

Value-based healthcare thanks to efficient use of data

- **Large quantities of digital data in healthcare require IT solutions that will allow it to be used**
- **The teamplay cloud-based network enables networking of experts and more efficient use of imaging modalities**
- **Sense¹ is an e-health solution that offers a secure way to exchange patient data among physicians, institutions, and patients**
- **The LifeNet² customer portal can efficiently organize services, resulting in optimum capacity utilization**

Healthcare providers face the challenge of offering the best possible care to their patients in spite of limited budgets. The concept of “value-based healthcare” compares successful treatment for an individual patient with spending on such treatment. The focus is on high-quality patient care as well as improved prevention – both based on affordable healthcare services. A current trend on the market that reflects these efforts is increasing consolidation among small businesses, which are combining to form hospital chains, healthcare networks, and strategic partnerships. In addition, industrial logic is applied to the healthcare sector and may be used to standardize workflows or in quality management. One important basis for being able to fully tap one’s own potential as a healthcare provider is communication and cooperation across multiple sectors as a result of secure networking of all service providers and evaluation of the digital data compiled as part of day-to-day clinical practice. This could include information on tests and examinations, patient data, system data on imaging modalities, or data on clinical workflows. There is so much data, however, and it varies so much that solutions are needed to be able to use it efficiently. According to McKinsey Global Institute, 80 percent of healthcare data is still unstructured and is not uniformly stored.^[1]

This “big data” – large quantities of data – results from efforts to store more digital data and make it available individually where needed. Its sheer quantity calls into question conventional methods of data processing and analysis. For example, medical imaging archives are growing an average of 20 to 40 percent per year.^[2] Accordingly, the primary challenge is to improve the usability of big data by the healthcare sector. It is the goal of Siemens Healthcare to provide comprehensive support to its customers as an enabler in this area. As the product portfolio of Siemens Healthcare continues to develop, Siemens offers individually adaptable solution models such as LifeNet, teamplay, and sense. The focus is primarily on IT and software solutions aimed at optimizing image-supported service provision and medical fleet management, as well as networking and communication, thereby helping improve comprehensive medical care. The focus is on bringing together experts and their knowledge – outside the limits of individual organizations and across national borders.

Teamplay – The cloud-based network for decision-makers and experts

With teamplay, Siemens Healthcare offers a cloud-based network for physicians, medical professionals, and decision-makers in healthcare. It allows simple evaluation of capacity utilization for imaging equipment, various workflows, and individual tests and examinations. With just one click, it is also possible to compare anonymized data with values for similar healthcare providers.³ Thanks to centrally controlled updates and upgrades, as well as an intuitively understandable structure, teamplay can be used without advanced training. The network is connected through a receiver to the imaging equipment or the PACS, so it can send DICOM (digital imaging and communications in medicine) data from those systems to the teamplay cloud. DICOM is an established international standard designed to support data compatibility. For example, it facilitates the exchange of data between imaging modalities and other information systems in the healthcare system. Its DICOM-based functionality allows equipment by different manufacturers to be connected. Dr. Steve Mendelsohn, CEO of Zwanger-Pesiri Radiology in New York, is a fan of the network: “Teamplay collaboration will help everybody improve throughout the entire industry. Everyone can optimise their efficiency seeing and learning from what other practices and facilities do. It is the ultimate tool of collaboration, it helps us to do better quality scanning and to do it more efficiently.”⁴ Thanks to the “Usage” function, users get an immediately available⁵ and intuitively understandable overview of usage and performance data, such as patient throughputs.

A daily usage report and detailed analyses of the usage trends for an equipment fleet show how efficient workflows are structured. The network also allows dose monitoring for medical equipment using the “Dose” function. It analyzes the applied dose based on the type of study and the body region being imaged and offers an overview of the protocol being followed. That is because it is vital for patient-oriented treatment to use as much radiation as necessary while also using as little as possible. All values for the dose that has been applied can then be retrieved from the cloud by any authorized party.

The teamplay “Protocols”⁶ function facilitates combining, editing, and analyzing reports on results. In future it will be possible to compare, comment on, and archive scan protocols from selected Siemens computed tomography (CT) and magnetic resonance imaging (MRI) equipment. An exemplary scan protocol can also be transferred to other modalities for further use. “Teamplay gives us the ability to standardise our workflow and our protocols throughout our entire enterprise. It gives us the ability to identify our own internal best practices and roll that out to all the technologists and all the staff,” says Mendelsohn. Teamplay offers different data protection profiles to support users in complying with statutory requirements. Certification of the European teamplay modules “Dose” and “Usage” according to the ULD and Europrise Standards has been initiated. The data protection audit that is required for certification has already been successfully completed.

Sense – The e-health solution for networking in healthcare

Sense allows networking of multiple healthcare organizations by setting up a standardized e-health infrastructure for the exchange of medical and care information going beyond each individual organization. Heterogeneous IT landscapes can be integrated and connected, and existing national infrastructures or registers can be linked. When using sense, patient information is immediately accessible to the treating parties in the context of an access authorization system. The aim is to share information in order to facilitate cooperation among physicians, patients and referring professionals. In the old days, every institution had individual patient files, but other institutions could not look at them. It is now possible to use sense to forward available results, thereby avoiding medically unnecessary tests and examinations and standardizing workflows, which saves money and increases efficiency. Medical decisions can be made faster, saving valuable time in an emergency.

Electronic Health Record (ELGA) was introduced in Austria in late 2015. It supports the exchange of health data throughout individual Austrian states and beyond the limits of individual institutions. ELGA is already being used in more than 30 hospitals in Vienna and the state of Styria. In addition to those two states, other areas will gradually be connected to hospitals, physicians with individual practices, rehabilitation facilities, and pharmacies. Patients control access rights and specify who can view each document. Strict data protection requirements (documentation of treatment, logging of each data inquiry, etc.) are defined to prevent misuse of data. Uniform formats for medical data, such as letters from physicians, and the national exchange will help ELGA achieve the greatest possible efficiency for workflows and processes. Building on that, it will be possible in future to implement special e-health applications individually when necessary. This includes a platform for physicians and a portal for patients allowing secure access to all electronic health data. Medical specialists can use the application for remote consultations, allowing their expertise to be used for treatment independent of location. Participating physicians will be able in turn to contact their patients, for example to remind them of upcoming appointments or send specific data to them. Siemens and its subsidiary ITH icoserve supply all components that will allow a secure, effective exchange of data among healthcare facilities and support cooperation in the field of healthcare.

LifeNet – The customer portal for efficient fleet management

To run a hospital efficiently, it is important to know the status of its equipment and systems as soon as possible so the necessary repairs can be done. That is the only way to avoid unnecessary waiting times for patients and hospital employees. The web-based LifeNet customer portal can verify the status of Siemens systems with one mouse click, as well as plan the provision of services and obtain services. It is available to Siemens customers free of charge. Customer service can be reached around the clock using LifeNet. System status and trouble reports can be transmitted directly to the responsible Siemens service engineers, who can then do remote analyses. Personal login data keeps data transmission secure. LifeNet is also used for documentation and stores all service relevant reports and documents. Ruijin Hospital in the center of Shanghai has already had positive experiences with LifeNet. „Before, in the case of failure, we had to first identify what the problem was, then call a technician by phone, and eventually hope that he would arrive soon,” says Dr. Haipeng Dong, Deputy Director of the radiology department Ruijin Hospital „This has changed.” The integrated function “planned activities” also points out

required maintenance and upgrades. To be able to plan necessary work without long down times, LifeNet offers the option of independently setting or rescheduling service without the need for time-consuming inquiries. This reduces the need for tedious phone calls with service hotlines. LifeNet supports the productivity of a healthcare provider's equipment at multiple locations and simplifies fleet management so it is transparent and standardized and saves time.

¹ Sense is a product of ITH icoserve technology for healthcare GmbH, Innsbruck, Austria. Sense is not available in all countries. Please contact your local Siemens sales representative for the most current information.

² The products/features and/or service offerings (here mentioned) are not commercially available in all countries and/or for all modalities. If the services are not marketed in countries due to regulatory or other reasons, the service offering cannot be guaranteed. Please contact your local Siemens organization for further details.

³ Availability of Benchmarking option depends on a minimum number of considered subscribers to ensure customer's privacy.

⁴ The statements by the Siemens' customer describe herein are based on results that were achieved in the customer's unique setting. Since there is no >>typical<< hospital and many variables exist (e.g. hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

⁵ Prerequisites include: wireless connection to clinical network, meeting recommended minimum hardware requirements, and adherence to local data security regulations.

⁶ Teamplay Protocols supports selected Siemens scanners. Please contact your Siemens representative for more details.

Sources

^[1] IBM, McKinsey Global Institute, <http://bit.ly/1qaeJ9t>

^[2] IDC Global Health Insights, EMC2: Managing healthcare data within the ecosystem while reducing IT costs and complexities, p.2.

The products/features (here mentioned) are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Further details are available from the local Siemens organizations.

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