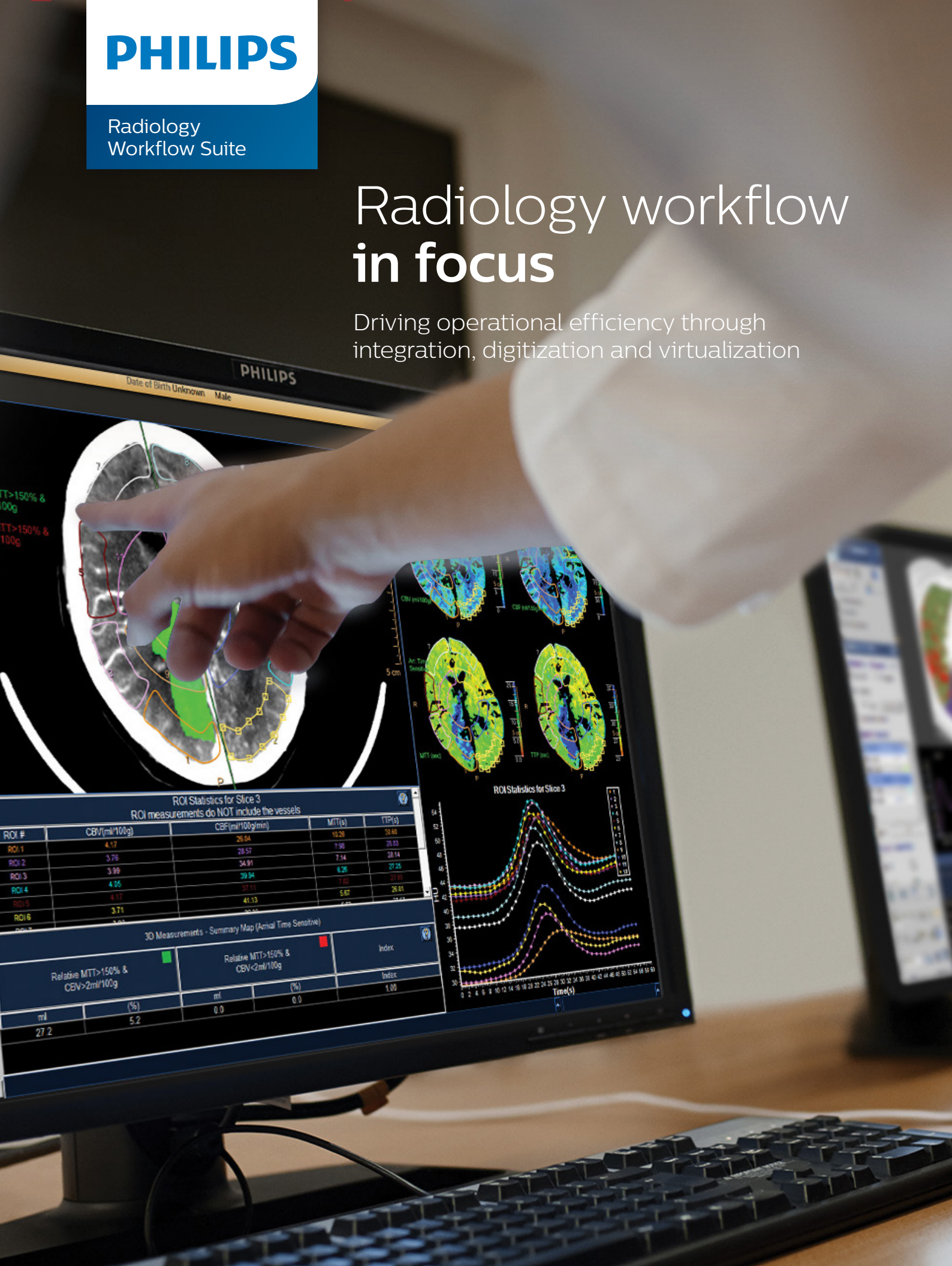
PHILIPS

Radiology
Workflow Suite

Radiology workflow **in focus**

Driving operational efficiency through integration, digitization and virtualization



Contents

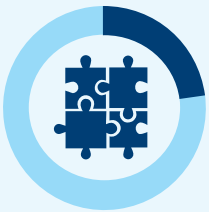
Let's connect data, technology and people to turn defining moments in the radiology workflow into a clear care pathway with predictable outcomes for every patient.

Managing the complexity of the radiology workflow calls for a new approach

The issues are real

43%
increase in radiology exams with advanced modalities[1]

45%
of radiologists report symptoms of burnout[2]



23%
of radiology techs' work is inefficient and could be automated, by their own estimation[3]

97%
of radiology departments are unable to meet reporting requirements[4]

$12B
annual cost of unnecessary, sub-optimal and repeat imaging exams[5]

The challenge affects us all

As demand for medical imaging has grown dramatically over the last few decades, the workflow for radiology has become increasingly complex. With the ongoing COVID-19 pandemic adding to the pressure, radiology departments are embracing new and innovative ways of working that help them improve operational efficiency, patient and staff experience and, ultimately, outcomes.

It's not just one workflow

Arguably the biggest challenge to optimizing radiology workflow is that it's actually a complex web of separate workflows. Whether it's getting a patient to show up on time for an imaging exam, acquiring the actual images, or getting the right clinical information into the hands of the referring physician, every step of the imaging process is susceptible to delays, variability and gaps in communication. All of this can cause waste and have a negative downstream impact on patient care.

Currently, there's a disconnect

Operational inefficiencies and disconnects weigh heavily on physicians and staff, who want the very best for patients but who often find themselves scrambling for information and wasting precious time. That's why you need solutions that optimize your radiology workflow from end to end.

From electronic medical records to PACS, clinical databases and billing systems, health data is distributed and sequestered across many applications and departments. This makes it hard to compile a comprehensive view of individual patients and populations.

There's a better way

We're approaching imaging as an ecosystem in which technology and data connect seamlessly to empower all the stakeholders involved to do their jobs with more confidence and less stress. By integrating radiology operations – and applying automation, AI, and clinical expertise at critical junctures in the workflow – we can help streamline the path to a confident diagnosis and provide the greatest value to patients, providers and health systems.

No one wants to go back to the way things were

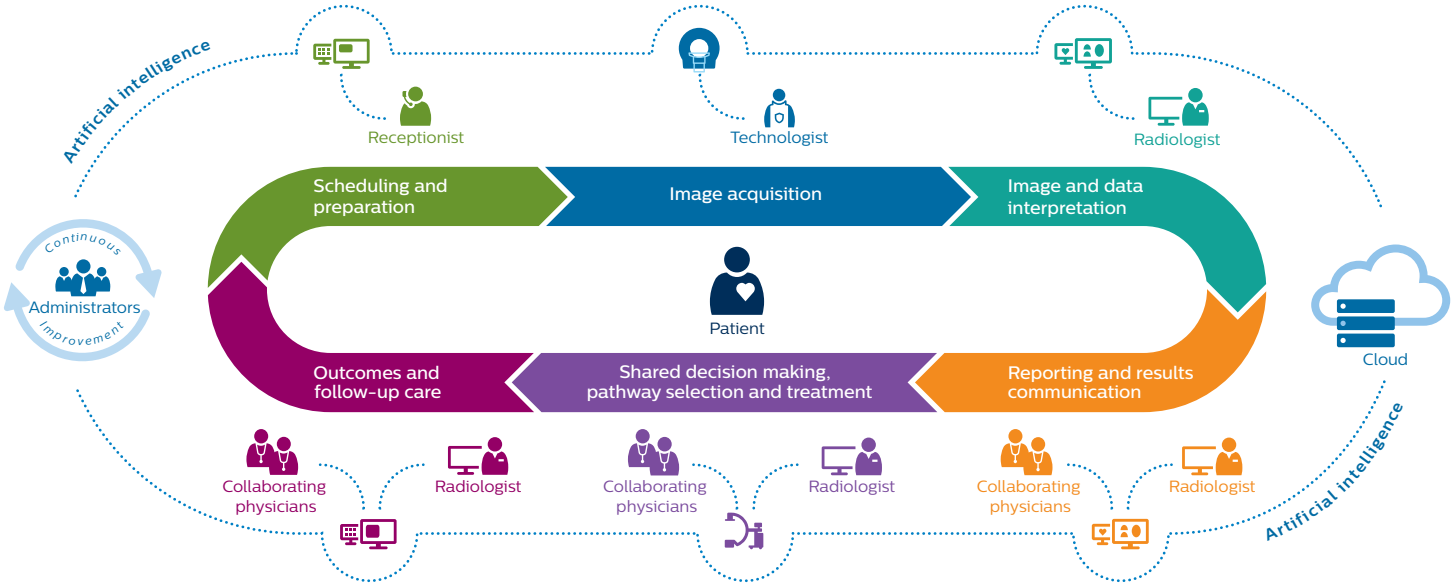
It's time to take a systems view

The acute phase of the pandemic made it clear how essential diagnostic imaging has become to informed clinical response, and the backlog for routine screenings and non-urgent care shows how much we've come to take it for granted. Perhaps one silver lining is that it has underscored the need to elevate the role of diagnostic imaging within the greater healthcare ecosystem and to re-examine its potential to bring even greater value. If we were to take a systems view of imaging, we could create a seamless radiology workflow centered around the patient to improve efficiency and quality of care.

Turn defining moments on the patient journey into a clear pathway with predictable outcomes

Improving experiences and outcomes across the imaging enterprise starts with smart systems and informatics solutions that use AI* and automation to empower providers, patients and administrators. To have meaningful impact, these solutions must adapt to the context, integrate into the daily environment, turn data into actionable insights, and orchestrate the delivery of the right care in the right sequence at the right time.

An integrated approach benefits everyone in the imaging environment



Engaging patients

with personalized tools to inform, educate, engage and comfort patients throughout the care journey

Streamlining workflow for staff

with smart systems and smart workflows for image acquisition to promote efficiency and confidence

Supporting radiologists

with integrated, AI-driven platforms for workflow orchestration, data access, advanced analysis, reporting and clinical collaboration

Enabling administrators

with the tools and data insights they need for continuous performance improvement

* We embrace the following formal definition of AI (source: HLEG definition AI. https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=56341): Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behavior by analyzing how the environment is affected by their previous actions. As a scientific discipline, AI includes several approaches and techniques, such as machine learning (of which deep learning and reinforcement learning are specific examples), machine reasoning (which includes planning, scheduling, knowledge representation and reasoning, search, and optimization), and robotics (which includes control, perception, sensors and actuators, as well as the integration of all other techniques into cyber-physical systems).

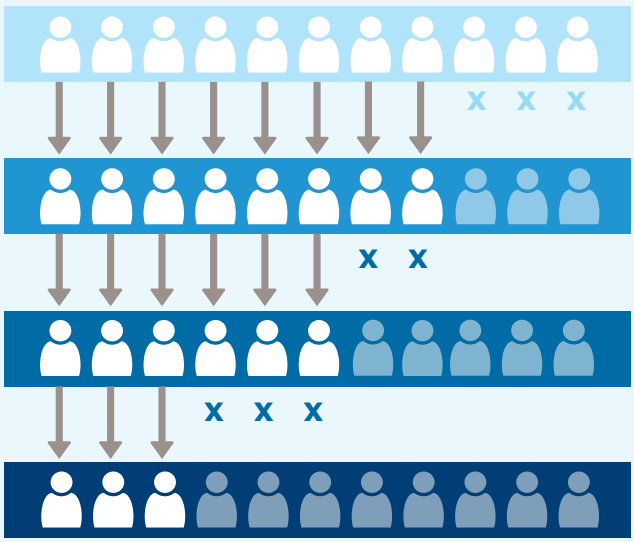
An imaging department can only do its job if the patient shows up

No-shows account for up to **7%** of patients in some imaging modalities[6] and potentially **$1,000,000** in lost revenue.[7]

How serious an issue are no-shows?
Reducing no-shows is the first step. Patients who don't show up for their imaging appointments – or who show up late or unprepared – interrupt imaging operations, limit valuable access for others and put their own health outcomes at risk.

They're here, but are they ready?
Even when patients do keep their appointments, a lack of preparation can still impede smooth imaging operations. A Philips survey of radiology technologists found that, in one out of three cases, their inability to get the image right the first time was due to inadequate patient prep, or missing or inadequate patient information.[3] That's why, in our quest to improve the radiology workflow, we need to start by better engaging patients in their own care.

Patient attrition: a cause for concern



Referred
30% fail to schedule referral in-network.[8]

Scheduled
22% no-show or late cancellation.[9]

Completed
50% don't adhere to follow-up imaging recommendations.[10]

Followed up
In the end, you realize a fraction of your department's full potential, and patient care suffers.

What if every imaging patient showed up on time and well prepared?

Create patient engagement – before patients enter your care facility

Among the many examples of innovation that were propelled by necessity during the pandemic, one that is likely to endure is online patient screening and engagement even before the patient sets foot in a care facility.

Since COVID-19 hit, hospitals and home care organizations have been using online questionnaires to triage and monitor suspected coronavirus patients, with call centers contacting high-risk patients for additional information before referring them to the appropriate care provider. This has helped limit both staff and patient exposure to unnecessary risks, while using limited resources where they're most needed.

Personalized digital engagement is here to stay

Although safety risks will subside as the pandemic abates, there are other reasons why digital screening and engagement tools will continue to see more widespread adoption. These include convenience, better patient engagement and satisfaction, and the potential to reduce hospital length-of-stay.
In radiology, the benefits of digital patient engagement for patient preparation are clear. For example, patients undergoing a contrast-enhanced scan may receive instructions about fasting prior to the exam – patients can be screened for allergic reactions to contrast dye or the need for pre-medication – patients scheduled for an MR exam may be asked whether they have any metal implants, helping staff prepare the right protocol for optimal image quality.

How Boston Medical Center is driving better patient engagement

When you're thinking about how integrated digital communications could help reduce your no-show rate, you might want to learn from the Boston Medical Center (BMC) initiative to improve patient engagement, patient and staff experience, and overall utilization. BMC deployed Philips Patient Manager across 33 ambulatory departments as part of a health system initiative to improve its operational and patient experience metrics.[11] **The results were impressive.**

BMC scores high with Philips Patient Navigation Manager

19% reduction in **no-shows**

14% reduction in **late cancellations**

4.4/5 patient satisfaction

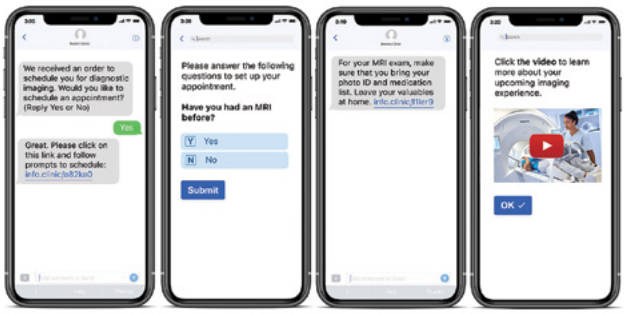
Patient satisfaction score, as measured by patient satisfaction surveys

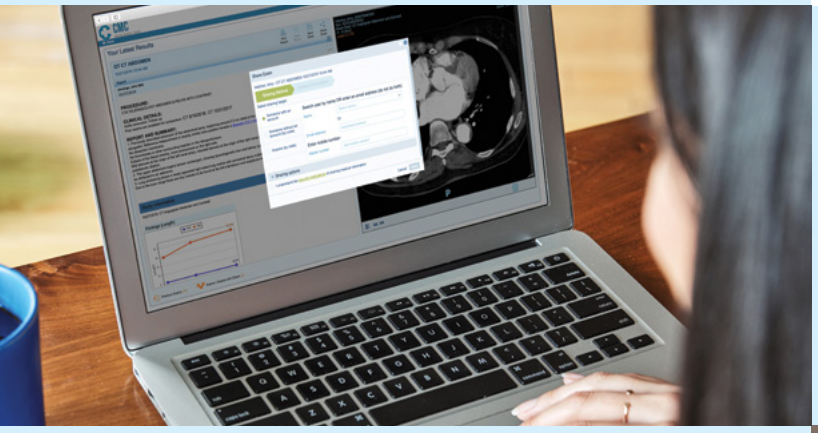
Workflow solutions | Patient engagement

Philips Patient Navigation Manager

Offers integrated digital communications with patients to automate outreach.

Learn more about Philips Patient Navigation Manager





Philips Engage

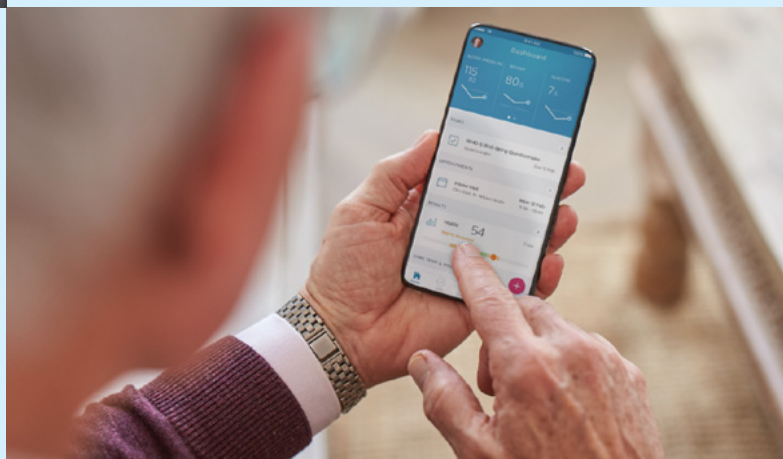
Provides a patient-centric communications portal with patient and provider access that presents a clear overview of a patient's health information.

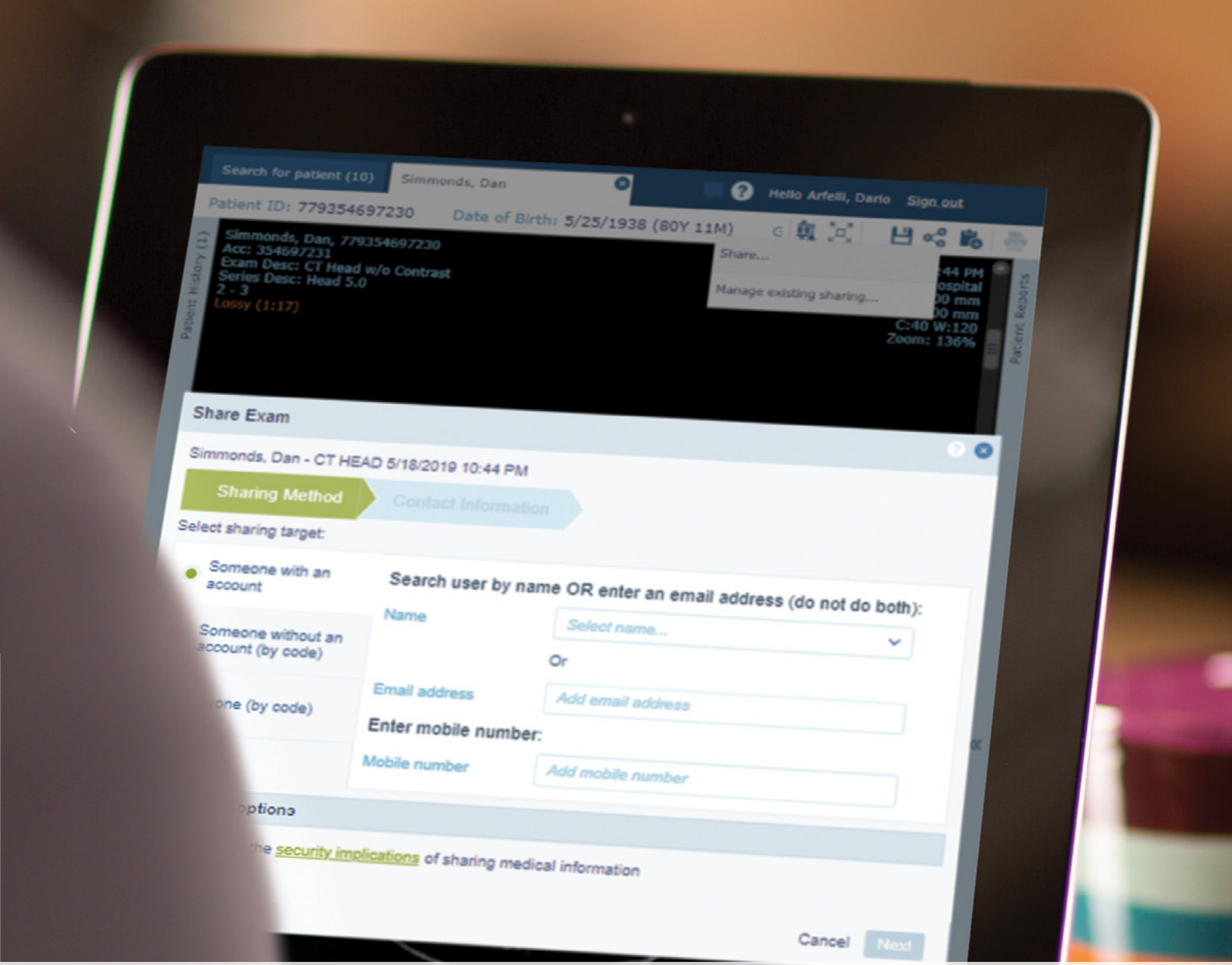
Learn more about Philips Engage

Philips Patient Portal

Empowers patients to access, share and help manage their own images and exam data using a range of familiar, user-friendly browser-enabled devices.

Learn more about Philips Patient Portal





> “The Patient Portal’s ease-of-use is a big factor in its patient appeal. And because this portal provides a valued service to patients, it differentiates our imaging centers and can boost the use of our services. With the Philips Patient Portal we’re going to see tremendous cost-savings.”

Dr. Randall A. Stenoien, owner and CEO, Houston Medical Imaging President, Innovative Radiology, Houston, TX

Some of the products shown or described may not be available in your market.
Please contact your local Philips representative for availability.

Systems get smart about image acquisition

Alarming levels of **stress.** A 2019 Philips survey of 254 radiology technologists and administrators in four countries revealed high levels of stress and burnout, ranging from **40% to 97%**.[3]

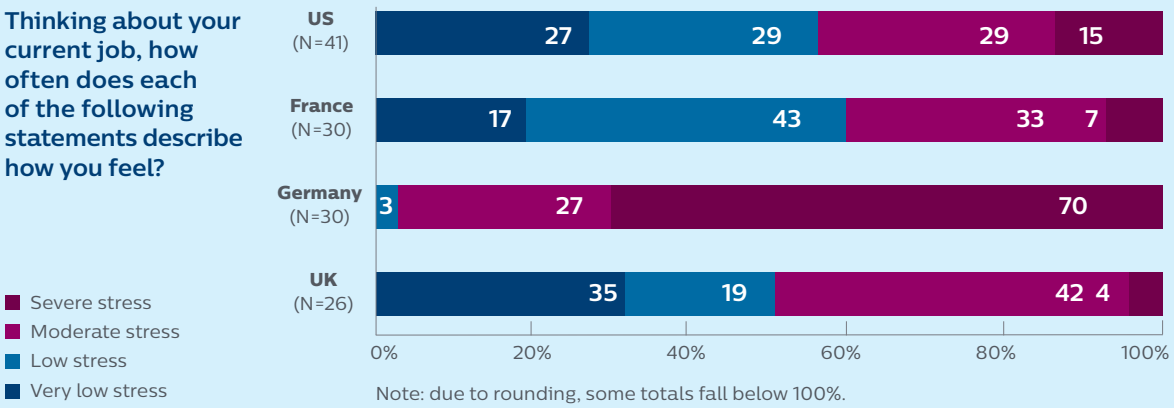
Focusing more on the patient and less on technology

We know that automation and AI can aid radiologists in image processing. But what impact can they have at the point of image acquisition? Automated and AI-enabled "smart workflows" can support radiology technologists and streamline their workflow related to patient setup, parameter selection, image acquisition and image processing.

Across every major imaging modality – from MR and CT to X-ray and ultrasound – smart workflows are increasing efficiency and boosting clinical confidence for system operators, allowing them to keep their focus where it belongs: on the patient.

Stress among technologists

Thinking about your current job, how often does each of the following statements describe how you feel?



Note: due to rounding, some totals fall below 100%.

> "If we are in the middle of an exam and there are 10 patients waiting, we will be in a hurry, and errors may occur."
>
> **A, Radiology technologist, France**

Imaging staff under pressure

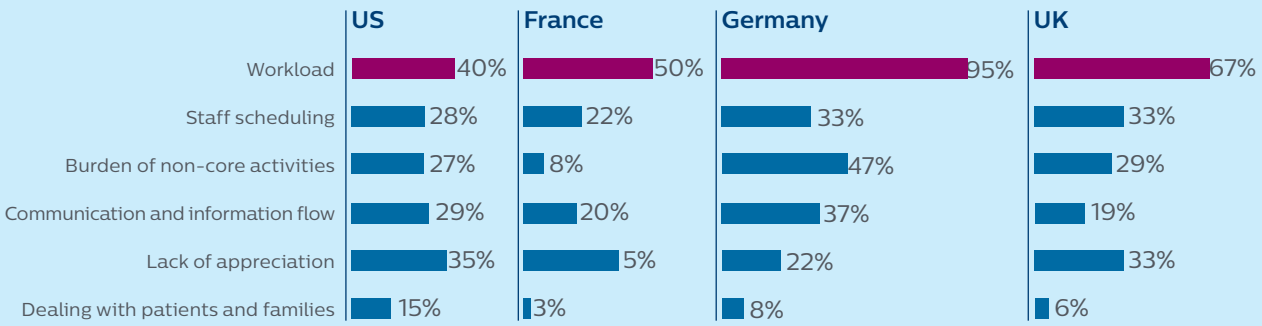
Why is supporting staff a top priority for radiology leaders today? The trends are hard to ignore. A 2019 Philips study of radiology technologists and imaging directors found that pressure on staff was high even before COVID-19.

Personal safety concerns and the need for new personal protective equipment (PPE) and disinfection protocols have only exacerbated it.

Burnout among technologists

In the same 2019 survey, respondents cited workload as their number one cause of stress and burnout. They also expressed that almost a quarter of their work could be automated.[3]

What are the greatest sources of stress or burnout at your work?



What if your radiology systems were so intuitive and intelligent that your imaging teams got the image right the first time, every time?

More ease, less stress

For the most part, technologists and sonographers bear the burden and privilege of being "the face of the imaging department" to patients. Yet staff often have little time to interact with patients, because their job demands and workload can be relentless.[12] Taking their needs to heart, we have harnessed automation, integration, AI and clinical intelligence to create "smart" workflow tools across imaging modalities that help technologists perform exams in a more patient-centered way, with more ease and less stress.

Routine MR exam set-up in less than one minute

For example, in MR – arguably the most stress-inducing imaging modality – technologist workload can be reduced by automating exam planning, scanning and processing. This allows even newer technologists to perform routine MR exams with confidence, with <1 minute patient set-up for most routine exams.* Decreased exam variability results in high-quality imaging that supports confident diagnosis, while automated patient coaching enhances patient experience. Staff have to worry less about getting equipment settings right and have more time to focus on the patient.

> "Time per exam is very tight, which affects the quality of the images as everybody is stressed."
>
> **S, Radiology technologist, Germany**

> "Often techs don't have lunch because they're so busy during the day."
>
> **C, Imaging director, US**

*Based on in-house testing.

Philips MR SmartWorkflow

Reduces and simplifies the number of steps needed for patient preparation, so that even newer operators who have never worked with the scanner can proceed with confidence – and keep focused on engaging with their patients.

Learn more about MR SmartWorkflow

Philips Spectral CT 7500

The Philips Spectral CT 7500 system is your fast, always on, low-dose path to precision diagnosis. Acquire spectral results within a single exposure, for any clinical procedure, and without special scan modes.

Learn more about Spectral CT 7500

Philips Incisive CT OnPlan patient-side gantry controls

Offers advanced and easy-to-use tools for positioning and protocol selection designed so that the majority of tasks needed to set up and end the CT scan can be completed right at the patient's side.

Learn more about OnPlan patient-side gantry controls

"We reduced time-to-results by 24% and clicks per exam by 66%.*"

* In a study done of multiphasic liver CT exams using the iPatient software platform: Impact of workflow tools in reducing total exam and user interaction time – 4-phase liver computed tomography exams. Nicholas Ardley, Southern Health, Kevin Buchan, Philips Healthcare, Ekta Dharaiya, Philips Healthcare.

"We went from an approximate 680 patients per month to nearly 1200 patients per month (with the workflow of the DigitalDiagnost C90)."

Peggy Colbeck-Rochford,
Head of Imaging,
Physicians' Clinic of Iowa, USA

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

> Cobalt saw its diagnostic imaging services reduce their MRI examination times by up to 30–50%, accommodating up to 20 additional patients per week as a result.

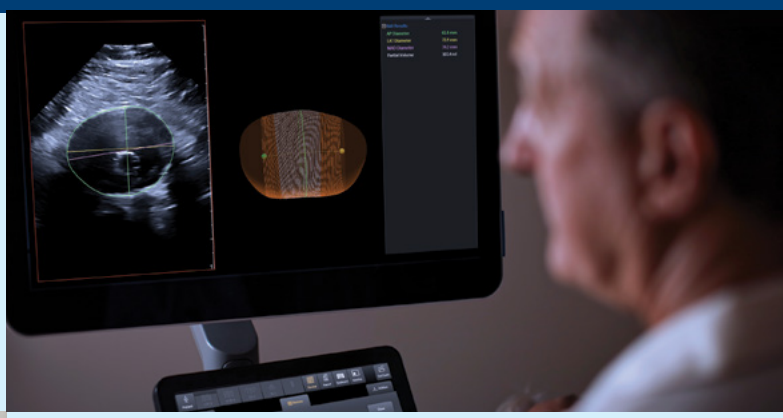
Karen Hackling-Searle, Head of MRI, Cobalt Health, UK

Workflow solutions | Smart systems

Philips Ultrasound Abdominal Aortic Aneurysm (AAA) Model

Detects, segments and quantifies 3D ultrasound data for use in surveillance of native and post-endovascular aneurysm repair (EVAR) AAAs.

Learn more about the AAA Model



Philips Radiology Smart Assistant*

Uses AI to improve acquisition accuracy for upright chest X-ray exams through continual quality analysis and feedback about position accuracy, given at the point of image acquisition.

Learn more about Radiology Smart Assistant

Philips Eleva Tube Head

Allows technologists to check or change the most vital digital X-ray exam parameters directly at the tube head and see the preview image directly at the tube head, speeding workflow.

Learn more about Eleva Tube Head

* Philips Radiology Smart Assistant is not a CE-marked or FDA cleared device.
This product is only available for sale in selected markets, please check with your local sales representative.

Some of the products shown or described may not be available in your market. Please contact your local Philips representative for availability.

Workforce shortages are straining radiology staff

The American Society of Radiologic Technologists (ASRT) reported in 2017 that **50%** of radiograph programs were not fully enrolled.[13]

Radiology departments are reaching their limits
Increasing demands on care systems put added pressure on already-stretched radiology departments. The need to do more with less, reductions in reimbursements and increasing case complexity continue to bring challenges related to staffing, skill variability and quality standardization into sharp focus.

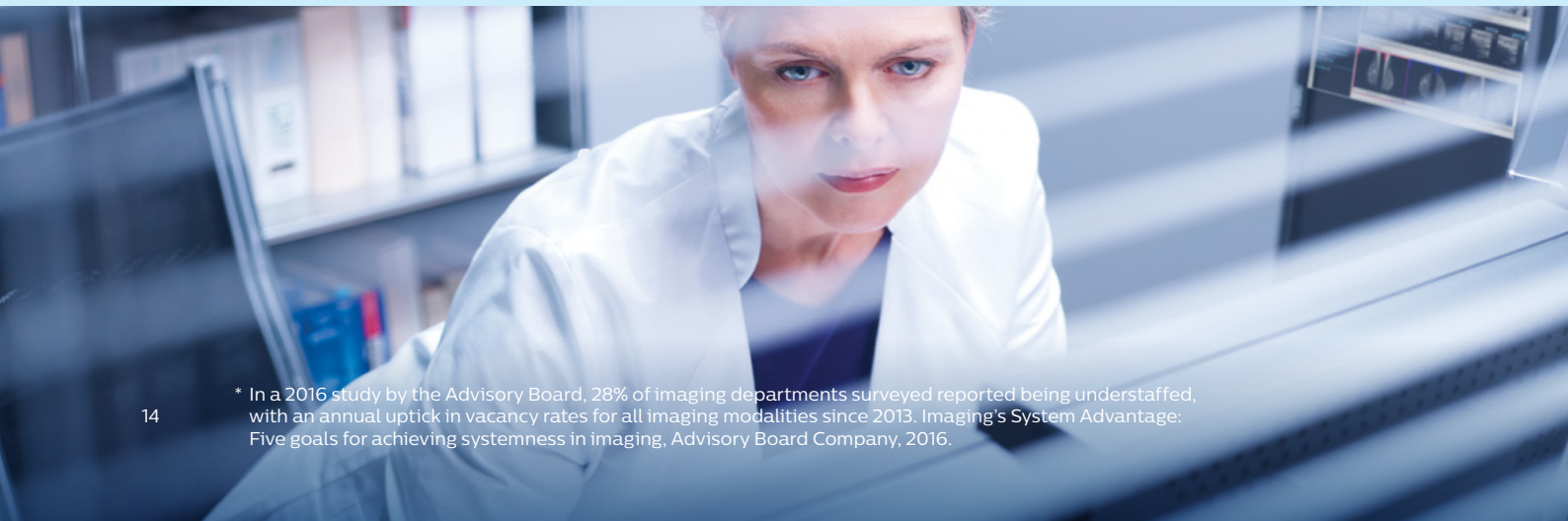
Preparing for a post-pandemic world
COVID-19 has wreaked untold damage. But it has also accelerated the use of breakthrough telehealth innovations – especially in radiology. Secure remote collaboration technologies are extending the reach of thinly stretched teams, bringing expert, on-demand guidance to radiology techs and sonographers and greater access to care for their patients.

Qualified technologists are in short supply
Qualified imaging techs and tech managers are already in short supply – and the forecast for meeting mounting demand is not optimistic.*

3 out of 5
lead technologists
want more imaging protocol standardization[14]

3 out of 5
technologists
want more on-the-job training[14]

4 out of 5
imaging respondents
believe an imaging telepresence solution would add value[14]



* In a 2016 study by the Advisory Board, 28% of imaging departments surveyed reported being understaffed, with an annual uptick in vacancy rates for all imaging modalities since 2013. Imaging's System Advantage: Five goals for achieving systemness in imaging, Advisory Board Company, 2016.

What if your imaging team could access expert support for complex procedures and protocols whenever they need it?

Image acquisition goes virtual with a central command center
In addition to telehealth tools that connect patients to care providers, the use of provider-to-provider telehealth has also skyrocketed during the pandemic, offering healthcare professionals new and innovative ways to collaborate, even when they are miles apart.

Real-time expert support
One such innovation in medical imaging, the **Philips Radiology Operations Command Center,** enables expert imaging technologists to remotely train, guide and assist less experienced or specialized colleagues in satellite locations. The power of this concept is that it allows for collaboration and over-the-shoulder support in real time, while the patient is on the gantry. This helps to ensure consistent image quality across sites, decreasing the need for repeat or rescheduled scans that place a burden on patients and staff alike.

Drive consistency in imaging operations across sites
This remote expert support removes the barrier of physical distance, extending your ability to offer consistent imaging experiences across your organization.

As an additional benefit, this virtual hub-and-spoke model can also expand access to advanced imaging such as MR and CT at more locations, closer to where patients live, at more flexible hours. Not only does this offer patients more convenience, but it also means they have a better chance of getting timely diagnosis and treatment, wherever they live.

Workflow solution | Virtualizing your imaging operation

Philips Radiology Operations Command Center (ROCC)

Connects imaging experts at a command center with technologists at scan locations across their organization in real time. ROCC is a virtualized solution that works across vendors and modalities.

Learn more about ROCC

> “ROCC was able to help us identify a critical finding – an acute brain tumor – when a junior tech reached out to me from a different center … all this while the patient was on-table. We were able to notify the patient’s referring doctor real-time so the patient could be taken care of immediately.”
>
> **Clinical Manager, Diagnostic imaging center, USA**

Bringing ultrasound expertise to the point of care with live remote collaboration

Tele-ultrasound is another emerging example of telehealth helping to make expert knowledge more widely available throughout a health network. Resourceful teams are finding new ways to leverage the power of telepresence. In some instances, the need is to connect ultrasound staff with clinical experts during the exam. In others, it's about supporting sonographers during late-night calls – or connecting remote locations with clinical hubs. And, increasingly, the convenience of tele-ultrasound is being recognized as a vehicle for accessing clinical training and coaching.

Support for technologists

Although ultrasound technology is getting easier to operate, it still requires a relatively high level of manual skill, especially in more complex clinical cases. Using a live collaboration platform integrated into an ultrasound system, an experienced sonographer at an urban hospital can support a colleague at a remote site in performing the exam. This access to on-demand experts allows for real-time guidance, decision support on complex exams, and training on care protocols.

Reassurance for patients

A specialized physician can use the same tele-ultrasound platform to provide instant reassurance to the patient and explain the exam findings from a distance, saving patients the stress of having to wait for their results for one or two weeks.

Workflow solution | Virtualizing your imaging operation

Philips Collaboration Live

Allows an ultrasound team to be in multiple places at once to enhance patient and staff experiences, improve workflow efficiencies and drive better outcomes. Now sonographers can securely talk, text, screen-share and video-stream with peers directly from their Philips EPIQ or Affiniti ultrasound system.*

Learn more about Philips Collaboration Live

*Contract required. For use with Philips Affiniti or EPIQ ultrasound systems release 6.0 or higher. Collaboration Live is designed to enable clinical collaboration and consultation. The tool is not intended for remote diagnostic use.

“We can connect directly with staff during the ultrasound exam and instantly respond to a question or concern. We see what they see, and can dynamically guide them to capture the right images. This significantly improves consistency of exam protocols and workflows.”

Yanick Beaulieu, MD, Cardiologist, Echocardiography and Critical Care
Hôpital du Sacré-Cœur de Montréal, Montreal, Quebec, Canada

Radiologists struggle with mounting workloads and expectations

Burnout is almost twice as common among physicians compared to other US workers. **45%** of radiologists report symptoms of burnout.[2]

More data than ever, but it's disconnected

We have to recognize the realities that radiology teams deal with daily. As COVID-19 has made us realize all too well, diagnostic imaging is at the heart of modern healthcare. Expectations for timely, convenient, definitive diagnostic imaging continue to rise. Yet, on both an operational and a clinical level, workflow inefficiencies take a heavy toll on staff.

For radiologists, this burden takes the form of large amounts of data, disconnected and inefficient systems, increasing workloads and complexity of cases, and pressing reporting demands – all of which can fuel frustration, burnout and a sense of disconnection from patient-centered care.

The opportunity cost is high

Radiologists currently spend too much time hunting down missing data, toggling between disparate applications, and performing low-value reporting tasks. The opportunity cost to their clinical colleagues and patients are the quantity and quality of important clinical insights they're able to bring to the diagnostic team.

How can we elevate their work experience? Can we bring the same transformative relief to radiologists that corporate productivity apps have brought to millions of knowledge workers in other sectors? We believe we can. The Philips enterprise imaging platform lets you capture, manage, archive and collaborate on databases, applications and workflow across your organization.

> "Burnout is a concern for radiologists, greater for diagnostic radiologists than all other physicians. Risk factors for burnout include inadequate training, work overload, lack of control, severe time constraints for work output, prolonged stress, introduction of many changes quickly."[15]
>
> **Journal of the American College of Radiology, 2016**

What if radiologists could organize, review, analyze and report imaging studies using just one workspace?

For radiologists, the need to quickly access, synthesize and analyze data is the key to productivity. In complex clinical domains such as neurology and cancer care, where imaging studies are complemented by many other types of information (including pathology reports, molecular tests and genetic profiles), it can require a huge effort for the radiologist to pull together the relevant patient information to provide informed guidance to referring colleagues. This is where radiologists lose precious time and opportunity today.

Now imagine what an automated, AI-enabled, seamless experience could look like for radiologists, starting with the low-value task of just figuring out which exam to read next.

What if your radiologists could stop spending precious time figuring out which scan to read?

In complex, multi-site radiology enterprises, where different locations generate an ongoing stream of imaging cases – some urgent, some less urgent, and some highly specialized – it can be a time-wasting challenge to manage the prioritization and delegation of cases to the best-suited radiologist.

The right case to the right radiologist at the right time
Intelligent algorithms that automatically determine the best match can help deliver the right case to the right radiologist, based on their area of expertise, availability and current workload. This helps with balancing workload among radiologists, allowing the most relevant cases to be read first by the appropriate subspecialist who is available.

For example, when a patient with a sudden and acute headache is rushed into the emergency department, a CT scan is performed. AI algorithms* can detect an intracranial hemorrhage, which can trigger the worklist to prioritize the case. Philips Smart Worklist will move the exam to the top of the worklist for the most appropriate neuroradiologist.

While the patient is still in the scanner, the radiologist reading the image can remotely connect to another specialist using native chat and screen-sharing to discuss the case in a secure digital environment, giving the patient the best chance of timely diagnosis and effective treatment.

Workflow solution | Streamlining image interpretation and reporting

Philips Radiology Workflow Orchestrator

Offers the ability to index multiple archives stored on disparate servers to automatically deliver the most urgent studies to the most qualified radiologists, expediting reading and reporting so that appropriate treatment can be given as quickly as possible.

Learn more about Radiology Workflow Orchestrator

* Philips Radiology Workflow Orchestrator can be connected to external AI algorithms in order to prioritize worklists. Radiology Workflow Orchestrator itself has no AI internal algorithms.

What if your advanced visualization tools were available anywhere you need them across your enterprise?

In increasingly distributed healthcare environments, clinicians expect access to the multimodality, multi-vendor images and information they need, no matter where they are, to support follow-up and communication across clinical care pathways. Traditional PACS viewers are not meeting this need, and their inadequate features mean that departments are not always able to improve team performance. Often, to perform advanced visualization measurements, radiologists need to switch among different software solutions.

A unified workspace for productivity and collaboration

This is why we are so committed to integrating the data and tools clinical teams need to make timely and informed decisions into one, connected, easily accessible platform. Our Philips diagnostic radiology client provides a single workspace with relevant tools for confident reading and insightful reporting to provide greater clinical insight.

- Interactive multimedia reporting module with dictation
- Lesion management application for oncology follow-up
- Digital mammography reading workflow
- Enterprise viewer module for enterprise access

Philips offers a unified workspace with diagnostic tools and native reporting for improved clinical productivity across radiology, oncology, neurology and nearly a dozen other common clinical visualization applications. Additionally, we have integrated our robust suite of more than 70 advanced visualization tools into the workspace. For radiologists, that means easy, intuitive access to the tools they need, when and where they need them.

Sample embedded functionalities

MPR/MIP
- Volume rendering
- Tissue definition

Calcium scoring
- Cardiac analysis
- Coronary analysis

PET/CT
- Lesion management
- CT/MR perfusion and diffusion

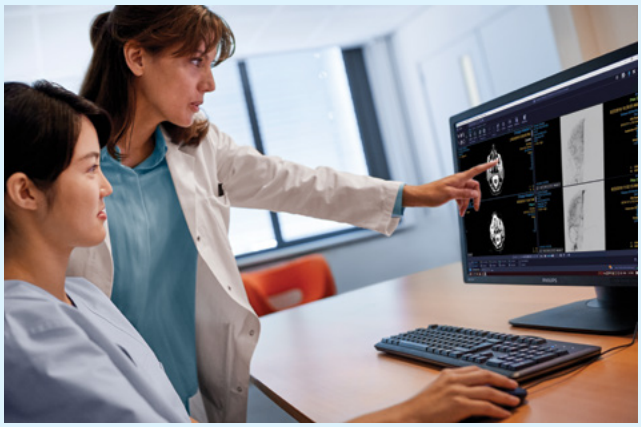
Cardiology pack
- Virtual teaching
- Library

Breast imaging
- DBT breast tomosynthesis

Philips Diagnostic Radiology Viewer

Provides a single workspace with relevant tools for confident reading and insightful reporting, improving workflow and productivity by using embedded native 3D functionality and multimedia reporting.

Learn more about Diagnostic Radiology Viewer



> “With Philips diagnostic workspace we save at least 1 to 2 minutes per patient. So that is alot of time saved at the end of the day, across every specialist in our department.”

Eliseo Vañó Galván, MD, Cardiovascular Radiologist
Chair of the CT & MR Department
Hospital Nuestra Señora del Rosario, Madrid, Spain

Philips IntelliSpace Portal

Offers advanced visualization with a robust set of tools for AI-assisted quantitative assessment and automatic results generation. Supports your diagnostic workflow, including follow-up and communication across cardiology, pulmonology, oncology and neurology. Updates include AI algorithms for lung nodule detection, cardiac functional analysis, and quantification of pulmonary infiltrates associated with COVID-19 patients.

AuntMinnieEurope. WINNER

Learn more about IntelliSpace Portal

It's harder to see the future if your radiology reports are stuck in the past

97% of radiology departments are unable to meet reporting requirements.[4]

It's time for radiology reporting to catch up

Ever since Wilhelm Röntgen discovered the X-ray 125 years ago, radiology reports have not fundamentally changed in format, relying on a text-based narrative to convey findings to physicians and patients.[16] Currently, radiologists still face the challenge of manually importing measurements and relevant findings into the report, which can cause errors and fail to meet requirements for overall reporting quality and efficiency. Fortunately that is now changing, with radiology reporting moving into the hyperlinked, voice-activated, multimedia world that already surrounds us in our everyday lives.

Hyperlinks to view compared prior studies in Enterprise Viewer

Voice commands to insert hyperlinks to prior studies prevents long dictation of dates and its potential errors

Automated graphs to monitor the status of the patient

Key images

Detailed table of the lesion

Digital signature available

With advanced multimedia reporting and bookmarks, radiologists can create reports with better data and greater clinical insight without the need to acquire a dedicated reporting solution.

Multimedia reporting offers deeper insight and more value to referring physicians

Today's referring physicians want fast turnaround times, but more importantly, they seek reports with greater clinical value and insight. In oncology and other complex clinical domains, where patients are often followed over long periods of time, physicians are looking for rich and longitudinal insight in radiology reports without having to dig for prior reports and manually compare images.

Interactive multimedia reporting allows radiologists toembed key images for side-by-side comparison, with hyperlinks to view compared prior studies in the enterprise viewer, tables and graphs to clearly track progress of findings over time, voice commands to insert hyperlinks to prior studies to prevent the potential errors of long dictation, along with quantitative data from advanced post-processing. In addition, native interactive multimedia reporting and advanced visualization applications – as part of a single unified workspace – eliminate the need for a separate reporting solution.

What if your radiologists could significantly reduce their reporting time while increasing the value of the report?

Save time and create more value with every report
Radiology leaders who have adopted multimedia reporting claim, jokingly, that their clinical colleagues won't let them ever go back to "old-school" reports. Referring clinicians can now click on the embedded images for closer inspection without having to leave the report. This can be a big time-saver. One study showed that multimedia reports can save oncologists 8.9 minutes in assessing a patient's tumor burden, compared to text-only reports.[17]

Multimedia reporting has also proven a time-saver for radiologists – even as it significantly increases the depth and quality of information it conveys. With embedded voice recognition capability, this module can help cut reporting turnaround time by entirely eliminating the need for typing and entry of patient or clinical context. Exam data can be inserted directly into reports, enabling radiologists to quickly review and approve final reports while adding clinical context for referring physicians.

Workflow solution | Reporting and results communication

Philips Interactive Multimedia Reporting

A single user interface for reading images and reporting with the ability to embed key images for side-by-side comparison, add charts and graphs and hyperlinks to easily view bookmarked findings as part of the entire imaging study, have speech recognition and editing capabilities, and include quantitative data from advanced postprocessing, such as vessel analysis.

Learn more about Interactive Multimedia Reporting

> "We're creating much richer reports, and we're getting very, very positive feedback. You could even say we are getting famous in the Madrid health community …. It's the perfect tool for giving outcomes to the clinicians and to the patients. The clinicians will never want another way of getting reports. They just love it."

Eliseo Vañó Galván, MD, Cardiovascular Radiologist, Chair of the CT & MR Department
Hospital Nuestra Señora del Rosario, Madrid, Spain

Taking the right next step for the patient, wherever they are on their journey

From 1990 to 2020, there's been an estimated more than **100X increase** in the number of facts per clinical decision.[18]

There's more information, but is there more insight?
Precision diagnosis embraces the promise of a more direct path through diagnosis and treatment – one that combines the power of imaging, pathology, genomics and longitudinal data with insights from artificial intelligence to drive the right care in the right sequence at the right time. Diagnostic service lines such as radiology, laboratory, and point of care are key to providing the right diagnostic information – but integrating it all to inform clinical decision-making remains a big challenge for clinical service lines such as oncology, cardiology and neurology.

Philips is focused on bringing increased precision to how diagnostic information is acquired, shared, and translated into insights across specialties, helping ensure every piece of diagnostic information is consolidated and contextualized to help you answer with confidence this major question: **What should we do next?**

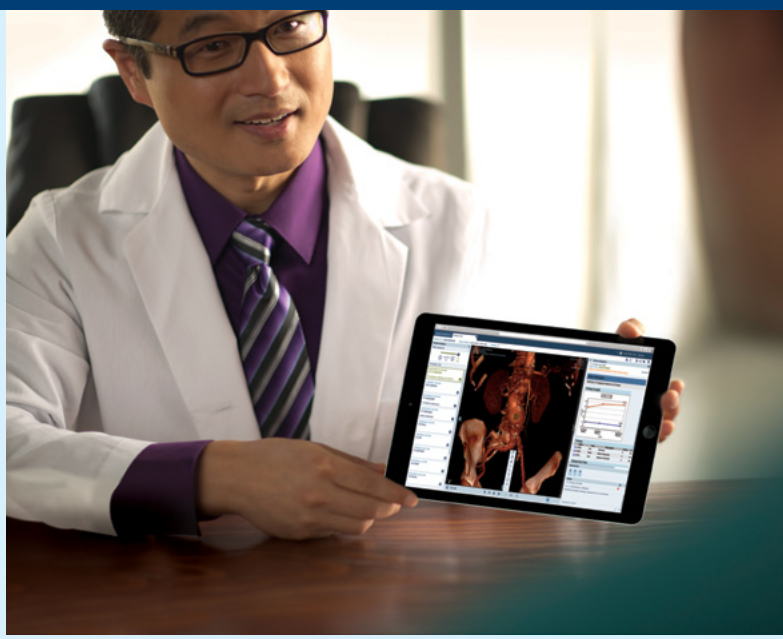
Workflow solution | Facilitating clinical collaboration

Philips Enterprise Viewer

Philips Enterprise Viewer is a vendor-neutral, zero-footprint universal viewer connected to existing patient records to provide seamless storage, accessibility and sharing of all clinical data that can be integrated with any DICOM PACS, DICOM archive or XDS repository. Communication capabilities such as chat and screen-sharing enhance collaboration among clinicians and radiologists.

Learn more about Enterprise Viewer

Award-winning solution



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What if your clinical team had immediate access to consolidated radiology, pathology, genomic and other patient information for individualized decision-making?

Image-sharing solutions

A patient-centered approach to diagnosis and treatment depends on quick and secure clinical image access for authorized stakeholders, including physicians, patients, payers and administrators. Today, "access" means easy, secure, "anytime and anywhere" availability of clinical images (DICOM and non-DICOM) across the enterprise – even on mobile devices. Seamless sharing of clinical images can happen with a vendor-neutral, zero-footprint universal viewer connected to existing patient records to provide seamless storage, accessibility and sharing of all clinical data.

Transform the tumor board process

In no clinical specialty is clinical collaboration and care orchestration more critical than in oncology. Here, the time-honored "tumor board" of multidisciplinary professionals has integrated data and expertise. Now, a virtual tumor board solution – made necessary by the pandemic – has emerged to transform and enhance the tumor board process. By creating a unified dashboard that automatically integrates patient information from multiple departments, cancer care teams can see the whole patient profile at a glance and decide on a treatment pathway during virtual or in-person multidisciplinary tumor board meetings.

Workflow solution | Facilitating clinical collaboration

Philips Tumor Board Orchestrator

Visualize, support and communicate across clinical domains and modalities with this comprehensive patient tumor assessment and clinical decision support platform.

Integrate information from hospital information systems (HIS) across different clinical domains such as radiology, pathology and genomics for collaboration and communication with a comprehensive view of patient information and care path.

Learn more about Tumor Board Orchestrator

> "Such a tumor board orchestrator, with workflow management but also task automation, will drive the consistency of oncology care delivery. I've seen similar approaches with other vendors, but this is the first time that I see this along the entire patient's care path."
>
> **Radiation oncologist, Europe**

Real-time, data-driven operations enable continuous improvement

Recommended additional imaging is not happening often enough. **More than 60%** of imaging recommendations for follow-up care of incidental findings are not adhered to by patients.[19]

You've made the imaging recommendation – now what?

In the case of incidental findings, follow-up and tracking can make all the difference, as the majority of recommendations for follow-up imaging are currently not acted upon.

In addition, studies have shown how patient no-shows can be predicted based on previous no-shows, days between scheduling and appointments, and modality type – allowing radiology administrators to target their patient engagement efforts more precisely. It's just one example of how data-driven practices can help improve continuity of care and operational efficiency in imaging enterprises.

Real-time analytics support better practice management

Real-time data analytics have created other opportunities for operations management as well. By giving radiology administrators the tools to continuously monitor KPIs – such as modality-specific exam volumes, resource utilization and cancellation rates – they can also get a better understanding of how patient engagement is changing the demand for services. Integrating data from industry-standard sources allows for a comprehensive analysis in one place without the need for manual integration. This lets administrators make decisions that are better informed on the allocation of staff and resources, based on the latest facts and figures.

For example, as radiology departments are ramping up again in the wake of COVID-19, we are helping them create dashboards that forecast how many technologists are needed for particular shifts based on expected patient volumes. Dashboards are updated on the fly – constantly helping administrators decide what to do next.

What if you could have complete confidence that radiologist recommendations for further diagnostic procedures would be followed up?

Engaging clinicians, patients, and administrators in elevating care is simplified by smart tools that make it easy to identify and manage patients who have been recommended for follow-up exams, enabling you to take action to increase the likelihood of adherence.

Driving operational outcomes and performance improvement

Until now, there hasn't been a mechanism to determine that follow-up actually occurs when patients have clinical findings that lead to follow-up recommendations. With Philips integrated follow-up management application, you can now identify and manage patients who have been recommended for follow-up exams, enabling a facility to take action to increase the likelihood of adherence.

> "Being able to visualize our data in such unique ways, particularly the overlay of data on maps, is very impactful. The sophisticated visuals make it easy to express the point to key stakeholders and decision-makers."
>
> **Richard Dagenais, Director of Medical Imaging, Saskatchewan Health Authority, Saskatchewan, Canada**

Workflow solutions
Increasing patient adherence to follow-up recommendations

Philips PerformanceBridge Follow-up Tracker

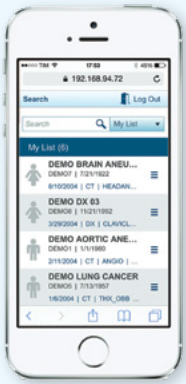
Auto-generate a consolidated list of patients with follow-up recommendations, physicians and schedulers to help minimize failure to comply in a timely manner, improving the patient experience and optimizing access to care.

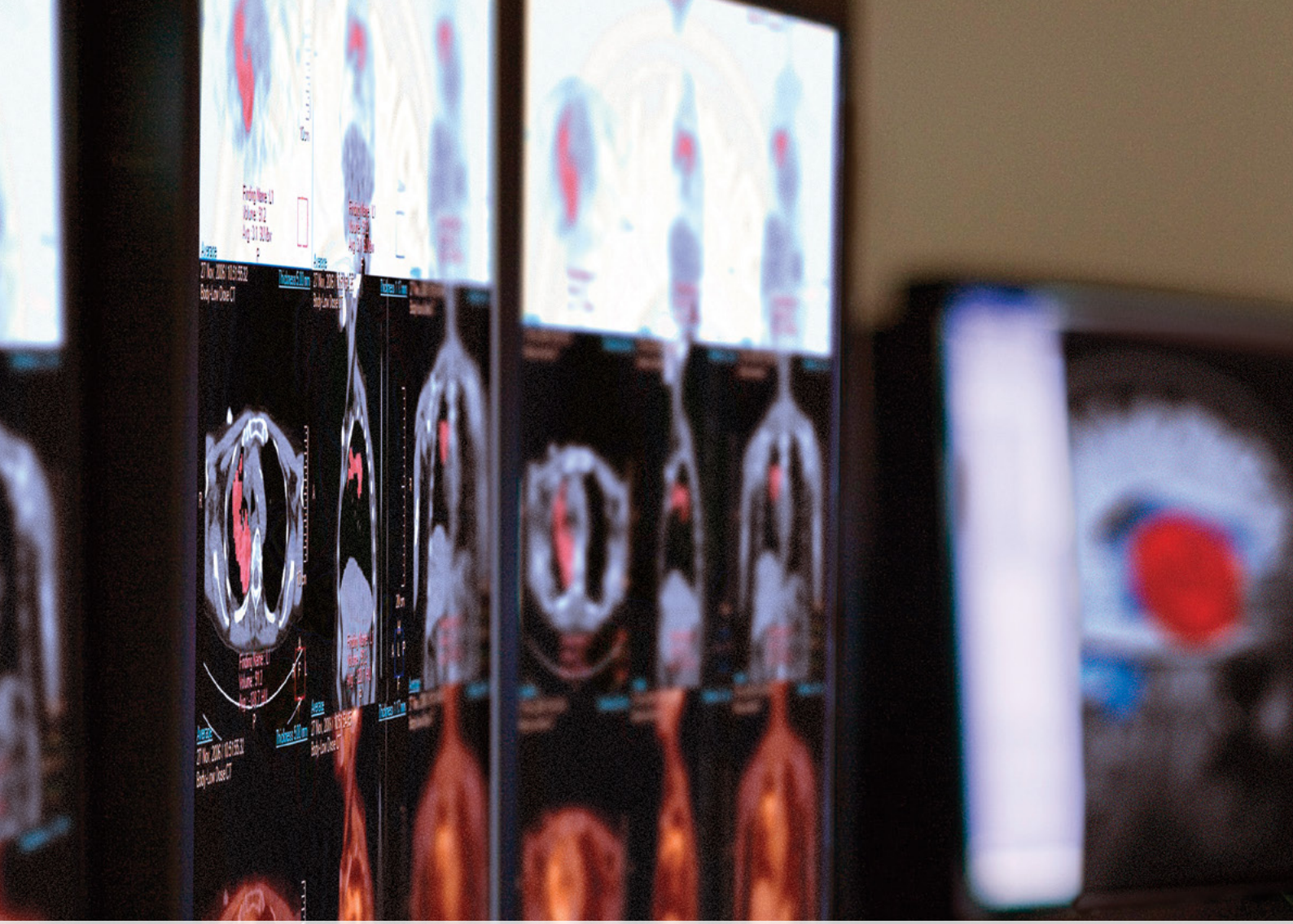
Learn more about PerformanceBridge Follow-up Tracker

Philips Enterprise Repository

Enable healthcare professionals to build the imaging health record with medical photos, videos and emergency images captured using any web-enabled device (including smartphone and tablet) and directly connect that data to a patient's electronic health record.

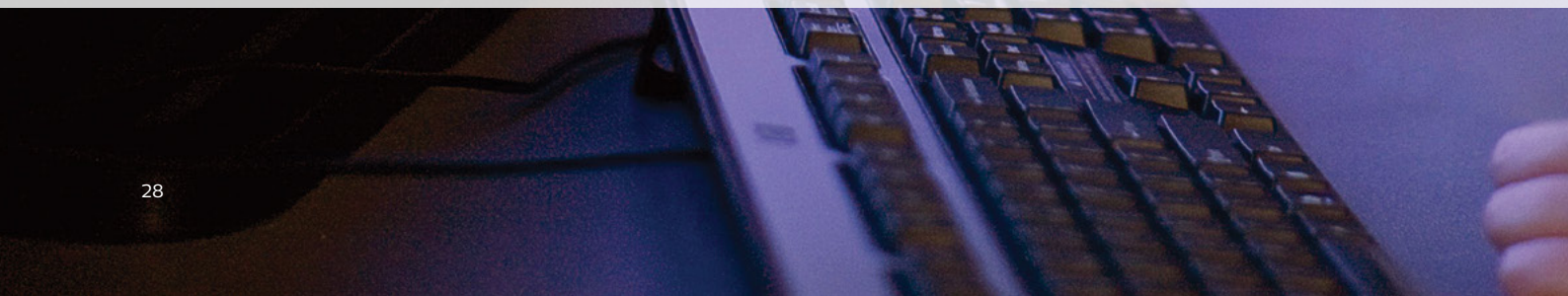
Learn more about Enterprise repository





What can happen when you address your workflow challenges?

Improving and streamlining workflows is perhaps the most potent area for improvement in radiology today. Imagine how your radiology service would improve if you could see the following gains.



- Reduce appointment no-shows by **19%** and late cancellations by **14%**[11]
- Decrease MR patient set-up to less than a minute in routine exams*
- Use telepresence solutions to connect technologists and clinical experts
- Reduce CT turnaround time in the emergency department from order to exam start by **14%****
- Organize, review, analyze and report **your** imaging studies using just one viewer
- Improve report reading time for assessing tumor burden in cancer care by **60%**[17]
- Improve MR service efficiency by **10-20%** to enable greater volume and access to care†

These results and more are possible when you focus on driving efficiency through integration, digitization and virtualization of the radiology workflow.

* Based on in-house testing. SmartWorkflow solutions in MR | Philips Healthcare.

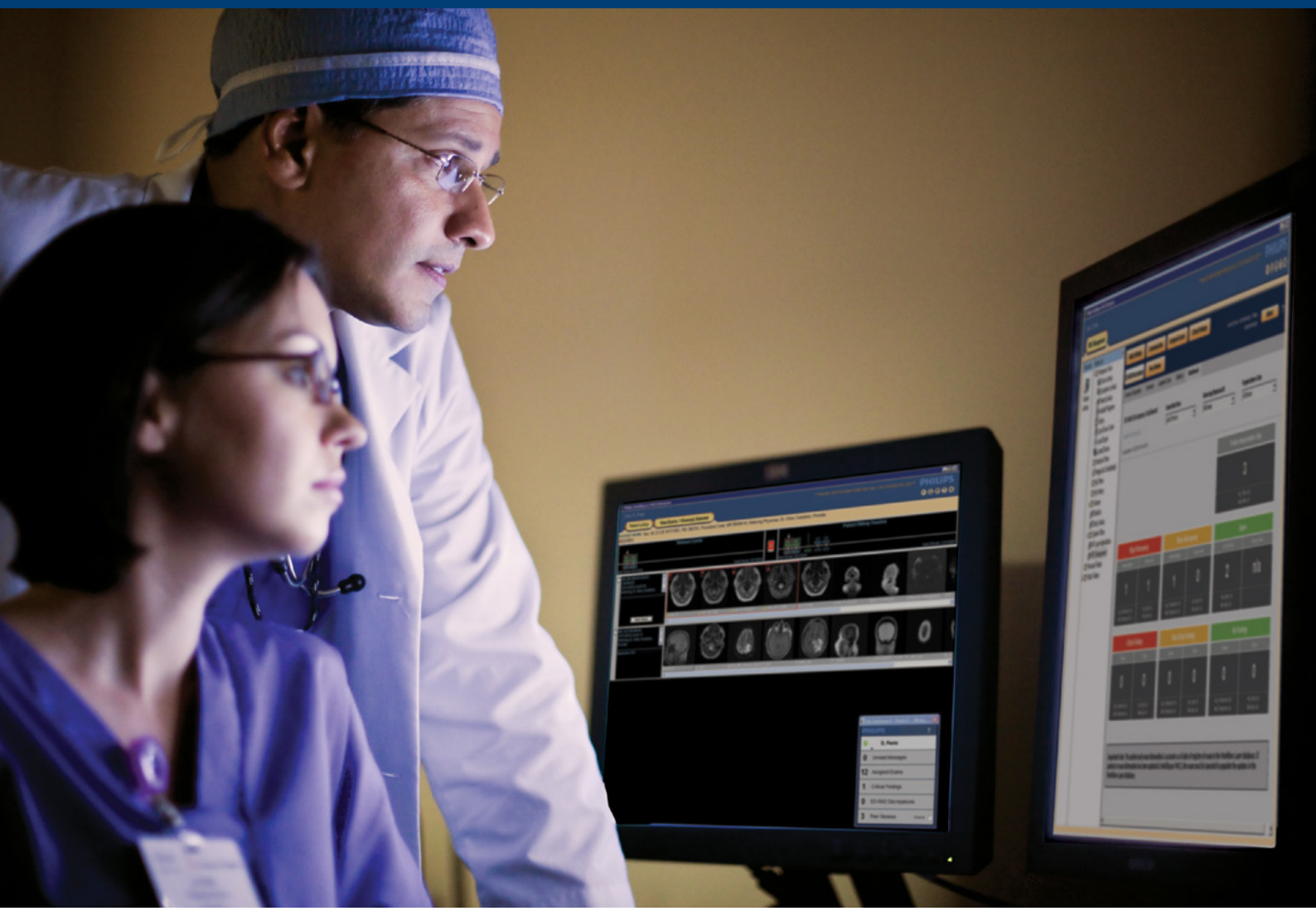
** Since implementing and leveraging PerformanceBridge Practice to discover and address the issue, Boston Medical Center has been able to achieve a 14% reduction in CT turnaround time from order to exam start in its ED. For a department that performs 30-40 CT scans a day, that's a significant workflow improvement.

† Based on a project conducted at Banner Health, Phoenix, AZ, U.S. Using PerformanceBridge Practice software analytics, we identified an opportunity to drive added MRI volume and revenue in a few ways, one of which was improving MR efficiency by 10-20% to hit a total of 80% efficiency.

We developed the Radiology Workflow Suite from a sincere desire to help the imaging community we serve enjoy simpler and more efficient workflows that help reduce stress, minimize variability, increase productivity and enhance the patient and staff experience. By working with you to connect data, technology and people, we can turn defining moments in the radiology workflow into a clear care pathway with predictable outcomes for every patient.

Let's walk this path together.

Contact us



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* OCT 2021