



# The Whole Patient

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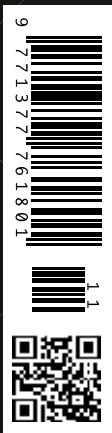
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# Imaging innovation's critical role in healthcare's future

With the shift toward value-based care, healthcare providers are focused on their most pressing challenges: improving the patient and staff experience; increasing diagnostic confidence; enabling greater efficiency and productivity; and facilitating data-driven practice management. The need to connect data and technology to enable precision healthcare and expand our understanding of disease and view of traditional diagnosis and treatment has never been greater. Imaging innovation and technology advances can help us get there—raising the quality of care, accuracy of diagnosis and identification of workflow or system inefficiencies. Philips executives from the Diagnostic Imaging Business Group provide their views on some of the most talked about topics in healthcare today ranging from artificial intelligence to precision medicine to patient safety and the crucial role imaging plays in achieving healthcare's goal of seamless care.

## How artificial intelligence can make an immediate impact in patient care

*"To enable precision medicine in the future, we need to do a better job on the diagnostic side first by integrating all the relevant information on a timely basis in order to provide treatment based on the individual patient's particular characteristics, not the general category of disease."*

If we shift our thinking, and focus on a particular clinical problem, we can readily see how clinical AI can go from research to implementation and make a dramatic difference in patient care today. This is how artificial intelligence becomes *Adaptive Intelligence* because it is applied in the context of patient specifications and specific disease conditions.

Radiation therapy is an example of precision medicine - highly individualised and very complicated. There are numerous parameters and constraints that you must be able to satisfy while at the same time adhere to the contour of the tumour from all the different perspectives of the radiation beam. AI is used to optimise that very, very complex equation and it is not trivial. Frequently, it's not possible to satisfy all the constraints, so then you must calculate what is the minimum violation you can incur while delivering the proper dose to the patient. For cancer patients, delay of treatment is both impactful on the clinical outcome and the emotional strain for patients and families.

With Adaptive Intelligence, we are able to do a better job of satisfying all those constraints more quickly and with fewer iterations, reducing time to create an image-to-plan treatment from 12 days to 1-2 days. Having both the informatics that integrates all of the data, as well as the adaptive intelligence that will sort through all of that and make sense of all that data in context, is highly important. This will enable us to make an immediate impact in patient care today and facilitate personalised medicine in the future.



**Homer Pien, PhD**

Chief Scientific Officer,  
Diagnosis and Treatment, Philips

## Why we need to take a systems view of imaging

*“Imaging should be seen from the point of view of a health system, in which technology and data connect seamlessly to empower all the stakeholders to drive the transition to value-based care.”*

In order to shorten the path to a confident diagnosis and treatment, health systems must look at the needs of many stakeholders—patients, technologists, radiologists, administrators—and understand their unique concerns and challenges. A systems view of imaging is based on the idea that a deeper understanding of each stakeholder’s experience can provide important insights that help patients, clinicians and administrators fulfil their respective roles more effectively and efficiently, with less stress and more confidence.

Healthcare is foremost about patients, and in order to make the patient experience better—all the people involved in healthcare have to work better—individually and with each other. In the imaging system everyone has a unique set of requirements to do their job well. Supporting and connecting these people in a truly meaningful manner is directly related to creating value for patients and the health system at large.

Here is where a systems view of imaging is vitally important for providers as well because health data is often distributed and sequestered across many applications and departments which makes it hard to compile a comprehensive view of individual patients and populations. By merging data with clinical expertise at the modality and image processing levels, we can move the power of imaging from “behind the scenes” to “front and centre” to help streamline the path toward a confident diagnosis and enable precision medicine in the future.



**Kees Wesdorp**  
Business Group Leader,  
Diagnostic Imaging, Philips

## Why productivity while driving sustainability matters in imaging

*“Value-based care is not just about looking for short-term gains; it’s about finding long-term solutions to drive efficiency and lower cost while providing outstanding care to patients.”*

With imaging’s central role in value-based care delivery, healthcare leaders are always looking to balance speed, comfort and confidence with productive, cost-effective and sustainable operations. To that end, healthcare providers are becoming aware of the potential operational and financial effects of helium gas usage of Magnetic Resonance Imaging (MRI) scanners.

A leading modality for healthcare organisations, MRI accounts for a significant proportion of largest uses of helium gas today in the science and healthcare field. MRI scanners are responsible for 20% of helium consumption worldwide; in the USA, the figure is as high as 31%.<sup>1</sup> As a result, the technology is highly susceptible to fluctuations in supply and healthcare providers are directly affected by the consequences of helium’s eventual dissipation.

Today’s MRI scanners feature magnets with a non-sealed helium volume of 1500 litres. This means that hospitals need to replenish their supply of the gas and creates logistical installation challenges to comply with helium-safety protocols. Fulfilling this requirement frequently entails costly floor adaptations and extensive planning. These issues are driving a new era in MRI technology advancements that are less reliant on helium. For the C-suite, ensuring productivity while driving sustainability is an integral part of managing a healthcare organisation’s total cost of ownership.



**Arjen Radder**  
Business Leader, Global MRI  
Philips

## The promise of AI in radiology department operations

*“Radiology professionals must have a clear idea about how the data might be translated into practice—what it could look like, and how it will impact both the way they work and patient care in the long run.”*

AI-driven healthcare solutions can enable radiology departments to become stronger and more productive than ever before, with more visibility into their operational status, from equipment maintenance to scheduling to post-imaging follow-up. It all starts with data, which delivers actual information and insights into what is happening. Then, AI and predictive analytics offer further foresight, enabling staff to better respond to what is likely to happen.

These capabilities do not stand to replace the responsibilities of clinical or technology professionals. However, they do provide these individuals with greater information, layered alongside their years of experience, enabling them to work more efficiently, improving operations and ultimately enhancing the patient experience. Having the right data can enable teams to predict such an occurrence and issue patches proactively, to avoid downtime, maintain workflow, and provide a better experience for the staff and their patients.

For hospitals looking to integrate AI into their radiology department, the focus should be on: accurate patient data collection, standardisation and change management. Most importantly, radiology professionals must have a clear idea about how the data might be translated into practice—what it could look like and how it will impact the way they work. AI can help radiologists perform higher-level tasks that demand human ingenuity, creativity and compassion.



**Sham Sokka**  
VP & Head of Radiology Solutions,  
Philips

## The importance of an integrated approach to quality and safety

*“It’s about that holistic view of enabling hospitals to deliver care in the most expeditious way but also the most caring and safest way not just for patients but staff as well.”*

With the shift from volume to value-based care, the role of safety and quality is becoming even more critical. It’s not about how many patients you can see each day; it’s how well you can provide their care.

In imaging, reliability and consistency are key tenets of ensuring quality outcomes. Healthcare providers must have processes in place to consistently monitor and measure to ensure uptime, maintain quality and service, and mitigate risk. While these measures are ultimately designed for delivering patient care that is safe and effective, they also provide business benefits because by not having to bring people back in for re-scans, healthcare organisations can increase throughput which reduces overall cost.

A true quality mindset requires a behaviour-based approach to determining how system or workflow processes can be improved by observing how clinicians interact with patients and imaging equipment so that the potential for human error due to training, decision errors, or workflow constraints is reduced. From a business standpoint, the impact of safety and quality initiatives directly correlates to patient satisfaction, more confident diagnoses and improved operational performance.



**Austin O’Connell**  
Head of Quality and Regulatory,  
Diagnostic Imaging, Philips

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### Reference

<sup>1</sup> JR Campbell & Associates; USGS.