


Proven Outcomes in Digital Mammography

Our strongest argument: Satisfied customers

SIEMENS
medical

Practical Experience with MAMMOMAT *Novation*^{DR}
Satisfied customers all around the globe

Siemens Medical Solutions has been a leader in mammography solutions for more than 30 years. Several thousand installed MAMMOMAT systems worldwide are proof positive of high customer satisfaction and industry-leading innovation.

Flagship of our breast care product range is the all-digital MAMMOMAT® *Novation*^{DR}, which offers full-field digital mammography (FFDM), digital spot imaging, and digital imaging-based stereotactic biopsy – all in one unit.

We could spend pages in numerating all the advantages our MAMMOMAT *Novation*^{DR} offers and the benefits it could bring to your hospital. But no argument could ever be stronger than the arguments of our satisfied customers all around the globe.

This is why we let them speak for us.

Solutions in Digital

Proven Outcomes. This is what Siemens is helping to deliver right now. Outcomes that result from truly efficient workflow. Outcomes that improve your bottom line. Outcomes that lead to a level of care that feels exceptional to the patient and the care provider. Proof positive of the value of integrating medical technology, IT, management consulting and services. In a way that only Siemens can.

Mammography

Dr. John F. Nelson, Medical Director of Battlefield Imaging, Ringgold, Georgia, USA

"Up to 70% of our patients reported that MAMMOMAT *Novation*[DR] is more comfortable than other systems."

Battlefield Imaging, Georgia, USA

Battlefield Imaging in Georgia, USA, opened October 2004 with the goal of providing the finest diagnostic imaging to all residents in Northern Georgia.

In realizing its mission to continuously enhance patient care, the Battlefield Imaging Auxiliary Breast Center was opened. This comprehensive center offers advanced services for breast care and provides diagnostic services, such as screening and diagnostic digital mammography, ultrasound, MRI, and PET/CT to help diagnose and stage breast cancer in its earliest and most treatable stages. The Breast Care Center incorporates a women's private area where she can relax in a special patient-friendly environment. This offers women the necessary feeling of privacy and security that a sensitive mammography examination demands.

Battlefield Imaging's Auxiliary Breast Care Center is equipped with the latest all-digital mammography technology – the heart of which is Siemens' MAMMOMAT *Novation*^{DR}.

Battlefield Imaging

Practical Experience with MAMMOMAT *Novation*^{DR}

Battlefield Imaging, Georgia, USA

Fast

"In 2004, we were looking for a digital mammography system that offered high image quality, fast amortization, and advanced workflow features. We found the MAMMOMAT *Novation*^{DR} was the best system to meet these requirements – and much more. With its unique pivoting bucky, the MAMMOMAT *Novation*^{DR} can perform digital mammography, digital spot imaging, and digital imaging-based stereotactic biopsy. Its large digital plate facilitates more precise imaging of large breasts and a specially designed compression plate enables central isocentric breast positioning – making full use of the large detector."

Better visualization of microcalcifications

"We also found that the system works extremely well for patients with dense breasts. There was a lot of concern early on that, because of digital mammography's limited spatial resolution, calcifications might be difficult to image on digital systems. I found the opposite to be true. In women with dense breasts, I find that calcifications are actually much easier to see with your digital system."

Optimized workflow with a fast system

"Another major benefit we noticed is that MAMMOMAT *Novation*^{DR} has significantly accelerated our workflow. We average about 1 complete case every 8 minutes and schedule patients every 15 minutes – all on the same system.

Once the image is acquired, we can countercheck it on the Acquisition Workstation. From there, it is automatically sent to the *syngo* MammoReport breast care workplace, which offers two 5-megapixel monitors specially suited for reading and reporting mammograms. From that point, you have a couple of choices. If you have a RIS driven system, the RIS will drive the mammograms and they will come up one at a time. If you prefer, you can batch load up to 10 studies at a time. Once they are selected, you can load them into the *syngo* MammoReport almost instantaneously and file them through by the click of a button."

Amortization

Excellent magnification capabilities for reduced retakes

"Our image retake rate is only about 20% of what it used to be, particularly in regards to magnification. You have full-field magnification capabilities on every image. Thus, you rarely need to bring back patients for magnification views. If they come back, it is for ultrasound studies, not for additional mammographies. *syngo* MammoReport has a lot of post-processing tools we really appreciate and it also features CAD*, which makes our work faster and safer."

Comfortable examinations for patient-oriented mammography

"From a patient perspective, the other big advantage is that I can immediately sit down with the patient at the *syngo* MammoReport and go over her study. This leaves the patients with a sense that their mammograms have been thoroughly evaluated. Concerning the examination itself, up to 70% of our patients reported that MAMMOMAT *Novation*^{DR} is more comfortable than other systems. This is an important fact that encourages our patients to keep their appointments on a regular basis."

Summary

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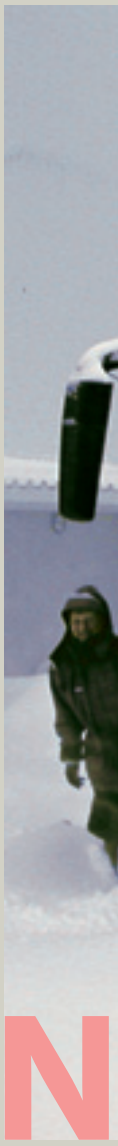
Dr. John F. Nelson, Medical Director of Battlefield Imaging, Ringgold, Georgia, USA

** Computer Aided Detection*

Dr. Nils Bjurstam, Director of Center for Breast Imaging, University Hospital North Norway, Tromsø, Norway

"We found that with your MAMMOMAT *Novation*[DR] digital system you can detect more cancers than with film."



University Hospital

orth Norway

University Hospital North Norway, Tromsø, Norway

The University Hospital North Norway is located at 70 degrees north and is the northernmost university hospital in the world! It employs 4500 people and offers a total of 727 beds. The core functions of the hospital are patient treatment, education, and research. Their aim is to be among the best in the world in a number of areas. One of them is the dedicated field of women's health, where Dr. Nils Bjurstam, Director of the Center for Breast Imaging and Chairman of the Advisory Board of the Norwegian Screening Program, issued a number of important breast cancer studies. Among others, these studies paved the way to a dedicated screening program that has been adopted by many other European countries.

Practical Experience with MAMMOMAT *Novation*^{DR}
University Hospital North Norway, Tromsø, Norway

"Our country is divided into 5 health regions with 18 breast screening centers that all communicate and interact with the cancer registry in Oslo. Three of them are now working with digital mammography systems.

Our facility was opened in May 2000. Meanwhile, we are fully digital and are equipped with one Siemens MAMMOMAT *Novation*^{DR} FFDM system for screening and one MAMMOMAT 3000 with CR reader for diagnostic cases. Also, to screen women living in the most remote areas, an analog MAMMOMAT 3000 is installed in a bus. Altogether, we screen an average of 11,000 women per year. If a mammography shows that there is a need for additional examinations, such as a supplementary mammography, ultrasound and, if needed, needle biopsy, we do this on the same day in our screening center."

Reducing the mortality rate with mammography screening

"In the 1980s, I was leading the Gothenburg Study in Sweden, which, together with other studies, formed the basis for worldwide screening activities. A randomized trial divided the female population of Gothenburg into two groups. One received regular mammography examinations for a certain period of time. After several years it became evident that there was a definitively higher breast cancer death rate in the uncontrolled group. This was the first study which showed a significant reduction in breast cancer mortality in a randomized trial with women aged 39–49. Years later, we at Tromsø took part in the Screen-Trial, which paved the way for digital screening in Europe. Having analog and digital mammography systems, we are in the lucky position of continuously studying the results of both technologies. And our preliminary findings show that you can detect more cancers with the MAMMOMAT *Novation*^{DR} digital system than with film."

Siemens MAMMOMAT on tour

"As our county has a very difficult geography, hard weather conditions, and difficult traveling prerequisites, we send our MAMMOMAT 3000 by bus to all the remote areas. Our screening program has an acceptance of 82 %. This means that 82 % of all invited women come to have their screening mammography with the Siemens systems."

Digital technology helps to detect more cancers

"My experience is that image quality with your full-field digital mammography system is better than with analog, and also better than with CR. When we got our Siemens MAMMOMAT 3000 with CR reader years ago, we thought this was the gold standard and the best image quality possible. But now we feel that your direct digital technology is better.

Our main task is to find as many cancers as possible at an early stage. This is more accurate with your digital system and all the tools that the *syngo* MammoReport breast care workplace offers. However, compared to analog, the system is not automatically faster for the reading process, but it provides more information."

Large
Detector F

Higher predictive value with Siemens

"The predictive value shows how many of the recalled women really have cancer. And this is very good with your system. This means that the amount of women needlessly recalled could be reduced, keeping unnecessary anxiety away from our patients."

MAMMOMAT *Novation*^{DR} meets today's requirements

"A big advantage of the MAMMOMAT *Novation*^{DR} is the large detector format. In the rural areas of Norway, we are really dependant on a large detector that can fully display large breasts. In our opinion, smaller detectors are out of the question. Also, patient comfort has increased even further. Women feel that the new compression plates with round edges are much more comfortable.

Not having to mess around with cassettes or CR plates and not having to look for films in huge archives is another advantage of direct digital technology. We think that direct digital mammography is the technology of the future. Although there is still a lot to learn and we are just at the beginning."

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Summary

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Dr. Nils Bjurstam, Director of Center for Breast Imaging, University Hospital North Norway, Tromsø, Norway

Dr. Jan Ole Frantzen, Senior Radiologist at University Hospital North Norway, Tromsø, Norway

Brynjar Moback, Chief Technologist at University Hospital North Norway, Tromsø, Norway

Radi
Prof.

Prof. Dr. Detlev Uhlenbrock, Radiologische Gemeinschaftspraxis Prof. Dr. Uhlenbrock & Partner, St. Josefs Hospital, Dortmund, Germany

"MAMMOMAT *Novation*[DR] integrates perfectly into our PACS environment."

Radiologische Gemeinschaftspraxis (Radiology Practice)
Prof. Dr. Uhlenbrock & Partner, Dortmund, Germany

The Radiology Practice of Prof. Dr. Uhlenbrock & Partner is a dedicated radiology and radiotherapeutic clinic located at the St. Josefs Hospital in Dortmund, Germany. The practice was founded in 1993. Today, it has a total of 48 employees and covers the complete range of in-patient medical care for all radiological services. One major focus of the clinic is to provide the finest breast care possible with all relevant modalities, such as MRI, PET, ultrasound, and mammography. Thus, it has also become the screening facility for the entire Dortmund-Hagen area. Prof. Dr. Uhlenbrock was one of the first customers worldwide to work with our all-digital MAMMOMAT *Novation*^{DR} mammography system. The practice experienced a significant improvement in workflow and reliability, leading them to purchase a second system in 2004.

ologische Gemeinschaftspraxis
Dr. Uhlenbrock & Partner

Practical Experience with MAMMOMAT *Novation*[DR]

Radiologische Gemeinschaftspraxis Prof. Dr. Uhlenbrock & Partner, Dortmund, Germany

"The decision to change to digital technology in mammography was never a big discussion. From the very beginning, I was convinced this technology offers far better image quality. Dense breast tissue can be differentiated a lot easier. The diagnosis of breast border, skin, and subcutaneous fat tissue is facilitated with your digital technology and the image contrast for the detection of microcalcifications has improved tremendously."

Important information always at your fingertips

"Another important factor was to have all information, including previous exams, always available at our fingertips. Digital technology and digital archiving makes this possible and MAMMOMAT *Novation*[DR] integrates perfectly into our PACS environment. Being digital for two years now really shows us the advantages of having previous exams at our disposal. *syngo* MammoReport can handle this without any problems, no matter how many mammograms you want to look at."

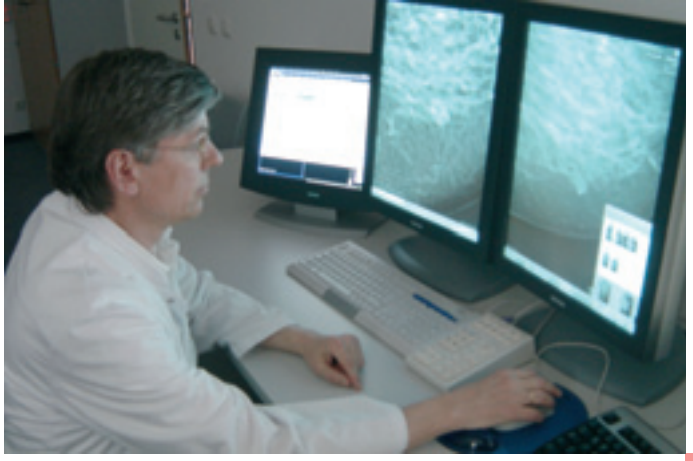
Reporting with exceptional benefits

"I especially appreciate working with the *syngo* MammoReport breast care workplace. This workstation offers unique processing tools that cannot be found in this form in other breast care workplaces. I can, among other things, set markers, point out regions of interest, write reports and the system offers classification according to BiRads. Apart from that, every doctor can configure his own course of evaluating the mammograms. *syngo* MammoReport is always up and running, we have experienced virtually no downtimes. Apart from that, *syngo* MammoReport fulfills all screening prerequisites. This is also very important to us."

Siemens offers comprehensive advantages with *syngo*

"Only Siemens can offer the advantage of *syngo*, the unique user interface for all imaging modalities. *syngo* offers easy and intuitive use which is consistent for all systems and makes them easy and fast to operate. We like having the same user philosophy behind every system. Compared to other suppliers, Siemens' service is always available when needed. We see Siemens as our partner who involves us in new innovations and also listens to suggestions that we, as a user, might have."

Perfect IT Inte



Patients, MTRAs, and other mammography facilities acknowledge advantages of Siemens MAMMOMAT *Novation*^{DR}

"Elderly women are often afraid of a mammography examination as in the past this was associated with an uncomfortable feeling during compression. Now, these women are really amazed by how painless mammography has become with the new system. Opcomp®, a feature which automatically regulates compression to a necessary minimum, saves women from needless pain and immediately activates decompression once the image has been taken. X-ray exposure has been reduced to an absolute minimum with MAMMOMAT *Novation*^{DR}. We also receive very good feedback on the quality of our images. Not only from doctors that have transferred their patients for a mammogram, but also from our patients, as this gives them the feeling of being professionally and thoroughly examined."

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Summary

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Dr. Joseph Stines,
Chief Radiologist,
Centre Alexis Vautrin,
Vandoeuvre-les-Nancy
Cedex, France

"With using Tungsten only, you always get brilliant images at lower dose – especially when examining large and dense breasts."

Centre Alexis Vautrin

Centre Alexis Vautrin,
Vandoeuvre-les-Nancy Cedex, France

The Centre Alexis Vautrin was started in 1925 and is located halfway between the University Hospital and the Faculty of Medicine in Nancy. It has a capacity of 173 beds and has approximately 600 employees. One of 20 oncology centers in France, Centre Alexis Vautrin develops research programs in a number of areas and contributes greatly to education and training in oncology for the entire Lorraine region. Equipped with facilities and equipment of the highest standard, it also hosts Siemens' MAMMOMAT *Novation*^{DR} full-field digital mammography system.

Practical Experience with MAMMOMAT *Novation*^{DR}

Centre Alexis Vautrin, Vandoeuvre-les-Nancy Cedex, France

"We at the Centre Alexis Vautrin offer dedicated oncology care for the Lorraine region. We also have a special department for breast cancer, where we do MRI, ultrasound, and biopsies as well as mammography with dedicated Siemens systems. Although we also perform screenings, our main focus is clear and reliable breast care diagnosis. We examine 600 new breast cancer patients a year and thus are very dependant on reliable and up-to-date system technology."

Among the first to become digital in France

"Personally, I was always very convinced that digital mammography was the technology of the future. By the time we decided to buy a CR, only few full-field digital mammography systems were available on the market. The ones available at that time did not meet our requirements as they had small detectors and the pixel size was too large to perform a clear diagnosis. When you are looking for microcalcifications, you are looking for something with a size of approximately 100 µm to 300 µm. Therefore, you really need a smaller pixel portrayal. When we finally went direct-digital, it was with Siemens' MAMMOMAT *Novation*^{DR}, together with Siemens' *syngo* MammoReport breast care workplace."

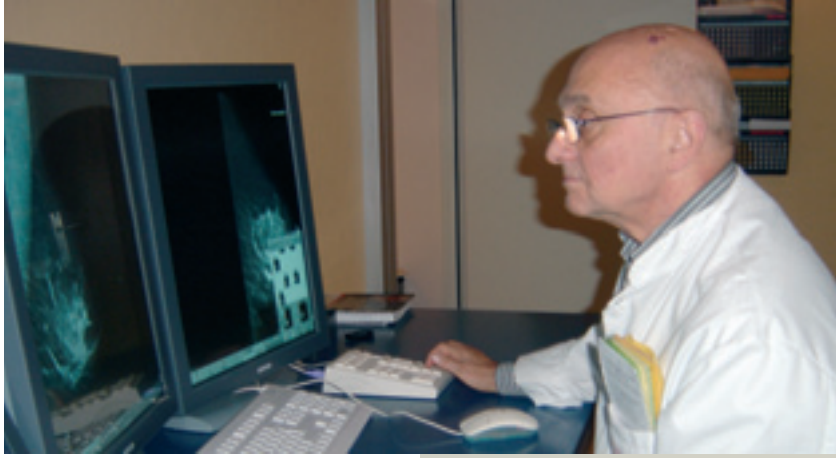
Digital technology provides clear diagnosis

"Digital technology really has a number of advantages. In contrast to analog mammography, your images are typically of the same high quality. This makes them easy to compare. With *syngo* MammoReport, you display them on big 5-megapixel monitors. With spot magnification, the resolution of the MAMMOMAT *Novation*^{DR} images is extremely good. I have no doubt that if we use digital and CAD, we will be much better with your system. Therefore, the whole process of reading and reporting is less exhausting."

Better image quality and reduced dose is a benefit for the patient and the doctor

"We appreciate Siemens' dual target X-ray tube on the MAMMOMAT *Novation*^{DR}. It offers three anode/filter combinations: Mo/Mo, Mo/Rh, W/Rh to examine different breast sizes and densities individually. We found out, however, that with using Tungsten only, you get brilliant images at lower dose – especially when examining large and dense breasts."

High Resolu



Workflow advantages for doctors and technologists

"Workflow is a very important issue these days. Here at the Centre Alexis Vautrin, it is not as crucial as it might be in a pure screening environment. Although, it is a huge benefit to have the images always available without any important information being lost. Diagnosing on the *syngo* MammoReport monitors is easier, more convenient, and less exhausting than doing it on film. Not having to mess around with cassettes and printers also makes our daily work much faster."

syngo user interface: easy to learn

"I am new at the Centre Alexis Vautrin and just finished my training as an MTRA. I had no problems working with MAMMOMAT *Novation*^{DR} as handling the system is very easy. I also very quickly learned Siemens' unique *syngo* user interface."

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Summary

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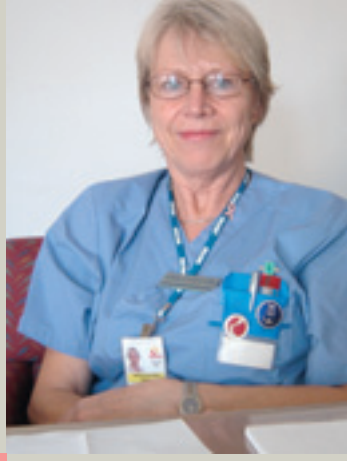
Xavier Galus, Chief Technologist, Centre Alexis Vautrin, Vandoeuvre-les-Nancy Cedex, France

Sandra Perovic, MTRA, Centre Alexis Vautrin, Vandoeuvre-les-Nancy Cedex, France

Malmö

Dr. Ingvar Andersson, Chief Radiologist, Malmö University Hospital (UMAS), Malmö, Sweden

"The image quality with MAMMOMAT *Novation*[DR] is so good that I can do high volume reading of screening images with less effort than before."



University Hospital

Malmö University Hospital, Malmö, Sweden

Malmö University Hospital (UMAS) provides both basic and highly specialized medical care for 270,000 Malmö inhabitants and the entire "Södra sjukvårdsregionen", which is the southern healthcare region of Sweden. It is a world leader in several fields and employs 7,000 people. One important field is breast cancer screening, diagnosis, and treatment, where UMAS and its Diagnostic Center form a multidisciplinary team together with Surgery, Cyto-Pathology, and Oncology. As a fully digital facility, the Diagnostic Center is working with three Siemens MAMMOMAT *Novation*^{DR} digital mammography systems and two *syngo* MammoReport breast care workplaces. The center also uses Siemens MRI and ultrasound technology.

Practical Experience with MAMMOMAT *Novation*^{DR}
Malmö University Hospital, Malmö, Sweden

"In our facility, we use two MAMMOMAT *Novation*^{DR} for screening and one for diagnostic work. We are a high volume screening site with currently 14,000 screening examinations per year. In addition, we read another 5,000 screening mammograms from neighboring hospitals. Also, we do about 4,000 symptomatic patients. In order to cope with higher screening volumes, we even plan to increase our throughput to 17,000 examinations on an annual basis. We have several experienced radiologists who have specialized in the field of breast imaging."

Fully digital is also good for the environment

"The relocation of our mammography department to a new building represented the starting date for our work to be fully digital. We see a lot of advantages in working digital. Apart from an increased efficiency in our workflow, the other important issue for us was the environmental aspect. We did not want to have processing chemistry in our new building. One of the reasons why we decided to buy your digital MAMMOMAT *Novation*^{DR} was the very good experience we already had with the Siemens MAMMOMAT 3000 analog system."

Excellent image quality

"In my opinion, image quality with your digital mammography system is very good. The selenium detector has certain advantages, e.g. a high DQE (Detective Quantum Efficiency)*, and the image processing allows the entire breast including skin and axilla to be seen very clearly. We also like the big size of the detector, as almost all breast sizes fit onto it and we don't need to take additional images. Compared to analog, high volume reading with your *syngo* MammoReport breast care workplace is less tiring. All in all I believe that your digital technology will help us detect more cancers than before."

Image Qua

Potential to reduce dose significantly

"Dose is always a very important issue in mammography and that is why we use Tungsten/Rhodium as the anode/filter combination for all breast sizes. Ongoing experimental studies in our institution indicate that the dose can be reduced from the currently recommended level. In our first experiments, we reduced the absorbed dose to 50% and 30% of the clinical levels. And we could show that there was no significant change in the detection of masses by increasing quantum noise."

A lot of dedicated features speed up workflow

"My favorite design feature of the MAMMOMAT *Novation*^{DR} is its ergonomics. Handling the system is very easy. We can also use the Opdima® stereotactic device, which we had bought for use with our older analog MAMMOMAT 3000 unit. I also like the immediate availability of the images. The *syngo* user interface, as well as the whole system, is easy to learn and operate."

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Dr. Ingvar Andersson, Chief Radiologist, UMAS, Malmö, Sweden

Ann-Christin Persson, Senior Nurse, UMAS, Malmö, Sweden

* *DQE = Detective Quantum Efficiency; measures the efficiency of the detection process of an image detector given by squared ratio of the output signal-to-noise ratio to the input signal-to-noise ratio*

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