

PHILIPS

Position paper

A Vision for a **Better Diagnosis and Patient Care**

A Vision for a Better Diagnosis and Patient Care

Health systems today must enhance their ability to better diagnose, predict and prevent disease across the spectrum of care. Yet, at nearly every turn, they face barriers. Organizations are struggling to integrate disparate technology and secure data across their enterprise. Clinicians, overwhelmed by disconnected information and complex technology, are less efficient and more frustrated. Patients, who now pay more out of their own pockets for care, endure unnecessary tests and uncoordinated care all too frequently. Providers are tasked with reducing expenditures while maintaining quality as the move toward value-based care accelerates.

Despite these many challenges, it's encouraging to look at the great progress being made to improve the delivery of care. Such as a health system that has installed an informatics solution to allow their clinicians to view images and data virtually anywhere, anytime. Or a hospital that used predictive analytics to help it determine which patients were likely to need emergency transport in the next month, prompting interventions that reduced ED visits and readmissions. Or the regional imaging center that created a more calming experience for patients undergoing MRIs – while reducing rescans and improving workflows. Philips knows these stories because we've been there, working collaboratively with these health systems to break down the boundaries, remove complexity and develop a more seamless approach to diagnosing and treating disease.

Innovation. Transformation. Collaboration. That's what inspires health systems to partner with us. Industry-leading technologies coupled with a partnership approach that forges new paths in diagnostics across the care continuum. A relentless pursuit to make life better. A vision for more seamless care that breaks down boundaries and reduces complexity. And always putting the needs of patients and providers first. This is what drives us. This is Philips today.

Comprehensive solutions for breaking boundaries

At Philips, helping patients and care providers streamline the path to a confident diagnosis is a core focus on the path to seamless care. Each day, we're tackling the complexity and barriers that exist within established diagnostic technologies with innovations that use data science, artificial intelligence, informatics, machine learning, and predictive analytics. We leverage open-source platforms to deliver practical solutions that aid in a timely and accurate diagnosis; and support data-driving treatment plans that prioritize value for patients and health-systems. Our healthcare informatics solutions are designed to streamline the gathering and analysis of patient data from distributed and disparate systems to support care providers while enhancing clinical pathways and workflow.

We believe that innovation is only meaningful when it leads to demonstrable success for our customers.

As we've listened to our customers, we've repeatedly heard four key areas of need: simplify data and insight gathering, help drive improved treatment and outcomes, improve the care experience for patients and providers, and remove excess costs from the system wherever possible. In response, we've developed an integrated portfolio of products and solutions, coupled with a hands-on consultative approach and award-winning services¹, to help our customers make strides in these areas today.

Simplifying data and insight gathering – while increasing its security

The expanse of patient data, if aggregated correctly, should streamline diagnosis and better inform care and treatment pathways. The reality, too often, however is that clinicians today are burdened with an excess of data from these various touch points that often reside in disparate systems and are sometimes not available. This complexity often results in patients having duplicate tests, clinicians spending excessive time retrieving data – all contributing to more complexity and often-higher costs of care. Obtaining a holistic, longitudinal view of each patient by aggregating data from a variety of sources and integrating it into their workflow has proven surprisingly difficult.

Imagine what could be accomplished if care team members could view a patient’s history wherever they were located. Augusta University Health, for example, used our advanced visualization platform, IntelliSpace Portal, to provide ready access to images and information virtually anywhere, anytime. It allows their clinicians to access current and prior studies of their patients, perform advanced visualization tasks, and view relevant clinical information. This connected working environment allows them to work smarter and more efficiently, and provide diagnoses faster. The solution has helped Augusta improve procedural volumes for CT, MR and AMI studies by 17%².

“A major benefit of IntelliSpace Portal is that it decreases complexity through its single standardized workflow. Our radiologists can now sit down at virtually any machine in the hospital or even at home. The average turnaround time has decreased 22% and procedural volumes for CT, MR and AMI studies increased 17%.”

James Rawson, MD, Professor of Radiology, Augusta University Medical Center

We’ve leveraged our history of innovative research and development to enable earlier interventions by devising and activating new algorithms. These predictive analytics are cutting through the complexity of care. For example, the customizable patient monitoring system, IntelliVue Guardian Solution, contains intelligent clinical decision algorithms to help caregivers obtain vital signs and integrate validated patient data directly to the EHR – which can reduce human errors and save time. Designed to aid the clinician in identifying subtle signs of patient deterioration in the general care floors, the solution monitors vital signs and uses algorithms to aid the clinician in identifying a patient that may be at risk for sepsis, cardiac arrest, or respiratory failure and immediately notify the care

provider. Beyond innovative technology, we can help our customers with an optional implementation and change management program that includes planning, execution, staff education and post-implementation support. Saratoga Hospital in New York was been able to reduce their code blue events over a four-year period.

Data security is, of course, a huge and growing issue. A recent Medical Group Management Association (MGMA) poll found that only 55% of healthcare professionals believe their IT infrastructure is secure³. As a company focused in health technology solutions, we are vested in this important area. Our commitment to security led us to form our own Security Center of Excellence to develop, deploy and support advanced security features for our products and services as well as conduct continuous risk assessment and incident response activities.

“The IntelliVue Guardian Solution has changed the way we work by eliminating transcription errors and providing caregivers immediate access to patients’ vital signs, reducing treatment delays.”

Arthur Bairagee, Chief Nursing Informatics Officer, Lakeland Health

Drive improved treatment and care

One core goal of diagnostic tests is to help identify the right care pathway for patients. Yet studies have shown that a significant percent of healthcare diagnostics is unnecessary or ineffective. Some 20% to 50% of imaging may not improve care⁴, and nearly a third of patients have either received unnecessary laboratory tests or aren’t getting the tests they need⁵. Technology solutions must facilitate appropriate diagnostics, and allow care providers to see more, sooner and less invasively. This becomes particularly important in the high-value imaging modalities such as MRI, CT, and nuclear medicine. In these technologies, Philips is highly focused on helping providers get the image right the first time. In CT studies, physicians typically have to decide in advance whether or not a patient should receive a dual energy scan. In many cases, when patients are scanned, incidental findings are revealed on the resulting CT scans. But, with the Philips IQon Spectral CT, spectral is always on, providing the ability to retrospectively reconstruct CT data.

For example, when an elderly patient complained of chest pain and shortness of breath, he was scanned using the Philips IQon Spectral CT. The fused Z effective spectral results allowed radiologists to retrospectively identify a small pulmonary embolism in the right lung and confidently guide the patient’s subsequent course of treatment⁶.

We're also employing anatomical intelligence to facilitate clinicians' workload while increasing accuracy with innovations. The 3D modeling technology of HeartModel makes cardiac ultrasound exams easier to perform, reduces variability by delivering critical information in seconds.

Improve the care experience of patients and providers

Today's health consumers are more empowered, more demanding, and more price sensitive. That's especially true in diagnostics, where CT and MRI are among the top consumer health price searches⁷. Since they are paying more out of their own pockets, they also expect better service.

Patients are always at the forefront of our considerations when we design new solutions or consult with our partners to revamp their processes. Take MRI, a procedure known for inducing claustrophobia in patients and considerable apprehension in many others. Patient anxiety can disrupt the exam.

Lahey Hospital and Medical Center, installed our In-Bore Ambient Experience MRI Suite to give their patients a calming experience and a sense of control from the moment they walk through the door. Another one of our global sites that used Ambient Experience In-bore Connect and Ambient Experience had the yearly average amount of rescans decreased by 70%⁸.

Another critical consideration when caring for patients is safety. Today, people are living longer and undergoing more diagnostic tests, making it critical to manage patients and staff radiation exposure. To address this need, Philips developed DoseWise, a radiation dose management program, which combines leading imaging technology with consulting services, insight, education and training to help health systems build a sustainable radiation safety program without compromising quality.

The strain of cost pressures, regulation, and quality programs is added burden to care providers. Radiologists have the highest burnout rate of any medical specialty⁹ within the industry, which is why we've introduced diagnostic solutions to make life easier for clinicians. Smart solutions can tackle this complexity, as well. For example, IntelliSpace PACS with Illumeo, our clinically intelligent software, changes the way radiologists seek, see and share clinical information, by using adaptive intelligence to provide them with the most relevant case-related information and tool sets so they can more quickly pinpoint regions of interest and critical findings – which is especially critical in complex cancer cases.

It adapts to and enhances the radiologist's experience, integrates patient data, facilitates care coordination with referring physicians, and reduces the errors that result from manual data entry.

Helping You Reduce Costs

In addition to being better for patients and clinicians, solutions need to drive more efficiency and reduce costs, making a significant difference in the health of your bottom line. When highly variable imaging exams make optimal scheduling an issue for hospitals, this can negatively impact the patient experience and increase operational costs for longer exams. Hospitals need a way to automatically identify which imaging exams take longer and have higher variability, so they can account for these discrepancies in scheduling. At the University of Washington, we identified target protocols by looking at the hospital's MRI volume and scan durations. We utilized machine log files to obtain accurate information and update protocols accordingly. This resulted in a 20% reduction in time per exam, which is expected to generate cumulative cost savings over time, and has already produced a new way for the hospital to schedule its exams¹⁰.

In value-based care, your organization benefits when you can keep people healthier in their homes. We're applying predictive analytics to drive better care for elderly people living with multiple chronic conditions. Early results from a Partners Connected Health study about the predictive analytics of CareSage paired with Philips Lifeline and other connected technology, indicate the potential to reduce 180-day readmissions by as much as 40%¹¹.

Bringing the future closer with digital pathology and precision medicine

Philips is focused on delivering a future of more advanced and integrated diagnostics, applying machine learning and artificial intelligence to enable earlier treatments customized for each patient – care that is predictive, integrated, and precise.

We're also excited about the capabilities of Intellisite Pathology Solution. As the first and currently only digital pathology solution in the U.S. to be marketed for primary diagnostic use, the technology can aid pathologists to view and diagnose digital images of surgical pathology slides. Digital pathology aims to reduce pressure on pathology services by streamlining workflow and extending collaboration with the aim of increasing diagnostic confidence. We're also launching IntelliSite Collaboration Suite, a new open-source hosted software service that will digitally connect pathologists worldwide.

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The digitization of pathology allows us to access vast amounts of unlocked data and view it within the context of other images, results and clinical information... to help us enable better, more individualized care with greater confidence.

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Frans van Houten
CEO, Royal Philips

Achieving more, together

The vision of seamless care will become even more critical as the healthcare industry shifts more of its focus away from sick care to prevention and healthy living. Philips is using its unique position as a long-established innovator focused on serving consumer needs with many 'first of kind' solutions to bring together people, technology and data into a more seamless workflow across the care continuum.

Our aim is to break boundaries, reduce complexity, deliver meaningful innovation, and realize our vision of improving the lives of 3 billion people a year by 2025. To move toward more seamless diagnostic care, together we must continue to break down the barriers between departments and specialists, create breakthrough innovations, eliminate the obstacles separating patients and caregivers, and cross the boundaries that exist between healthcare settings and people's homes. Because today, health knows no bounds and neither should healthcare.

1. Philips has consistently ranked #1 in numerous service performance measures. Our use of innovation to drive industry standards has also ranked #1 for six consecutive years.
2. Results from case studies are not predictive of results in other cases. Results in other cases may vary.
3. <https://www.healthcare-informatics.com/news-item/cybersecurity/only-half-healthcare-professionals-report-their-it-infrastructure-safe-cyber>
4. Singh H, Meyer AN, Thomas EJ. The frequency of diagnostic errors in outpatient care: estimations from three large observational studies involving US adult populations. *BMJ Qual Saf* 2014;23:727–31. doi:10.1136/bmjqs-2013-002627
5. <https://hms.harvard.edu/news/unnecessary-testing-11-18-13>
6. Freiherr, Greg. How IQon Spectral CT is Ushering in a New Era of Medicine. (Published Oct. 24, 2016)
7. https://www.acr.org/~media/ACR/Documents/PDF/AnnualMeeting/Abstracts/2016/16012/16012_Dequesadall.pdf?la=en
8. Compared to the average of the other 5 Philips MR acanner without ambient Experience and In-Bore Connect. Results from case studies are not predictive of results in other cases.
9. *Journal of the American College of Radiology*, 2016
10. RSNA 2015 abstract/presentation courtesy of University of Washington – “Using Modality Log Files to Guide MR Protocol Optimization and Improve Departmental Efficiency”. M L Gunn, MBChB, Seattle, WA; B E Lehnert, MD; J H Maki, MD, PhD; C Hall, PhD; T Amthor; J Senegas; et al (see attached abstract in email). Disclaimer: Results from case studies are not predictive of results in other cases. Results in other cases may vary.
11. Golas SB, Agboola S, Kvedar J, et al. Retrospective Evaluation of Philips Lifeline CareSage Predictive Model on Patients of Partners Healthcare at Home. Poster presentation at ATA 2016.

There's
always
a way to
**make life
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