



Making sense:

Business intelligence turns data into usable information for value-based care at Dutch university hospital

Maastricht UMC+ deploys Agfa HealthCare's BI solution to gain insight and to optimize decision-making across departments

Case study Maastricht University Medical Center+,
Maastricht, the Netherlands

AGFA 
HealthCare

Interview

INTERVIEWEE: JACQUES PLEUMEEEKERS

Staff Advisor, Radiology and Nuclear Medicine

When Maastricht University Medical Center+, also known as Maastricht UMC+, selected a new RIS/PACS to cover the activities of both its radiology and nuclear medicine departments, business intelligence (BI) was high on the list of priorities from the start. Jacques Pleumeekers, Staff Advisor, Radiology and Nuclear Medicine at the hospital, explains: “We not only wanted an excellent solution to manage our imaging data, but one that would also help us improve our administrative processes such as reporting of exams and billing, as well as our overall quality and efficiency” – all key characteristics of a value-based care organization. While the hospital’s existing system could generate a few business intelligence reports, such as the number of exams performed in a specific room or requested by a certain department, it was very cumbersome.

“We couldn’t see where the data originated, or if it was correct,” specifies Mr. Pleumeekers.

The hospital found its answer in Agfa HealthCare’s RIS/PACS and BI solution.

“The BI solution helps us to optimize our workflow, make more efficient use of our resources, every day, and achieve our KPIs.”

— Jacques Pleumeekers, Staff Advisor Radiology





CUSTOMIZABLE REPORTS: “THE BI SOLUTION MAKES IT EASY TO TAILOR REPORTS”

The RIS/PACS and BI solution were deployed simultaneously, and the hospital took a systematic approach to migrating data from the previous system. Mr. Pleumeekers summarizes: “We were aware that the performance of the BI solution would depend heavily on the quality of data in our system, so we were committed to ensuring good data when we set up the system. We carefully tested the BI solution by running statistics using migrated data, and then checking if this data was correct and comparable to the data in the old RIS and reporting module. We quickly saw that in fact these results were excellent!”

“The flexibility to create customized reports is critical,” he adds. “We usually want to investigate more than one parameter, and with the solution it is very practical to create our own reports. The BI solution makes it easy to tailor the reports to exactly the information we need.”

PROCESS QUALITY: “WE CAN IMPROVE PROCESSES AND ENHANCE OUR EFFICIENCY”

The BI solution creates both regular and occasional business intelligence reports for the hospital. “We have 30-40 daily reports that are now run automatically, giving us perfect insight into production, whether in relation to the physician’s request, or to how many exams have been performed in each room, at what time, etc.,” Mr. Pleumeekers explains. “We monitor how long a patient spends in the waiting room, how long it takes before a report is available and validated, how many no-shows there are, and similar indicators. This helps us to optimize our workflow, make more efficient use of our resources every day, and achieve our KPIs, e.g. related to turnaround time and correct billing.”

Radiologists now receive an email each morning with their agenda for the day, such as when they have exams or consultations and what time they need to be in the exam room to prepare. “We also monitor the reporting activities of the radiologists, including the backlog, so we can adjust planning and add staff if necessary to clear any bottlenecks, while the radiologists find they can better handle their tasks thanks to the improved balance of the workload,” explains Mr. Pleumeekers.

Ad hoc reports from the BI solution are used to monitor and enhance the quality of the department’s imaging processes. “Often, this is initiated by our quality control manager. So we might evaluate reporting processes, such as for hybrid exams involving both a nuclear medicine physician and a radiologist. Based on the data, we can improve processes and – importantly – follow up on our progress, to enhance our efficiency,” he continues.



“Before, it took three days to a week for reports with findings to be distributed; now we rarely have a backlog of more than one day.”

PATIENT SAFETY AND SATISFACTION: “A BETTER OVERALL QUALITY OF CARE... MAKES A DIFFERENCE FOR THE PATIENT”

“Overall, everything is quicker. We used to have a reporting backlog of more than 2500 procedures; this has been reduced to 250-500 procedures. Before, it took three days to a week for reports with findings to be distributed; now we rarely have a backlog of more than one day. There is also much less risk of a procedure being unreported and unbilled, or of a report getting lost.” Report turnaround speed and availability help ensure timely diagnoses – and thus treatment – for the patient, reducing the risk of potential patient harm.

Tracking down those errors that do occur, such as a report that went missing or an overdue report, helps continuously improve efficiency, as well. “It used to be common for the typing room

to receive calls asking for overdue reports; with the Agfa HealthCare solution, this hardly ever happens anymore. But if we do receive a complaint that a report took too long, we can really go into the details and trace whether this is correct. If it is, we can see where things went wrong in the process and undertake actions to improve our performance.”

So while patients may not directly see how the BI solution is impacting them, nonetheless, they are reaping the benefits: “Images that don’t get lost, shorter wait times, faster report turnaround, smoother invoicing and better overall quality of care: oh yes, it does make a difference for the patient!” highlights Mr. Pleumeekers.



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IMPROVED BILLING: “WE’VE MADE A HUGE LEAP, WITH AN ALMOST 5% GAIN IN PRODUCTION AND BILLING”

The greater oversight has had a big impact on the hospital’s billing, Mr. Pleumeekers emphasizes. “Using the BI solution, we have nearly eliminated incorrect billing: whether charging for a procedure that didn’t take place, or neglecting to charge for one that did take place.”

He continues: “We can check that data transferred to the hospital information system (HIS) is correct. When we see repeated errors, we can find the core reason and take corrective action. Now this has been reduced to only 0.1%.”

All in all, he says, “we definitely made a huge leap, with an almost 5% gain in production and billing!”

The impact of the BI solution is felt far outside the imaging department. In the boardroom, it provides insights to the executive board that deepen understanding of the business processes and provide key information for making investment decisions. “If a system needs to be replaced, we can clearly show how we use that system and when, so we know exactly what we should look for in a replacement,” comments Mr. Pleumeekers. “We can also generate all data needed for an annual report with just one click of a button. We have everything we need in an hour, compared to the weeks it used to take.”



AN ENHANCED EDUCATIONAL EXPERIENCE: “THE TEXT SEARCH FEATURE IN THE BI SOLUTION IS A WELCOME ASSET”

The hospital's role as a place of education and training is also enhanced by the BI solution. For example, the residents in training in the department receive key information they need for their portfolios, such as a monthly overview of the procedures they have performed, and whether they did them under the supervision of a dedicated radiologist.

The text search feature in the BI solution is a welcome asset too, used regularly for research purposes. “We also use this very nice feature to search for additional information in our management reports,” Mr. Pleumeekers mentions.

BEYOND THE DEPARTMENT: “REFERRING CLINICIANS ARE VERY ENTHUSIASTIC”

Referring clinicians are also more satisfied. “We get plenty of requests for information from referring clinicians in other departments, such as how many patients were sent for an exam, how many had a knee scan, etc. They are very enthusiastic about how our system can call up this data quickly and easily, and they then have greater understanding of the imaging process, which makes everything clearer and smoother.” Mr. Pleumeekers concludes, “I can highly recommend Agfa HealthCare's BI solution: nothing is as nice as having all the management information you need in your own hands. Keep in mind that it is very important to have someone dedicated, with an understanding of the business processes and the organization of the RIS, to be sure the data is extracted in the desired way.”



“The BI solution has considerably changed our daily monitoring and management, and has become almost indispensable. It has helped us to unveil a host of information and we have benefited in every respect.”

Agfa HealthCare contribution

Agfa HealthCare deployed the **RIS/PACS and BI solution** for the radiology and nuclear medicine departments. It provided training and an Agfa HealthCare application specialist accompanied the users in developing the first reports and creating customized reports. For complex reports, the users can call the Agfa HealthCare helpdesk for assistance.

Agfa HealthCare solution

The Agfa HealthCare BI solution is an advanced platform that enables healthcare managers and care providers to compile, organize and manage clinical, quality, financial and administrative data that is available in the Agfa HealthCare RIS/PACS solution. It includes handy standard reports, but also allows the creation of custom reports based on an extensive catalogue of statistics and charts.

The BI solution supports the healthcare facility's goal to move towards a value-based care model, with improved patient care processes and patient satisfaction, enhanced collaboration, greater staff and clinician satisfaction, efficient certification, and more. The hospital can optimize work processes and quality of care, improve and accelerate decision-making, identify trends and cost-saving opportunities, develop a market understanding that enables comparative benchmarking, deliver operational confidence and better patient satisfaction, and improve competitiveness by aligning resources with strategies.

Maastricht UMC+ imaging department

Maastricht University Medical Center+, the Netherlands, has a large imaging department comprising 28 radiologists, 28 residents, 4 nuclear medicine specialists, 115 technicians, 20 administrative staff and numerous dedicated researchers within MUMC+.

The medical imaging department offers a full range of exams in a university setting. Hybrid imaging, involving the fusion of two or more imaging technologies into a single, new form of imaging, is currently steadily gaining ground in the hospital, including CT/MRI, PET/CT, PET/MRI, SPECT/CT hybrids. In total, the imaging unit performs more than 210,000 procedures per year.

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