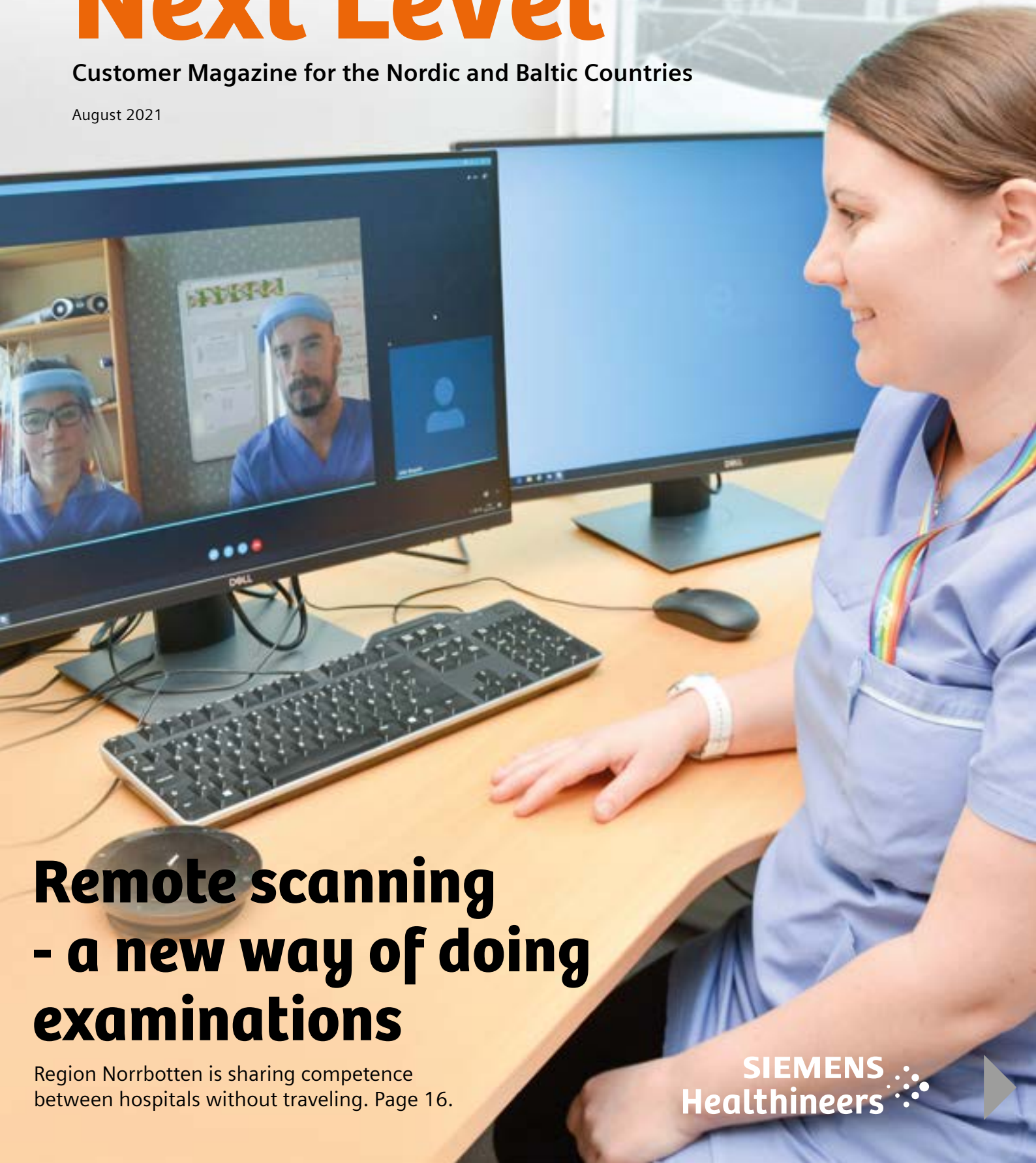
Digital Health

A milestone has been reached towards the goal 'one patient, one health record' in Norway. Components from Siemens Healthineers are a key part of the infrastructure. Page 10.

Next Level

Customer Magazine for the Nordic and Baltic Countries

August 2021



Remote scanning - a new way of doing examinations

Region Norrbotten is sharing competence between hospitals without traveling. Page 16.

SIEMENS Healthineers

Combining Forces Against Cancer

In April Siemens Healthineers announced the successful acquisition of Varian Medical Systems, sharing a vision of a world without fear of cancer.

They divide uncontrollably, tapping into blood vessels and invading neighboring tissues. The malignant cells spread into the body's organs, bone marrow, or lymphatic vessels, causing one of humanity's greatest scourges – cancer. Just a few generations ago, doctors and patients were defenseless against its ravages. Today, thanks to modern medicine cancer treatments are getting better all the time, and many cases can even be cured. Siemens Healthineers and Varian are teaming up to shape the future of healthcare by working toward a world without fear of cancer.

The burden of cancer

Every year, over 18 million people develop cancer. According to the World Health Organization, that number may nearly double by the year 2040. In many countries, cancer has become the second most common cause of death after heart disease. Decades ago, Siemens Healthineers and Varian both turned battling this illness into the focus of their business. These two global pioneers in the field of medical technology are united by a common aspiration to help people live longer and healthier lives.

A leap in cancer care, a leap in impact

Through accelerating our digital and AI-offerings, broadening the scope of our service networks and combining our technology and oncology expertise - we aim to improve how diagnostic imaging, radiation therapy, interventional oncology and surgery can be coordinated and combined to fight cancer.

"By bringing together our unique and highly complementary portfolios and capabilities, we will support oncology clinicians and patients in achieving better outcomes and move even closer to achieving our vision of a world without fear of cancer," says Chris Toth, CEO of Varian, a Siemens Healthineers company.

Lung Cancer
5-year survival rate for lung cancer patients: <20%

"By bringing together our unique and highly complementary portfolios and capabilities, we will support oncology clinicians and patients in achieving better outcomes and move even closer to achieving our vision of a world without fear of cancer."

Chris Toth, CEO of Varian, a Siemens Healthineers company

Liver Cancer
5-year survival rate for lung cancer patients: <16%

One of the Most Advanced Labs in the Aviation Sector

At Copenhagen Airport a milestone was reached January 1st. With over 80,000 Covid-19 related tests performed, Airport Doctor reached a test volume that was not anticipated, and a number not many airport clinics can boast about.

Airport Doctor was established in 2012 by specialist Behroz Firoozfard and is the primary supplier at Copenhagen Airport for travelers. Airpot Doctor is an approved test center for travelers flying to i.a. USA, UK, Russia, China, Brazil, UAE and Saudi Arabia.

At the start of the pandemic, Airport Doctor tested the airport`s security personell and police free of charge, to increase the safety of employees and travelers. Subsequently, the business community and the ministries wanted to keep Denmark's vital infrastructure open and ensure the highest level of security for travelers.

"The business community and the ministries have been an unusually large support by constantly demanding the highest quality as part of keeping Denmark's vital infrastructure open. This, combined with a specialist clinic like ours, has shown the way for many others," says CEO Behroz Firoozfard.

He continues: "Airport Doctor today has a high-end laboratory with equipment and machinery that can only be seen in Danish hospitals. This is something we are very proud of. No one can take from us that we were the first with this set-up, the ideas of test regimes for travelers and our continued efforts are carried forward by the need that exists right now."

The future with COVID-19

Behroz Firoozfard sees the vaccines as an aid but does not believe that we can do without RT-PCR testing for the next few years until there is sufficient immunization. SARS-CoV-2 has shown to be exceptionally good at mutating and it is still unknown what protection the vaccine provides, which is why the laboratory has recently been expanded with an ADVIA Centaur XPT to also be able to test for antibodies.

"Together with Siemens Healthineers, we want to demonstrate the need for a highly functional laboratory in-house at airports that ensures the traveler security, trust and a safe journey. The future plan is also to implement artificial intelligence and easier data sharing in our diagnostics, so that travelers can get a secure diagnosis in less time and further ensure a correct examination and treatment, as many of the patients are not known in advance for health professionals," says Behroz Firoozfard.

"We have a high-end laboratory with equipment only seen in Danish hospitals. This is something we are very proud of."

CEO Behroz Firoozfard, Airport Doctor

More about Airport Doctor

The clinic is approved as a Class 2 Aeromedical Examinator, where examination of pilots and cabin crew requires high professional insight, but also the need for high-quality equipment for analysis of patient samples.

Permanent partners include SAS, Air China, Qatar Airways, Emirates, Turkish Airlines and Air Greenland.

A Broad Range of COVID-19 Tests

The CPH Airport Doctor Clinic has established a fully functional clinical diagnostics laboratory facility for delivering COVID-19 associated molecular diagnostics and serology testing solutions.

The facility has state of the art instrumentation platforms for performing and reporting COVID-19 RT PCR, antibody, and antigen tests. The clinic can analyze 800 TT-PCR samples in 2 hours.

PCR testing (molecular testing)

Uses real-time PCR to detect viral RNA from respiratory samples. Viral RNA can be detected before there is an immune response and antibodies are detectable. Having a highly sensitive assay increases the window of detection of active infection.

Antibody Testing in the Setting of Vaccination (serology testing)

In clinical practice, quantitative antibody testing for assessing the need to vaccinate/boost is common, especially in cases such as hepatitis B vaccination, where the neutralizing surface antigen-antibody threshold associated with immunity is known.

Studies from natural infections indicate significant diversity in the levels and duration of neutralizing antibody responses, with declining levels over time potentially leading to reinfection. Consequently, testing is essential to distinguish successful from suboptimal vaccine responses and the ability to detect antibody declines after natural infection.

The SARS-CoV-2 antibody tests from Siemens Healthineers identifies antibodies to a spike protein on the surface of the SARS-CoV-2 virus, a focus of many vaccine studies.

Rapid Antigen Testing

The CLINITEST Rapid COVID-19 Antigen Self-Test is approved to be used by laypersons 12 and older, with or without symptoms, to detect the SARS-CoV-2 virus. Rapid antigen testing provides individuals with results in just 15 minutes in any setting, including the comfort of their homes. This information can help reduce the risk of exposure for families, schools, and communities.

Siemens Healthineers offers 5 different COVID-19 tests:

- FTD SARS-CoV-2 Test (PCR)
- CLINITEST Rapid COVID-19 Antigen Test (POC)
- SARS-CoV-2 Total Antibody test (COV2T)
- SARS-CoV-2 IgG Antibody test (sCOVG)
- SARS-CoV-2 Antigen test (COV2Ag)

Play Training

Practice makes perfect

From a young age we are taught the fundamental lessons that practice makes perfect, training is key to success and knowledge is power. So why not implement these key aspects to the hospital environment for studies, procedures, and a novel patient experience?

At the Neurobiology Research Unit, Copenhagen University Hospital, in an MRI Research study developed by Assistant Professor Melanie Ganz, this is exactly what is being developed and studied.

Every year hundreds of children are sent for a neurological examination, where the imaging modality of choice is Magnetic Resonance Imaging performed under costly and potentially hazardous anesthesia. Through incorporating a multi-learning and play experience into the patient workflow and imaging management of children, they seek to find out if this is the key to avoid general anesthetic.

Knowledge and pre-preparation can reduce anxiousness

The aim of this project is to demonstrate that most young children can undergo medical imaging procedures without anesthesia using a new approach of imaging children, including preparation and training. While this study focuses is on children, the pre imaging multi learning concepts and training knowledge will be transferable to other medical groups for example claustrophobic adults, people with learning difficulties etc. The range is limitless, creating a positive patient experience with lasting impact.

Apart from the separate issue of anesthesia, it is also critical to try and reduce anxiety during imaging procedures, since a distressed and anxious child / adult is prone to movement if not anesthetized. Before an examination patients' feelings can fluctuate between insecurity, anxiety and hope. The circumstances of an examination sometimes occupy more mindshare with the patient than the clinical benefit of a diagnosis.

"By taking a dynamic approach in patient preparation we hope to improve the patient experience by providing some, if not all patient pre scan questions via our training mock-up MRI scanner and Smart App," Melanie Ganz explains.

- Will it hurt?
- How long will it take?
- Will I be claustrophobic?
- What will I see / hear?
- Will I be alone?
- What will the scanner look like?

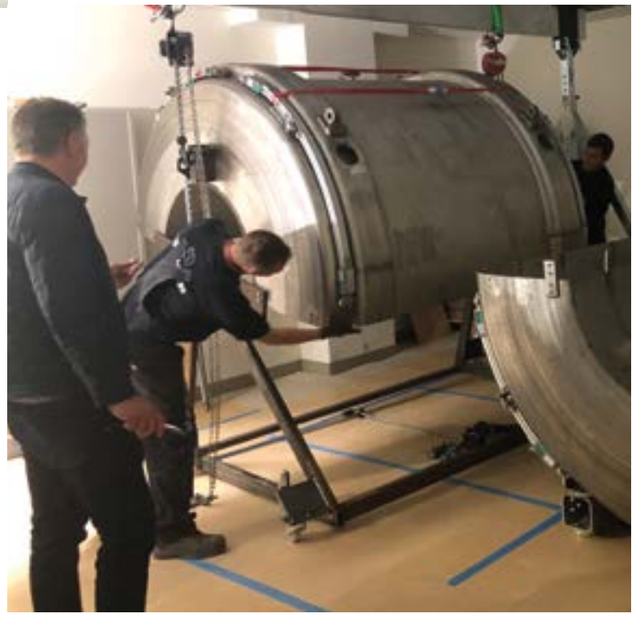
With pre imaging knowledge, preparation via an open source mobile phone application and play training in a mock scanner, Melanie Ganz and the team believe that helping patients overcome anxiety and turning MRI into a comfortable, fast, and entertaining experience can be achievable.

Building an off-field scanner replica

Situated in the new North Wing at Rigshospitalet, Melanie and the team from Siemens Healthineers have built a complete off-field MRI scanner replica from an old disused MRI system that generates the same environment as a real scanner, immediately answering patient questions in one short visit. With familiarization to an environment the patients can establish it as a safe place rather than an unknown entity, reducing anxiety.

Furthermore, the aim is to give access to a mobile phone application providing details related to the scanning procedure, process, environment, and team. The link and access to the mobile application will be provided at the time of appointment confirmation.

Once at the hospital and in the replica off-field scanner room, detailed information about the



The MRI mock-up installation and play training room at the North Wing in Rigshospitalet has been conducted in collaboration with NRU & Siemens Healthineers.

"We are very pleased to take the mock scanner into use over the summer and to start a prospective study with children that are referred to a cerebral MRI examination with anesthesia."

Melanie Ganz, Assistant Professor, Copenhagen University Hospital

procedure, noises and images can be fully explained and demonstrated. During the training visit and the real MRI scans, the use of video and audio equipment can further facilitate the reduction of anxiety as the child can watch their favorite video while wearing noise cancelling headphones. Each child will also be given a paper scanner to make their very own play mock scanner.

"We are very pleased to take the mock scanner into use over the summer and to start a prospective study with children that are referred to a cerebral MRI examination with anesthesia. There are still details regarding the sound simulation and the intercom that need to fall into place, but we hope to start including patients in 2021," says Assistant Professor Melanie Ganz.

This novel approach using a complete MRI system replica will lead the way for change and a whole new patient experience.

Conclusion

Improving patient experiences before, during and after the procedure offers many opportunities for healthcare providers, hospitals, and patients. It is important to understand patient experience holistically for any implemented strategy to be successful. This novel approach using a complete MRI system replica will lead the way for change and a whole new patient hospital experience. Matching the most important influence factors from the study will identify and help develop the most value adding and long-lasting initiatives.

"Providing a better patient experience is not a one-off project, but a continuous improvement cycle. I am sure this is just the beginning for Rigshospitalet and the NRU Team," says Melanie Ganz.

Take home messages:

- Patient experience has long lasting impact, beyond the hospital.
- Patients' wellbeing is not just a result of competent diagnosis, treatment, and care.
- Play training can tip the weighing scales, reducing patient anxiety and improving patient co-operation may lead to increased imaging quality, reporting outcomes, reduction of scan time and strain on medical resources.
- Re-use old medical equipment for patient benefit.

Acknowledgements and special thanks from Melanie Ganz and her team:
Henrik Jessen, Peter Moos, Niels Broberg (Siemens Healthineers Denmark), Achim Riedl (Siemens Healthineers Germany HQ Business Line MR), Michael Knudsen Teknical Chief/Partner (Stål & Design A/S)

NRU thankfully acknowledges the Elsass foundation for funding the abovementioned project.

An Invaluable Help During the Pandemic

To be able to quickly and easy analyze blood gases, Point of Care instruments is a great help in the work with the critically ill patients during the pandemic. "You run your test without taking off all protective equipment and our blood gas instruments provide quick diagnostic help in emergency situations," says Birgitta Olofsson, Point of Care Coordinator at NU Hospital Group in Trollhättan, Sweden.

With the blood gas analysis, the staff can quickly take action based on the patient's needs and then also test so that the treatment has the desired effect.

"In today's pandemic world, Point of Care blood gas analysis is an invaluable help," says Birgitta.

With help from RapidComm, Birgitta and her colleague can review and remotely control the equipment at the hospital and see if it works as it should. They can also guide and provide support to the departments and sections at the hospital that uses Point of Care blood gas instruments.

Blood gases and other critical parameters are used in acute settings where a quick diagnosis is needed, Birgitta Olofsson explains.

Birgitta installs new instruments and train the staff, but most importantly she supports departments analyzing blood gases.

To analyze blood gases NU Hospital Group are using RAPIDPoint 500e and epoc.

Birgitta works with these blood gas instruments

RAPIDPoint® 500e
Blood Gas System
An end-to-end blood gas solution that is maintenance free, user friendly and gives you results in one minute.

epoc®
Blood Analysis System
The epoc system is a handheld, wireless solution to enable comprehensive blood analysis testing at the patient's side, with results in less than a minute.

RAPIDComm®
Data Management System
RAPIDComms remote control is a vital and labor-saving feature at NU Hospital.

Milestone Reached in Norway Towards the Goal one Patient - one Health Record

Documents in patient records from hospitals such as epicrisis and results from lab tests and image examinations can now be shared with health personnel at other hospitals, GPs and emergency services digitally from Core Record. Patients in Norway can now also read the documents from the hospital in their own medical records in the portal helsenorge.no. E-health components from Siemens Healthineers are a key part of the infrastructure that makes this new interaction possible.

For several years key leaders in healthcare in Norway have worked purposely to facilitate that medical record information can be shared electronically between hospitals, and not least between the hospitals and the municipalities. For patients, it is important that the necessary information about their illness and treatment is available to health personnel both in the hospital and in the municipality.

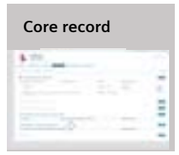
Core Record is a national collaboration solution led by the Norwegian Health Network (NHN) with Health Region South East as a national partner. The main goal is safer, faster and better healthcare. The patients do not have to repeat their entire medical history for the various therapists.

Better information flow

Oslo University Hospital (OUS) was the first to try out the new service last year. The solution will provide a far better electronic information flow. In the past, different treatment centers have each had their own patient record system that has not "talked" to each other. With the new solution, the health data displayed are the same for healthcare professionals and patients, but are made available through two different portals. Residents see their medical records documents from the hospital via logging in via the ID portal at helsenorge.no in a separate patient medical records service. Healthcare professionals gain access through core medical records.

Better interaction and cooperation

Document sharing and digital message sharing through core medical records for healthcare professionals contributes to more comprehensive and efficient digital collaboration. Siemens Healthiners role is to contribute to better collaboration throughout the health service.

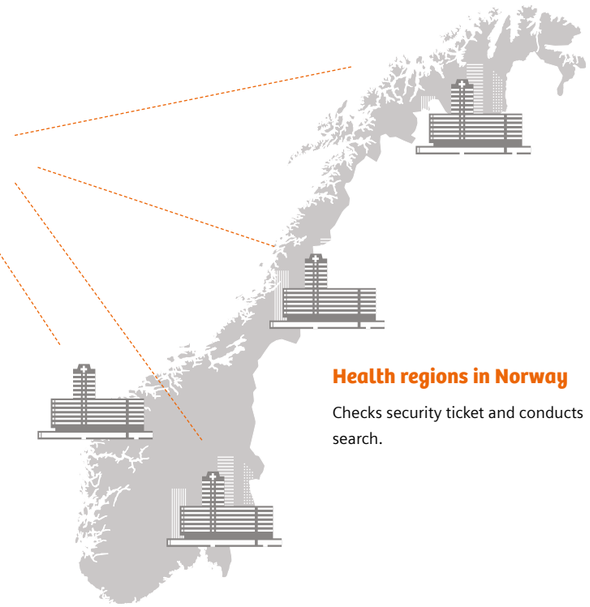


This is how the infrastructure works and connects the systems together:

Healthcare personell

Through Core Record, healthcare professionals and therapists can gain access to a national overview of a patient's relevant documents and read them in a separate work list. The system requests a national document overview for a patient.

In the hub the searches are distributed to everyone, including the user's security ticket. The hub aggregates results from the different healthcare providers.

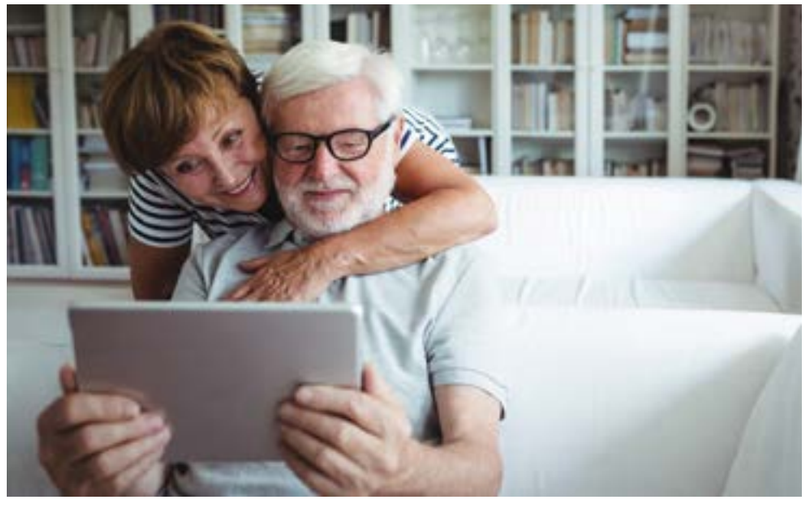


Health regions in Norway

Checks security ticket and conducts search.

Inhabitant

Through helsenorge.no, it is now possible for a patient to access a national overview of all their medical records. In the first instance, an overview is given of the specialist health services' medical records documents. They log in to helsenorge.no via the ID portal. The system makes a request in the national document overview.



Document sharing and digital message sharing through core medical records for healthcare professionals contributes to more comprehensive and efficient digital collaboration. Siemens Healthiner's role is to contribute to better collaboration throughout the health service. For patients, it is important that the necessary information about their illness and treatment is available to healthcare personnel both in the hospital and in the municipality.

"We have delivered a platform component which is the hub of the solution for exchanging information and disseminating the documents. The portals retrieve health data through a query in the journal of a given person in a national hub. The national hub then makes inquiries against the various health regions, consolidates the result and transmits it to the portals. The documents themselves are not physically stored in the portals. An important part of the technology is also the security aspect, which safeguards access and privacy in a good way, says head of e-Health solutions in Siemens Healthineers Norway, Lars Houge.

Deliver the hub in the infrastructure

The solution is based on sharing journal documents using so-called standardized IHE profiles.

"Different suppliers and solutions interact on how users and healthcare professionals view data in the various portals in a structured way. The four health regions have different solutions and the national connection point is the gears in the infrastructure that make everything communicate. We are happy to have contributed to this important work," says Lars Houge.

"We believe this is the simplest and most cost-effective way to organize a comprehensive IT infrastructure in the health care system. It will also have major benefits from scaling and further development, and thus contribute to flexibility for further development in the future", says Houge.

"Our role is to contribute to better collaboration in the health care system. We have delivered a platform component that is the hub of the solution for exchanging information and disseminating the documents."

Lars Houge, leder av eHelse i Siemens Healthineers

Flexible PET-CT Solution for a Hospital in Transition

Even though the healthcare region of Vestre Viken in Norway is planning for a new hospital in Drammen, they have been able to establish a flexible solution for their first PET-CT scanner at the old hospital site. Siemens Healthineers came up with the solution of an external PET-CT module.

It's a time of rapid development at the hospital in Drammen. In 2025 they will move to a new location, currently under construction in another part of the city. At the same time, they have been working to get the first PET-CT to the hospital and to establish a better offering for patients locally in the region. The question was how to manage all of this in the transition period. Siemens Healthineers came up with a solution.

PET-CT in a box

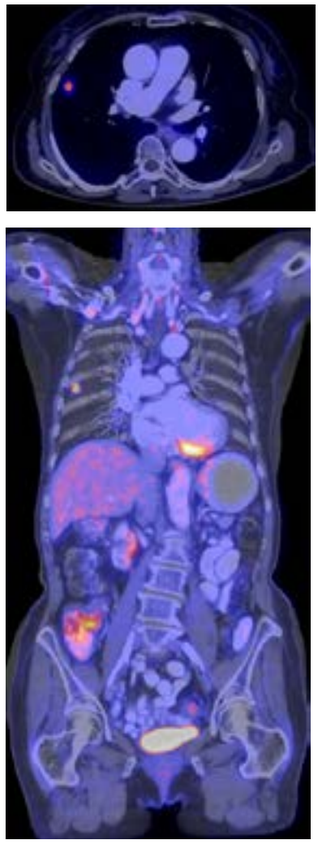
Earlier, all patients from the Vestre Viken region had to travel to Oslo for a PET scan. The goal of the nuclear medicine department has been to serve these patients locally, and to build competence within the department in the period until the new hospital opens.

"We looked into different alternatives, like a mobile PET-CT trailer, but then we would not have been able to build the competence in the same way we are now available too with the solution that we have chosen," manager Mari Mjelde at the nuclear medicine department says.

With the PET module in place at hospital, they plan to slowly increase the patient scanning. First up to three days a week during 2021, and then four days in 2022. At the new hospital, they will have full operations.

“The patient flow works very well, and there hasn’t been any issues in the corona period. So, apart from snow in winter, it works fine. We pick up the patients inside the hospital and follow them out to the PET module.”

Jone Hårstad, Radiographer, Nuclear Medicine Department, Vestre Viken Drammen



Molecular imaging plays an important role in the evaluation of cancer. The department started using the PET-CT for lung cancer and malignant melanoma, and are also doing brain scans. Other diagnoses are being looked into.

“Previously, we sent our patients to Oslo University Hospital, helping us with about 1000 PET examinations before we got this module. An increased number of PET patients is also expected. We have the impression that patients think it's nice to not have to travel to Oslo. We have experienced that some patients want to postpone the examination instead of traveling to Oslo,” Mjelde says.

Jone Hårstad, the modality-responsible radiographer at the Nuclear Medicine Department in Drammen, is also happy with the new module and PET-CT scanner.

“We are getting high quality images. The patient flow works very well, and there hasn’t been any issues in the corona period. So, apart from snow in winter, it works fine. We pick up the patients inside the hospital and follow them out to the PET module. We do have some limitations with bedridden patients. They must be moved in a wheelchair. Moving a bed on the ice in the winter is not an optimal solution,” Hårstad says.

Important for the recruitment

Another important aspect for getting the PET module was to be an attractive employer and create a good professional work environment at the nuclear medicine department. Currently they are receiving very good candidates for their open positions, and they believe it’s connected to them having the PET module in place.

“I think it is difficult to recruit doctors and chief physicians if you do not have PET. It will be a positive spiral where it will be more attractive to work here. A positive boost. Here we are building something up. It is more rewarding to be part of such a journey,” Mari Mjelde says.

It has been a very big and long process for them to get the PET module. Mjelde points out that a success criteria has been that they have had a good project plan from the start and that they have been involved in the process all the way.

“What has been particularly good is that we have been allowed to be involved in designing all the details of the module. Everything from window positioning, mirrors, hooks, shelves, we had a say in. It gives us an added ownership to the module. For example, external lighting was something we were concerned about in terms of well-being, and we got an extra window put in. There is generally little light in the X-ray departments around. For both patients and staff, it is good to get to a slightly different environment than long hospital corridors and dark basements.”

Mari Mjelde points out that a success criteria has been that they have had a good project plan from the start and that they have been involved in the process all the way.

Clinical benefits need to be communicated

The department started out with using the PET-CT for lung cancer and malignant melanoma. After easter they also started with brain scans, and other diagnoses are being looked into. According to Chief Physician for PET, Harald Grut, they can scan for almost everything, and now it’s important that fellow colleagues internally in the healthcare region know about it.

“We must have a good relationship with clinicians in the whole region and make them see the benefits of our offering. I have been in dialogue with clinicians at various hospitals in Vestre Viken and my impression is that many are enthusiastic about getting a local offer and to make use of the PET module,” Harald Grut says.

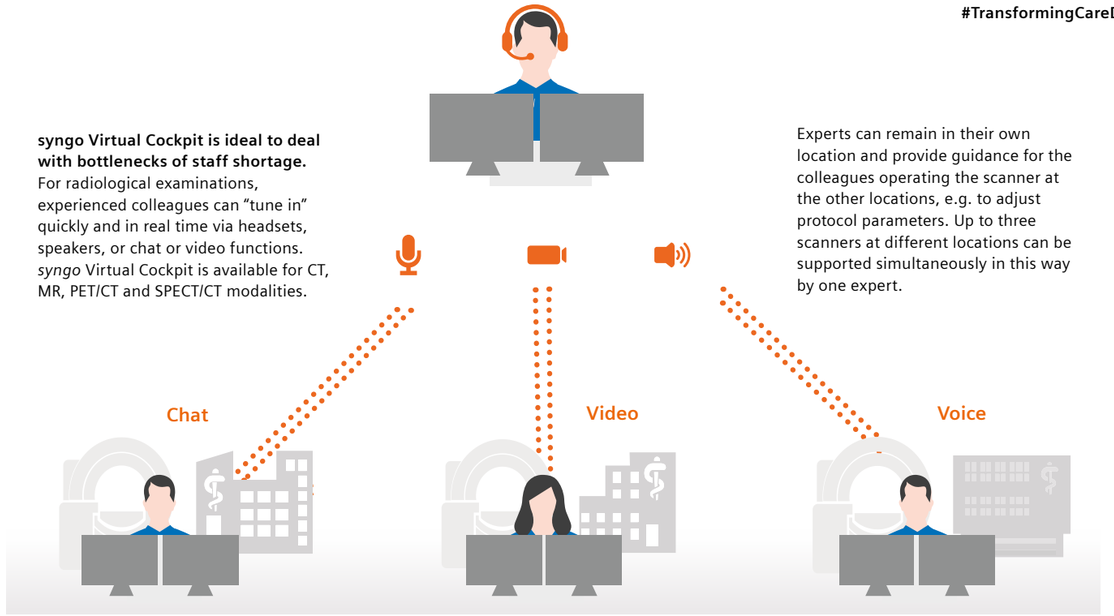
“...many are enthusiastic about getting a local offer...”

Harald Grut, Chief Physician, Nuclear Medicine Department, Vestre Viken Drammen

Remote Scanning – a new way of Doing Examinations

The Northern part of Sweden, a region characterized by large distances between cities and people, is a perfect geographical location to utilize the advantages of Siemens Healthineers *syngo* Virtual Cockpit software. Region Norrbotten can now share their radiological competence between hospitals without traveling. This new way of working is beneficial both for the environment, for patients, medical personnel and the whole population living in the region.

Photos by Ulrika Englund



syngo Virtual Cockpit is ideal to deal with bottlenecks of staff shortage. For radiological examinations, experienced colleagues can "tune in" quickly and in real time via headsets, speakers, or chat or video functions. *syngo* Virtual Cockpit is available for CT, MR, PET/CT and SPECT/CT modalities.

Experts can remain in their own location and provide guidance for the colleagues operating the scanner at the other locations, e.g. to adjust protocol parameters. Up to three scanners at different locations can be supported simultaneously in this way by one expert.

Kalix is a small city located in the northern part of Sweden in a region where people are used to travel long distances to gain access to healthcare. You might think that every hospital and radiology department should have an MRI scanner, but this was not the case in Kalix until just recently. Cost factors and lack of personnel who could operate a MRI scanner had put the investment on hold for a long time.

But now the new MRI scanner and virtual scanning software have actually reduced costs.

New virtual technique reduces travel for patients and personnel

Thanks to *syngo* Virtual Cockpit, a software from Siemens Healthineers, the scanner can be operated remotely, hence providing support for MRI examinations virtually. This ensures easier access to MRI examinations for patients in this large geographical area. Between the cities of Piteå and Kalix it is approximately 130 km one way, and it reduces traveling time for both patients and personnel.

Next Level met Julia Boqvist, Radiology Department Manager at Piteå Hospital. Julia is, together with Johanna Keskitalo and Olof Svedberg, MR-system administrator in Region Norrbotten. She has been highly involved and engaged in the implementation of the system.

"When we heard about this solution, *syngo* Virtual Cockpit, we immediately saw the advantages in our region. We will have four new scanners at different locations and with this solution we can support each other without time consuming travel," Julia says.

During the installation of the new MRI scanners experienced personnel could support installations, trainings and assist remotely during complex examinations independently on where they are located. They just connect remotely to the scanner and share screens, within seconds they can help and support each other.

"When we heard about syngo Virtual Cockpit, we immediately saw the advantages in our region."

Julia Boqvist, Radiology Department Manager, Piteå Hospital

The plan is to examine six patients a day using the new scanner in Kalix, about 1250 patients per year. In addition to patients avoiding unnecessarily long medical trips, the region saves at least SEK 700,000 per year. This new way of working is beneficial both for the environment, for patients, medical personnel and the whole population living in the region.

Shorter waiting lists to complex examinations

"Rare and challenging examinations, like complex heart exams, no longer needs to be performed at sites where the specific competence is located. Complex scans can be done at any site, at any time, with virtual support from experienced colleagues. Healthcare services are getting more accessible when patients don't need to travel long distances, and waiting lists are becoming shorter when support of advanced examinations can be done remotely," Julia says.

Installation even smoother than expected

The first two weeks after installation an on-site application training took place in Kalix. The staff became comfortable working with the system, and it was ensured everything worked properly. After the training, further assistance is just a phone call or a chat message away. In seconds personnel in Piteå can access the system remotely and support. Thanks to the virtual support a very smooth installation and implementation of the scanner in Kalix was secured, while personnel in Piteå still could continue their daily routine.

"The installation of the scanner and *syngo* Virtual Cockpit has run even smoother than we expected. Our staff are very positive, and it is so valuable that we don't need to travel as much!" Julia says.

Advantages during the pandemic

"The solution has been extra valuable during the pandemic when restrictions apply and travel should be avoided. Staff absence has been very high but thanks to *syngo* Virtual Cockpit we haven't been forced to cancel on patients. Bottlenecks have been avoided since we have been able to fill in remotely assisting personnel on site."

"We have also utilized *syngo* Virtual cockpit for developing examination methods and protocol optimization. A radiologist doesn't need to be on site but can connect remotely and help creating protocols. We can work together with protocol optimization, even if we are not physically at the scanner. Additionally, with teamplay Protocols we can distribute protocols to all scanners in the region via a centralized protocol management node," Julia Boqvist says.

Situations when you'll need to know about remote scanning:

1. During routine examinations. You can always call on a colleague.
2. In cases of rare or advanced examinations, a remote expert can assist in protocol adjustment via chat and voice.
3. Due to vacation periods, illness or nightshifts personnel from other sites can fill in remotely assisting personal on site.
4. For training and education of staff.

"By using an application on my desktop, the remote site can show me what they have done so far and I can adjust the scan parameters. I just take over the mouse and continue the work. This makes it easy to cooperate and it also speeds up the learning process - a key to utilize the system to its full potential and get up to full production speed."

Julia Boqvist, Radiology Department Manager, Piteå Hospital

Remote CT scanning for faster stroke diagnosis in northern Norway

In Northern Norway they are trying out remote CT scanning with *syngo* Virtual Cockpit at Finnsnes, with a special focus on getting faster treatment of stroke patients.

"We are having big issues with getting stroke patients quick enough into thrombolysis treatment since we need to do a CT of the patients first to rule out bleeding. The treatment needs to be given within 4,5 hours, and with the large travelling distances in Northern Norway, this is not really a treatment alternative for parts of the population currently. That's why we need to move the treatment offering closer to the patients," says Linn Hofsøy Steffensen at the University Hospital in Tromsø to the radiography magazine "Hold Pusten".

The pilot project using *syngo* Virtual Cockpit in acute patient care, will hopefully represent an alternative to moving all suspected stroke patients with helicopter to Tromsø.

Staff at the University Hospital in Tromsø will work remotely to assist the regional medical center in Finnsnes to scan acute cases with suspected stroke. In stroke treatment every minute counts. A CT scan of the patients can rule out bleeding at an early stage and thrombolysis treatment can be initiated quickly.

The Future in Hjørring is Designed From Visions and IT

More than 10 years ago, the Department of Clinical Biochemistry at the Regional Hospital Nordjylland, Hjørring, received their first automated laboratory solution. Since then, production has doubled and the solution has been expanded and replaced several times in order to keep up with the increasing production.

The department covers a large and sparsely populated area, and in the region it has been picked up that all practice samples are collected from the general practitioner, and transported un-centrifuged at 21 degrees in specially equipped cars. 45 percent of the analyzed samples are from practice, and come in 2 rounds. This provides a peak load the automation solution must be able to handle.

Complex data logistics

One of the tools to handle and be able to deliver a steadily increasing production is the implementation of IT. CentraLink was the software used in the first installation in 2002, and fortunately there are similarities between CentraLink and the current Atellica Data Manager (ADM).

"There are many systems connected and the complexity of the software makes it difficult to get an overview. But the coherence is also exactly what makes everyday life easier. The employees are getting better and better at using the functions and working with remote control of the Atellica screen, as well as utilizing more and more of the functions and possibilities that exist in the Data Management System (DMS), Atellica Data Manager (ADM) and Atellica Process Manager (APM)," says Function Responsible Biomedical Laboratory Scientist Helle Hyldgaard Schmidt.

"Atellica Process Manager gives us for example alarms if the reagent needs to be refilled. This makes it easier to plan the daily production."

"Complex and integrated IT solutions enable us to maintain the production we have today. There are many factors involved, both internal and external, and it can present some challenges in relation to agility, but that is probably the price of automation," adds Chief Physician Peter Hindersson.

"It is important for us that it`s a total solution that can function as both sorting and distribution facility and handle the process from A to Z."

Chief Physician Peter Hindersson

Function Responsible Biomedical Laboratory Scientist Helle Hyldgaard Schmidt and Specialist Biomedical Laboratory Scientist Jette Jonstrup in the laboratory.

Atellica Inventory Manager (AIN) keeps track of deliveries

Until now, the department has received quarterly deliveries that took a whole day to unpack and, in addition, had to be counted manually. With AIN, deliveries now come on an ongoing basis, and there is no need for counting. It provides a completely different and improved workflow, which, however, must be taken into account in the laboratory, as no specific days can be planned for unpacking.

In the hospital's Finance Department, they are also happy with AIN, as it is easier for them to follow the department's production compared to the purchase, when deliveries arrive on an ongoing basis.

More and more blood tests

In recent years, production has increased by 5-6 percent per year. One of the reasons is that it is most common to order a broad analysis package.

"There is no time to assess exactly which tests are needed, and the advantage of ordering only a few tests at a time is minimal," says Peter Hindersson.

In Hjørring, there is still capacity to cope with the increasing demand, but with an increase of as much as 9 percent this year, a plan must soon be made.

Region North Jutland's hospital, Hjørring's vision is: We believe that the road to a better life at the top of Denmark goes through 'new roads, new solutions - together'. This is completely in line with the journey the Clinical Biochemistry Department in Hjørring is on.

Chief Physician Peter Hindersson and Function Responsible Biomedical Laboratory Scientist Helle Hyldgaard Schmidt.

Specialist Biomedical Laboratory Scientist Jette Jonstrup is planning today's production.

The solution in the Clinical Biochemistry Section:

Aptio automation
Atellica Solution (SCCII)
Sysmex CS-5100 koagulation
Sysmex hematology

Atellica Diagnostics IT:
Atellica Process Manager (APM)
Atellica Data Manager (ADM)
Atellica Inventory Manager (AIN)

Virtual Technology Enhance the Delivery of Service and Support

With new virtual technology the delivery of services can be expedited in a highly efficient way. The new tool uses augmented reality visualization to enhance planned and corrective maintenance services, making sure experts can see and discuss issues in virtual cooperation.

Precision and speed are crucial in the Healthcare industry to deliver quality and timely patient outcomes.

SmartCollaborator is a technology that enables efficient expert collaboration via voice and merged video streaming. This can lead to faster and more efficient support in case of planned or corrective maintenance.

"Smart Collaboration takes remote service to the next level. Now we can see the same as the customer without being on site. Together with the customer we can find a solution and rapidly fix the issue. We can solve more issues and reduce the time spent on travelling. A great side effect is that it is also infection-reducing due to less physical contact," says Head of Customer Services Magne Dahlberg in Siemens Healthineers Norway.

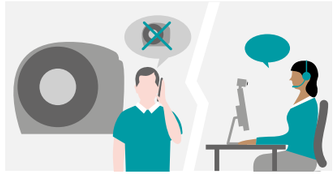
Virtual Interactive Presence (VIP) software makes it possible to merge two real-time video streams into one interaction. While one video stream is handled by an on-site engineer at the customer's site, the other one is handled by a remote expert, allowing the remote expert to virtually reach out and 'touch' what the engineer sees and is working on.

"The feedback I get from customers is that this tool is really ingenious and speeds up the process in a helpful way," says service engineer Andreas Vinnelrød.

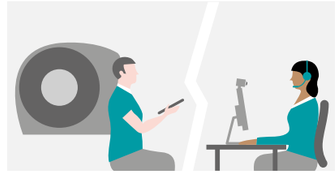
"Smart Collaboration takes remote service to the next level. Now we can see the same as the customer without being on site. Together with the customer we can find a solution and rapidly fix the issue. We can solve more issues and reduce the time spent on travelling."

Magne Dahlberg, Head of Customer Services,
Siemens Healthineers Norway

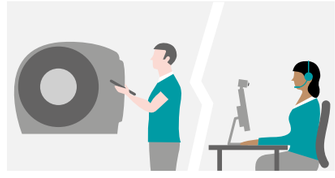
Augmented reality supported workflow:



Step 1 – Customer calls helpdesk
Siemens Healthineers Customer Care Center register a digital issue

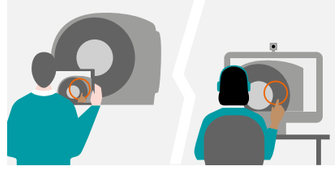


Step 2 – The cooperation starts
Service engineer is on-site and connects to Siemens Healthineers remote expert, leveraging the power of SmartCollaborator

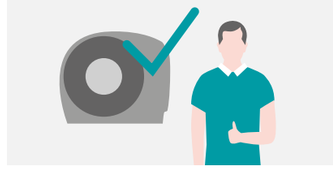


Step 3 – Quck description of issue
Service engineer uses SmartCollaborator to depict the issue to the remote expert

Step 4 – Merged Reality support
Remote expert sees what the service engineer sees and diagnoses the situation remotely and accurately – thanks to SmartCollaborator



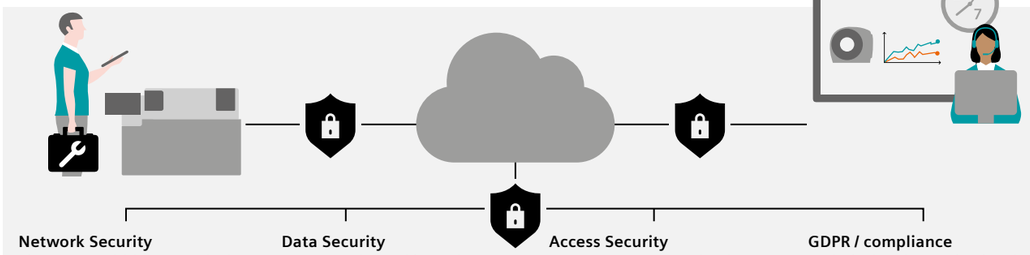
Step 5 – Merged Reality Outcome
Service engineer and remote expert collaborate to find a solution – using the Merged Reality features pointing, drawing, showing and talking



Step 6 – System up and running
Case resolved

Access to immediate help from experts ensure system uptime and reduce the time spent on repairs or application tasks. The equipment gets faster up and running for better utilization and time consumption to identify spareparts can also be reduced.

SmartCollaborator uses a secure cloud environment:



Network Security
Siemens Healthineers exclusive instance on AWS1 virtual private cloud, including security features.

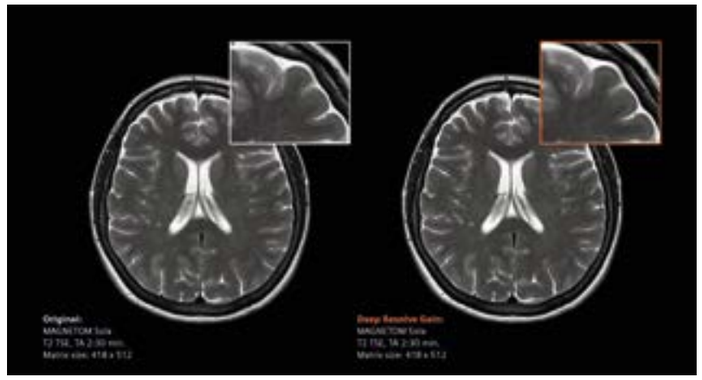
Data Security
Data security and integrity ensured by data encryption and multi-availability of database servers.

Access Security
Access to OEM2 production environment controlled via multi-factor authentication.

GDPR / compliance
Technical and organizational measures to assure GDPR3 requirements for data privacy.

Innovation & News

New AI-Powered MRI Image Reconstruction



Deep Resolve is an AI-powered image reconstruction technology that takes advantage of intelligent denoising and convolutional neural networks to generate high resolution images from low resolution input. Scans can be faster, boosting workflow efficiency while improving patient comfort.

Deep learning image reconstruction addresses some of the key challenges that MR departments are currently facing. Deep Resolve can simplify procedures and enhance accuracy throughout the entire MRI acquisition and processing chain to improve workflow and diagnostic impact

Acquiring sharper images, faster intelligent denoising and deep learning methods power Deep Resolve Gain and Deep Resolve Sharp technologies for sharper images acquired with faster scans. The convolutional neural network at the core of Deep Resolve Sharp was trained by comparing a vast amount of high- and low resolution data. Within the reconstruction pipeline, Deep Resolve Sharp generates a high-resolution image from low-resolution input. By including raw data in the reconstruction process, in combination with Deep Resolve Gain intelligent denoising, clinically robust results are achieved, with sharper images and higher SNR.

This could increases the accuracy of diagnosis and serves the goal of expanding precision medicine through digitalization.

Enabling efficient imaging

Deep learning image reconstruction addresses some of the key challenges that MR departments are currently facing. Deep Resolve can simplify procedures and enhance accuracy throughout the entire MRI acquisition and processing chain to improve workflow and diagnostic impact. Take a deep dive into Deep Resolve technologies and learn more about its clinical application.

MRI for Children - Book to order

Lottie is an adventurous little lamb. She loves to skateboard. But poor Lottie had an accident and may have broken her ankle. Now instead of leaping, she can only limp. Lottie is off to the hospital for an MRI scan. This engaging story explains to children what it's like to have an MRI scan in a way they can understand.

The book is available in English, Finnish and Danish. Scan the QR-kode to order the book.

Expediting the Diagnosis of Heart Attack with Atellica VTLi

The new Atellica VTLi analyzer provides lab standard, high-sensitivity cardiac troponin I test results to clinicians in eight minutes using a patient's fingerstick blood sample.

With this industry first technology, Siemens Healthineers is helping to improve the patient care paradigm with its disruptive technology, providing troponin results at the patient's side to help clinicians properly diagnose and treat heart attacks with confidence.

Globally, millions of patients present annually to the emergency room with symptoms that may be related to a heart attack. Fast triage for patients presenting with symptoms can help save lives. Clinicians primarily rely on the central laboratory for critical blood test results before they can make care decisions for their patients. This process can take an hour or more to get results.

The substantial reduction in turnaround time achieved when introducing the wireless, handheld Atellica VTLi analyzer may offer clinicians a fast pathway to help diagnose and treat their patients, helping to accelerate care, improve patient outcomes, and reduce the strain felt in overcrowded Emergency Departments.

"Healthcare providers has been waiting for a Point of Care high-sensitive troponin for more than a decade. Now the wait is over. Atellica VTLi is the first solution, that delivers a true high-sensitive troponin at the point-of-care with lab-comparable quality from a capillary blood sample, allowing for a fast assessment of chest pain patients."

Helle Schultz, POC Cardiac Franchise Lead Nordics and Baltics, Siemens Healthineers

World News on Weels in Oslo and Copenhagen

Rigshospitalet in Copenhagen and Rikshospitalet in Oslo have both started to use the first-of-its-kind mobile CT scanner for patients with severe brain injuries. It ensures faster and more gentle examinations and treatment.

Instead of moving the patient to the CT, the CT is transported to the patient. Here with Radiographer Stefanie Thomsen, the first super user of the SOMATOM on.site at Rigshospitalet in Copenhagen.

The mobile CT scanner can be transported to the patients at the Intensive Care Unit for Brain and Nerve Diseases, so that doctors more quickly and with greater certainty can diagnose the patient correctly and start treatment immediately. The new scanner has been specially developed to examine brain damage and vulnerable patients, to make sure they get a quick and gentle diagnosis and treatment.

Can save patients' lives and mobility

The scanner is to be used for intensive care patients with severe brain damage or following cerebral hemorrhage.

"Today, in the event of an urgent need for a CT scan for this type of patients, we are forced to move patients who can't withstand the slightest bumps or movements during transport because the pressure in the brain must be kept stable. It often requires a whole team of nurses and anesthetists to follow these patients when transported, so we can save resources by scanning them in the Intensive Care Unit," says Chief Physician in the Radiology Department at Rigshospitalet, Martin Lundsgaard Hansen.

It is usually a lengthy process for an anesthesia team to transport a patient with tubes and a respirator from the intensive care unit to the scanner in the radiology department and back again. The new CT scanner saves both patient time and professional resources.

With a mobile CT a new type of collaboration is required. Both radiographers and intensive care nurses are here present at the super user training at Oslo University Hospital Rikshospitalet.

"We often need to scan our patients several times during a hospital stay to understand why they have gotten worse and provide the right treatment. Now the patient do not need to leave the room and we can scan them exactly when the need arises. All we have to do is to take the headboard on the bed down and gently move the patient to the scanner," says Sigurður Þór Sigurðsson, Chief Physician in charge of intensive treatment of brain and nerve diseases at Rigshospitalet.

On average Rigshospitalet have six to seven patients a day from the intensive care unit needing a CT scan. Although it doesn`t sound much, it is crucial for these patients that Rigshospitalet now can offer the patiens additional security in the course of their treatment.
"It is exciting to take new equipment into use. There is involvement from many professional groups including doctors, radiographers, nurses and porters and we have a really good team spirit here at Rigshospitalet, collaborating for the best possible patient treatment," says Martin Lundsgaard Hansen.

A donut on wheels

The small CT scanner looks like a donut on wheels. It weighs almost a ton, but can be maneuvered surprisingly easily if you ask those who will be operating it.

A team of Radiographers from the Radiology Department is responsible for the new scanner. The first step is to train super users, who then pass on their competencies to colleagues.

"This way, the scanner can be used in the safest and most effective way by trained people," says Chief Radiographer and Team Leader at Rigshospitalet, Torben Kragelund.

Radiographer Stefanie Thomsen is the first super user of the mobile CT scanner.She is looking forward to learn more:

"I got the scanner as my area of responsibility, and it's really exciting. It is surprisingly easy to drive with, but in an intensive care unit there is not much space, so you have to maneuver it very precisely. At the same time, we must learn to operate all the new functions correctly, so it requires a little practice here in the beginning."

#CareDelivery

The Journey From Production to Clinical use

Since 1974, more than 55,555 Siemens Healthineers CT systems have been delivered to healthcare providers across the globe. The 55,555th scanner left Forchheim factory in November, bound for Stavanger, Norway. Stavanger University Hospital had ordered a SOMATOM Force, which is still the most powerful system in the market, scanning a human heart in less than half of a heartbeat.

In the factory

Lukas Kratz is an installer and tester in the CT factory in Forchheim: “We build devices that help people become or stay healthy. Today in particular, I think this task is extremely important and I enjoy my work. As testers, we have to quickly identify problems as well as making sure that they’re solved. I can honestly say that I’m working side by side with friends. This enables us to overcome every challenge.”

CT 55555 soon ready for transportation in the production hall. Siemens Healthineers produces more than one thousand CT systems a year at several sites around the globe.

On it`s way to the customer

For transportation and installation purposes the CT system is handed over to Geis Eurocargo. Experienced planners coordinate all tasks needed to ship the machines throughout the world.

Truckers guide their air-cushioned road trains along highways and local roads. Simone Voggenthaler is one such driver. Together with her boyfriend and colleague Günter, she transports CT scanners for Siemens Healthineers from Forchheim, Germany throughout Europe. She is driving scanner number 55,555 to Norway.

After arrival at the Norwegian harbor in Kristiansand, the truck is ready for another 4 hours up the winding roads to Stavanger, with wonderful views of ocean, mountains, and fjords along the way.

Arrival and installation

Radiographer Therese Svihus and radiologist Harald Haga is eager to get the new CT up and running. “For the staff, it will provide access to several new functions and improvements,” Svihus says. SOMATOM Force will perform cardiac, musculoskeletal, oncology scans and more.

It was a tight fit getting the CT inside, with only a four millimeters clearance. After a few days of installation, conducted a bit differently than usual due to COVID-19, Technician Felix Ladwig turned on the power together with Project Manager Roar Stensåsen (to the right).

Customer training and clinical use

Application Specialist Knut Botten Bjørklund travels around Norway with the goal of teaching the customer super-users all the cool and useful functionalities in their new CT scanners, making sure that they operate the scanner effectively.

The staff at Stavanger University Hospital sends their greetings to all the people involved in getting the CT ready for use.

Harald Haga og Therese Svihus with the CT 55,555 plaque.

Radiographer Keth-Mona Berg really likes the combination of using advanced imaging equipment and the contact with the patients: “It feels meaningful. Many of the patients have major health problems that require accurate and quick clarification.”

Jon Bjarne Leiknes has worked as a radiologist for more than 6 years:

“I like the detailed work and being a “detective” when it comes to interpreting images. This in combination with the research work I do, gives me a very meaningful everyday life.”

“The image quality on our new scanner is very good. I have always been fascinated by Flash images of the heart. The machine itself is modern and futuristic. It is quite cool to have an overview camera of where the patient is positioned.”

Virtual Product Presentations a new Normal in Ultrasound

The ultrasound team at the office in Espoo, Finland is preparing for a virtual demonstration of ultrasound systems. Driven by the pandemic, Siemens Healthineers has also been actively looking for new ways to work with customers.

Alongside traditional live visits, it initiated last autumn the opportunity to introduce ultrasound systems and their support services remotely. Globally, Finland were among the first to start virtual product presentations, and since then we have held numerous virtual meetings with customers.

"Because the concept is new, there was some prejudices about virtual presentations in the beginning. Fortunately, based on the feedback we have received from customers, we can say that we have managed to turn those prejudices around," says Mikko Härkin, sonographer in charge of ultrasound training for Siemens Healthineers in Finland.

Tailored to each customer

The systems in the ACUSON ultrasound product portfolio is on display in a studio built into the meeting room, as Mikko adjusts the cameras and software for the upcoming meeting. Also present in the room are Helena Peuralahti, who is responsible for ultrasound sales in Finland, and a test patient who will be involved in the virtual scanning session.

"Each virtual product presentation is tailored to the customer. We briefly present the entire portfolio and then focus on the device that meets customer's needs. In addition, we tell about our services that support ultrasound operations, which include e.g. remote services, system self-tests, teamplay equipment optimization and training concept. Finally, a live scan is performed on the test person," says Helena, shedding light on the content of the remote presentation.

Multi-professionals gathered

The upcoming customer meeting will focus more closely on ACUSON Sequoia. Helena contacts the customer through Teams. On the other side of the screen, medical physicists, radiologists, and people in charge of medical device maintenance, some of whom are already familiar, have gathered in the same room. During the presentation, the discussion gets at points lively.

"The surprising strength of virtual presentations has been the multi-professional team gathered at the client's end, which also serves as an internal discussion forum for them. This is a clear difference from traditional live meetings," says Helena Peuralahti.

We've noted that the discussion has intensified, and questions come in a variety of ways when users from different professional backgrounds are present. And it is certainly an advantage that the conversation is conducted in your own mother tongue. In real-time scanning, you can follow the ultrasound image displayed on the same screen, as well as the control panel, which helps to outline the practical workflow. The aim is to get as close as possible to the real scanning situation. At the same time, you can talk to the clinical application specialist doing the scan.

Real-time scanning demonstrates well the usability and workflow, and offers the possibility to experience the image quality. Mikko Härkin is here scanning a test-patient.

Mikko Härkin is currently introducing Sequoia's range of transducers to customers and showing, among other things, how selecting transducers by douple-tapping them, works.

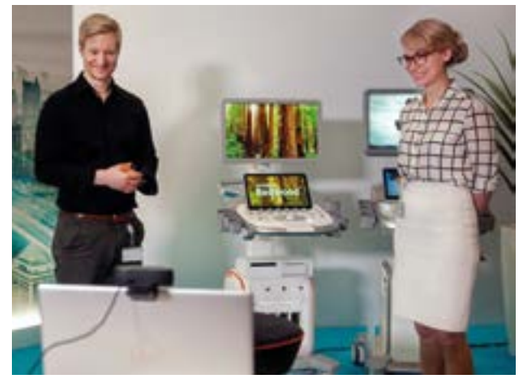
"This scan focused on the client's desire for the abdominal organs and thyroid imaging. In practice, the customer sees how easy the workflow is and gets a good idea of the image quality. We are able to virtually demonstrate usability well, but of course the traditional on-site demo allows clients to get to try out the systems and transducers themselves," says Mikko Härkin.

Virtual meetings in the future?

After the last questions, the virtual meeting ends and promises are made to get back on the subject.

So, will remote meetings be continued even after the pandemic?

"Of course, as needed. According to the feedback we have received, remote demos are a good addition to the traditional ones. Remote connections also support our green sustainability goals, which are certainly equally important to our customers. Siemens Healthineers has promised to be a carbon-neutral company by 2030," Helena concludes.



Helena Peuralahti and Mikko Härkin hosting a virtual product presentation of the new ACUSON ultrasound product family to customers gathered on the other side via Teams.

The Atellica DCA Analyzer is Diabetes Testing Evolved

Diabetes care is placing ever-growing demands on health systems. To keep pace with the mounting pressure to provide the best possible patient care, Siemens Healthineers introduces the new Atellica DCA Analyzer building upon one of the industry's most trusted technologies for diabetes testing.

Atellica DCA Analyzer is compact, portable, and fully customizable POC diabetes testing system that provides fast, lab-quality results for HbA1c in just 4 minutes and ACR in 7 minutes. It has been tested by the first customers in Finland and the feedback has been good.

"Our customers have experienced the new Atellica DCA to be fast, reliable, and easy to use," summarizes Product Specialist Päivi Mertaniemi after the first evaluations.

The new system is small but scalable, flexible but secure. Based on the feedback, the expectations that have been set for user experience, have been well met.

Freedom to optimize workflows

With Atellica DCA user can connect and operate up to three test modules with a single display and transmit results with secure connections for seamless data transmission to LIS/HIS/EHR systems. With a unique handheld, detachable display users can link patient IDs and access results from wherever needed.

"Customers like the new screen, which is easy to navigate. It provides good instructions with pictures for the various steps of performing the test," Päivi Mertaniemi explains.

This new feature adds to user experience and speeds-up workflow and patient treatment. Being compact and portable, it has a small foot-print and is light weight to meet demands of different clinical settings.

"Atellica DCA is also also more quiet and smaller in size than its predecessor, improvements that are convenient to users, especially, if working in a small room all day long," Päivi Mertaniemi describes.

Confidence in every result

Atellica DCA provides lab-quality results using technology with 30+ years of proven clinical reliability. Auto-checks technology ensures accurate sample processing and reliable results, and built-in risk mitigation features provide an audit-ready solution. Simple operation and intuitive UI decreases likelihood of operator error, improves user experience, and reduces training complexity.

"Our Finnish test-users found Atellica DCA to be reliable. Clinical performance got very good score points," highlights Päivi Mertaniemi. "Also, automatic calibration is a great improvement comparing to the previous analyzer," she adds.

Better patient outcomes

HbA1c results available in only 4 minutes and ACR results in 7 min ensure timely patient consultation and treatment path. Small sample size, sufficient sample hold time, and the ability to process hemolyzed samples mitigate pre-analytical errors and reduce patient discomfort from blood redraw. Built-in patient trend graphs complement patient consultations and aid clinical decision-making.

"Overall, the experiences about usability, reliability and clinical performance have been good, which is obviously a great advantage in a busy practice, giving the freedom to manage diabetes patients with ease, efficiency, and confidence," says Päivi Mertaniemi.

The new Atellica DCA will be available this summer.

"...the experiences about usability, reliability and clinical performance have been good"

Päivi Mertaniemi, Product Specialist, Siemens Healthineers, Finland

Matti Niemelä is a cardiology specialist and has performed robot-assisted PCI procedures at Oulu University Hospital. With the Corindus-robot the doctor do not have to be next to the patient, but can be more distant in a different room.

First Experiences With Robot Assisted Coronary Interventions in Finland and Sweden

Södersjukhuset in Stockholm and Oulu University Hospital in Finland's were the first hospitals in the northern Europe to try out robot assisted coronary intervention. The results so far is that the technology provides a better working environment with less radiation and higher precision in the procedures.

During coronary angiography of patients with suspected coronary stenosis a catheter is inserted into the vascular system to the heart with an image guided angiography system. A Contrast fluid is injected into the bloodstream and any constrictions in the heart become visible on a monitor. In balloon dilation and stenting, commonly referred to as a PCI, of narrowed coronary arteries, the operator normally stands next to the patient and controls the instruments by hand. In the case of robot-assisted PCI, the instruments are attached to a robot arm and the operator can sit in a room and control the instruments with joysticks.

The technology with robot-assisted PCI is already established in the USA and Germany was the first country in Europe. The main advantage using robot technology is a reduction in exposure to radiation during the procedure, which is important to the interventional cardiologists that are otherwise exposed to the most ionizing radiation.

"The biggest benefit of using a robot for us is the reduction of radiation exposure of both doctors and nurses. Because heavy lead vests are not needed and the doctor can work from his or her seat, well-being at work and endurance also improve," says Matti Niemelä, a specialist in internal medicine and cardiology who has performed robot-assisted balloon expansion procedures at Oulu University Hospital.

Also at Södersjukhuset in Stockholm they see less radiation as the biggest advantage.

"I do not have to wear a heavy lead apron and lead glasses. The working position becomes more comfortable, which in the long run can contribute to less wear and tear on the body, says Ulf Jensen in a interview to the Swedish health magazine "Dagens Medicin".

Niemelä in Finland also considers it an advantage that through the help of robotics, the cardiologists are able to position the catheter with millimeter prescision. The robot technology has a built-in function to measure the length of the constrictions.

"Possibly this can contribute to reduced risk of recurrence of coronary heart disease for patients, says Ulf Jensen at Södersjukhuset.

Taught the best techniques

An other advantage is that the robot's algorithms make the work more standardized and can reduce variations.

"The robot has been taught the techniques of the world's best cardiologists. It could be said that a cardiologist who performs robot assisted PCI procedures has the help of the best hands in the world," says Pasi Loukiainen, CEO of EPS Vascular Finland, that together with Siemens Healthineers launched Corindus robot in Finland.

The use of the Corindus robot in Finland began with PCI procedures, but the device is also being developed for use in cerebrovascular procedures. Globally there has been performed robot-assisted stenting of the carotid artery and treatments for cerebral artery aneurysm, or cerebral artery bulge. In the future, robot-assisted thrombectomy, mechanical removal of cerebral artery occlusion, may also be possible.

In Finland, cardiac patients are treated in 23 hospitals, but only five university hospitals treat patients with cerebrovascular disorders. More use of remote robot-assisting, would make the expertise of the university hospitals available to other hospitals.

"It is an interesting idea that hospitals, in cooperation with the university hospitals, could treat patients robotically remotely. Time is a critical factor in the treatment of cerebrovascular disorders. The sooner a patient is treated, the better the prognosis is for recovery. If it is possible to prevent paralysis and if the patient recovers completely on his own, it is a big saving for society as well," says Matti Isokangas, Oulu University Hospital's Deputy Chief Physician of Neurointerventional Radiology.

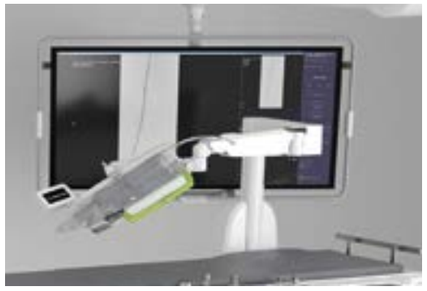
"In the future, access to treatment will be accelerated throughout Finland with use of technology such as this. And I am sure this will give significant societal benefits and savings."

Pasi Loukiainen, CEO, EPS Vascular Finland

He believes that this form of telecare could be one option when developing the speed of access to treatment for patients with cerebrovascular disorders. It also comes with another benefit according to Isokangas.

"In addition to availability to new technology, hospitals also need specially trained staff and 24/7 care readiness. This is an even bigger issue than technology itself. A remote solution will obviously give more flexibility," he says.

Pasi Loukiainen, CEO of EPS Vascular Finland, also believes that telecare is the future, and the Corindus device offers good opportunities for that.



The Corindus CorPath GRX System is designed toprovide procedural control, robotic precision, radiation protection, and intuitive workflow for interventional coronary and vascular procedures.

Siemens Healthineers AG (listed in Frankfurt, Germany: SHL) is shaping the future of Healthcare. As a leading medical technology company headquartered in Erlangen, Germany, Siemens Healthineers enables healthcare providers worldwide through its regional companies to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, improving the patient experience, and digitalizing healthcare.

Siemens Healthineers is continuously developing its product and service portfolio, with AI-supported applications and digital offerings that play an increasingly important role in the next generation of medical technology. These new applications will enhance the company's foundation in in-vitro diagnostic, image-guided therapy, and in-vivo diagnostics. Siemens Healthineers also provides a range of services and solutions to enhance healthcare providers' ability to provide high-quality, efficient care to patients.

In the Nordic and Baltic countries Siemens Healthineers has sales and service personnel close to our local customers. With approx. 550 employees across the region, we strive to be a trusted partner for healthcare providers, with in-depth knowledge on their specific challenges and opportunities.

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The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital or laboratory and many variables exist (e.g., hospital size, samples mix, case mix, level of IT and/orautomation adoption) there can be no guarantee that other customers will achieve the same results.

The products/features mentioned herein may not commercially available in all countries. Their future availability cannot be guaranteed.

Next Level
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Front page picture
Julia Boqvist,Radiology Department Manager, Piteå Hospital is working with remote scanning together with colleagues in Region Norrbotten.