PHILIPS

Radiology Informatics

White paper

November 2023

Optimizing workflows and data security for remote radiologists

Read, report and collaborate from virtually anywhere

Contents:

Executive summary: flexibility and productivity wherever radiologists read

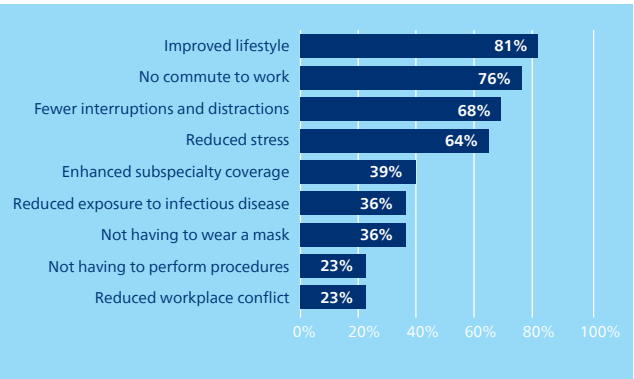
Unleash true remote diagnostic imaging workflows, go beyond image access to work virtually anywhere

Working remotely is not new for radiologists; they've been doing it since at least the late 90s. It's become more prevalent to adhere to COVID-19 safety and social distancing guidelines. The pandemic has forced healthcare leaders to become more agile, build resilience and adopt smarter ways of working to help future-proof care. It has also pushed them to rethink how care is delivered.

Even in the post-COVID-19 era, it's become evident that remote reading will likely be an enduring component of radiology workflows. A vast majority of new radiologists (84%) express a stronger preference job that offers a remote work option.[1]

For remote practice to be effective, radiologists should be provided appropriate, modern solutions that offer image quality and consistent workflows.

Organizations can overcome technical, professional and organizational barriers with a productive partnership between the IT department and enterprise imaging vendor. Secure tools allow seamless collaboration with clinicians and patients while reducing commutes to the hospital. This guide outlines proven options healthcare organizations can use to achieve effective remote radiology reporting and collaboration.



Perceived advantages of remote reading*

84%
Of the new generation of radiologists rate remote work as very important, according to a recent nationwide poll.

*A total of 345 questionnaires were completed for the survey.

Protecting healthcare data

Choose from three security options for remote radiology workspaces

When working on site, radiologists typically connect directly to the viewer via local or wide-area network managed under the institution's IT security policies. Working remotely requires an extra layer of security between the radiologist and the server.

To help keep healthcare data private when working remotely, organizations have options to consider depending on their current IT structure and long-term strategy.

Virtual private network

Connecting through a virtual private network (VPN) is one of the most common approaches. The VPN is a secure connection between the remote location and the organization's network, which has a firewall at the perimeter. The sender's system encrypts the data, which is then decrypted at the destination based on established authentication protocols.

- Configuring a VPN is relatively simple.
- The radiologist may need to install applications that communicate with the organization's systems.
- The remote office becomes an extension of the secure network, with policy-based enforcement of any data or resource restrictions.

Maintain security, integrity and availability when working remotely, whether accessing clinical data stored on site or in the Philips cloud.

DMZ/reverse proxy

If the organization has a DMZ or reverse proxy in place — or simply doesn't want to manage multiple VPN connections — it can deploy a Philips gateway outside the firewall in a "stateless" mode, which means it contains no patient or study data.

This server connects securely to the radiologist's PC over the internet, using our secure protocol for compression and encryption, and passes data across the firewall to and from the on-site server.

- A single, device-specific channel minimizes exposure risks.
- The radiologist's PC can be configured to request studies for review directly from the radiology worklist.
- Alternatively, the radiologist can use the zero-footprint Philips Enterprise Viewer in a standard web browser while still taking advantage of embedded advanced tools such as 3D volume rendering, MPR/MIP and automated registration of multi-modality cases.

Philips cloud services

Our ISO-certified cloud solution is hosted in tier 3+ data centers that offer the highest levels of security and redundancy.

The radiologist can forward studies to the cloud and report securely from any location that has an internet connection. For organizations seeking a long-term solution for radiology data storage, integration, scalability and anywhere/anytime reading and reporting, this is the best way forward.

- For enterprises not already using Philips cloud services, this requires on-site gateway implementation and integration with the local infrastructure.
- A dedicated security appliance connects to Philips cloud services via the locally installed gateway.
- Remote users connect securely using the Philips cloud diagnostic client to report studies assigned to them, while the enterprise retains full control over permissions.

Interactive multimedia reporting simplifies and speeds reporting with native voice recognition, RIS and PACS integration, single sign-on and structured, user-defined reports.

Optimizing performance

Maximize productivity for the internet connection and home PC

In all three secure connection configurations, Philips Diagnostic Viewer provides the end-user experience on the remote PC. Installation is simple, with deployment via the web or a simple MSI package. Remote radiologists have access to the same features, tools and functionality in a single application — including embedded reporting with voice recognition — as those reporting on site using power viewer. Several features contribute to optimum performance.

User profile

A roaming account allows the radiologist to remotely access the account, complete with personalized shortcuts, speech recognition profile and other application settings.

Image streaming

Philips Diagnostic Viewer protocol provides significant performance benefits over a standard DICOM transfer. For example, when bandwidth is constrained, images load quickly in a lossy format, and layers continue to build in the background until achieving full lossless quality. Upon scrolling, loading is intelligently reprioritized.

Interactive multimedia reporting

Interactive multimedia reporting enables the radiologist to insert enhanced content — images, charts, graphs and interactive hyperlinks to annotated findings — directly into reports. Downstream consumers can access these multimedia elements, allowing the referring physician or patient a more interactive and comprehensive experience when reviewing the report.

Push to client

In extremely low-bandwidth, high-latency conditions, studies can be queued for transfer and placed in a private, temporary cache on the local PC. The radiologist can report without relying on live-stream transfer of study data between the PC and server.

Encryption

Organizations can encrypt communication between the remote PC browser and the destination web server running the Philips application. They can either use certificates and TLS/SSL, VPN agent or device hardware to secure the VPN tunnel. Our communication protocol can also add TLS/SSL security.

Authentication

While the customer typically provides VPN and DMZ/reverse proxy solutions, the local active directory controls authentication. Organizations may also use additional protocols such as SAML or single sign-on solutions like Imprivata.

Enhancing collaboration between clinicians

Access data and communicate securely anytime and virtually anywhere

When physicians share responsibilities for patient care, they must have effective collaboration tools, as well as the ability to seamlessly review images to provide a second opinion or plan clinical treatments for optimum healthcare outcomes. Enabling radiologists to work remotely requires consideration regarding security, efficiency and quality and determining how to translate everyday workflow from state-of-the-art reading rooms designed for collaboration to the radiologist's home environments.

The Philips Enterprise Viewer module lets clinicians work securely from anywhere. It was recognized as 2022 Best in KLAS for Universal Viewer (Imaging) worldwide.[2] Radiologists can easily switch between platforms and devices for all internal and external communications. Even when used outside the healthcare facility, Philips Enterprise Viewer provides authorized stakeholders with the same level of usability and security.

Embedded 3D

The entire patient portfolio is available through a single interface, including images, reports with embedded hyperlinks to key findings, bookmarks, orders, sticky notes, prior studies and other non-DICOM clinical data.

In addition, advanced 3D rendering tools are available to all users in a zero-footprint server-side rendering mode. Rendition options include MPR, MipPR, MinPR and volume rendering, with side-by-side display of different data sets and fully synchronized scrolling.

Image sharing application

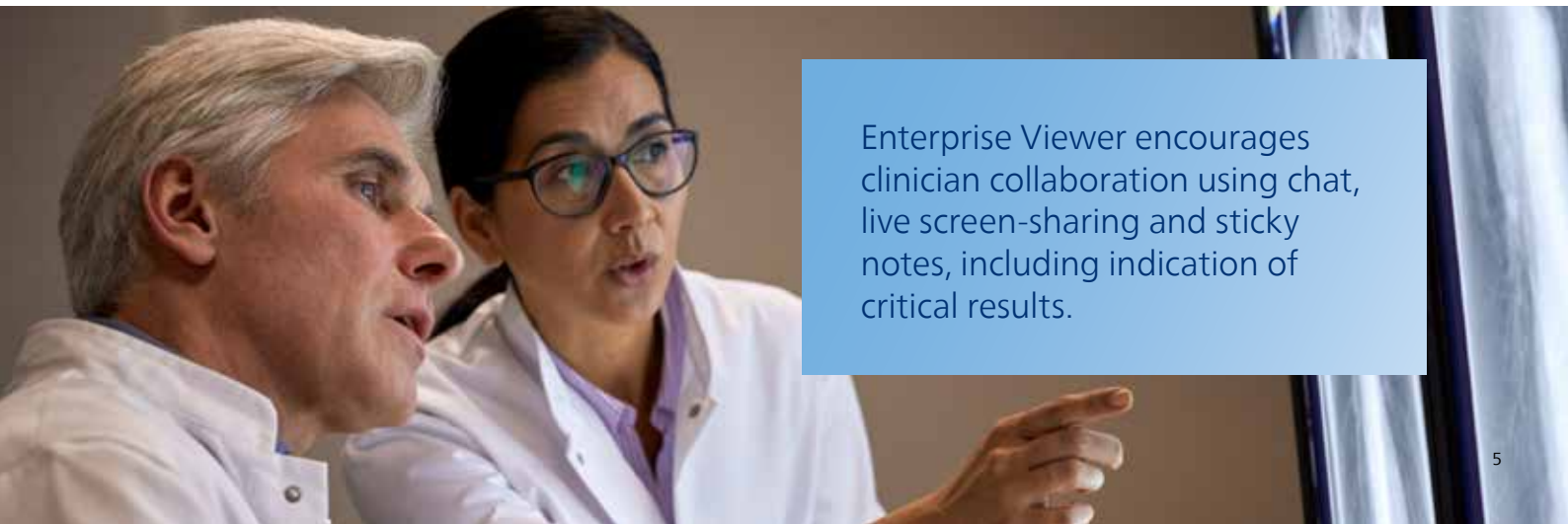
The Philips Enterprise Viewer module offers the ability to share studies by sending a link to other doctors within the institution. External guests can access studies with a link and a code they activate for a single opening of the study. For example, a radiologist working in the emergency department can ask a neuroradiologist working remotely for a quick review of the case using a tablet, smartphone or PC.

Chat and screen sharing

The chat function is designed to support image sharing by sending a link to the study from within the application, linking the Enterprise Viewer module with the diagnostic client. Doctors can share screens as they review the same case using a native, secure application designed specifically for real-time collaboration in virtually any location.

Sticky notes

Another link between the diagnostic client and the Enterprise Viewer is the ability to write notes on the study. Whether working on-site or remotely, doctors can post or view sticky notes that accompany the image shared with others who open the study.



Enterprise Viewer encourages clinician collaboration using chat, live screen-sharing and sticky notes, including indication of critical results.

Engaging patients

Encourage patients to play an active role in their own care

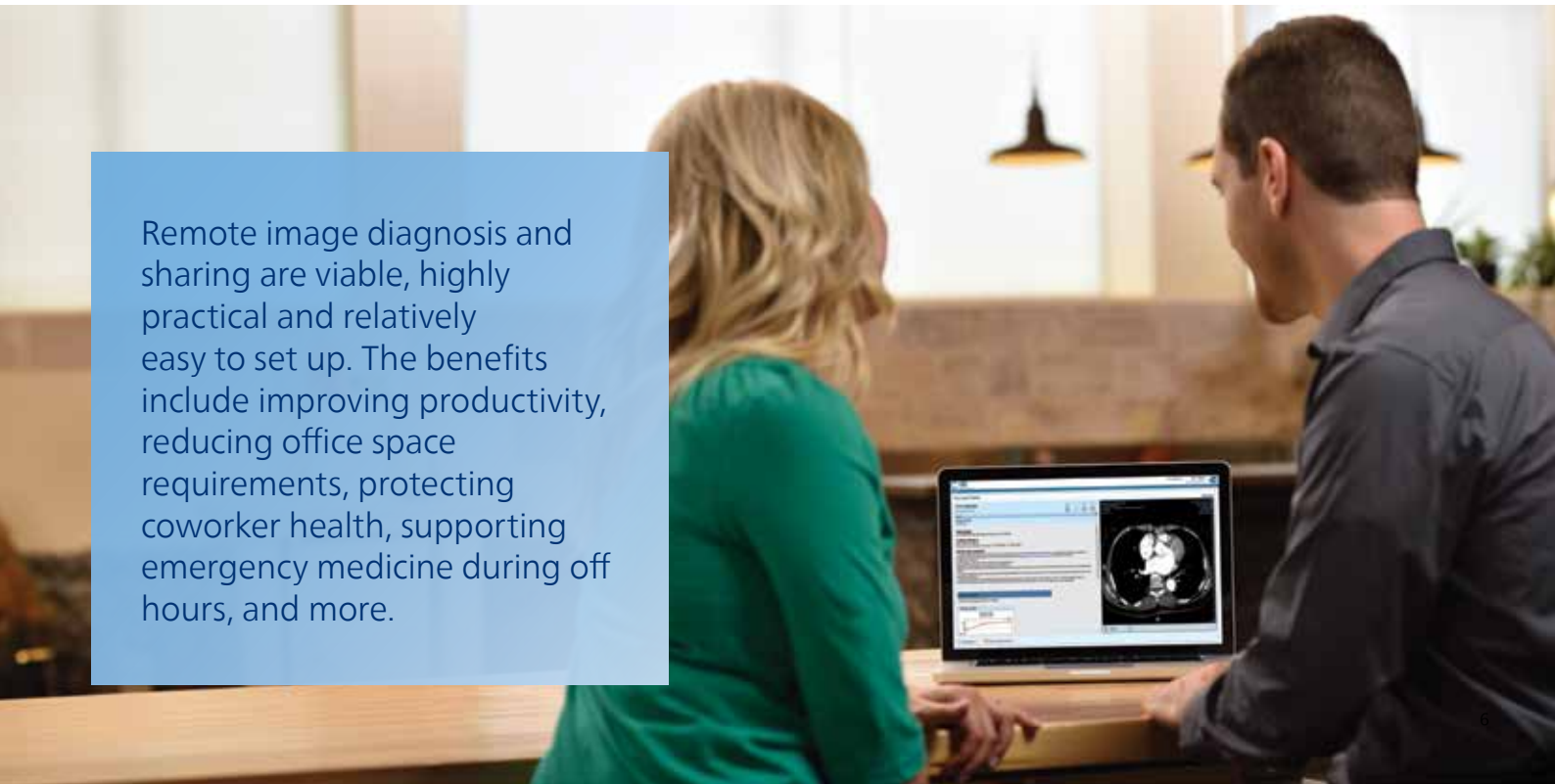
Patients are developing a consumer mindset regarding healthcare. They want more information to help guide their decisions and monitor their progress. At the same time, they want to reduce the need for in-person contact when possible. Accommodating these needs places an extra burden on providers as they burn, package and mail CD copies of radiology reports.

While it has become common practice to share reports with the patient, they are still typically provided on physical media. Few providers have adopted a web-based solution for instant, secure delivery of radiology reports. And far fewer have the ability to give their patients autonomous control to securely share reports with other doctors or family members.

Philips Patient Portal and Enterprise Viewer – the platform's image-exchange solutions – can help doctors accommodate their patients' needs while improving healthcare efficiency. They are secure web portals that allow patients and referring physicians to view and manage exam data on any web-enabled device, including mobile tablets and smartphones. And they can share it with other authorized physicians, facilities and family.

The intuitive user interface allows patients to securely access, manage and share their imaging records without dedicated training or support, and minimizes the need to return to the hospital to pick up results. The Patient Portal provides your patients the involvement, convenience and control they want while maximizing engagement, loyalty and satisfaction.

Using a unique, secure login code, patients can access their images and reports through the Patient Portal.



Remote image diagnosis and sharing are viable, highly practical and relatively easy to set up. The benefits include improving productivity, reducing office space requirements, protecting coworker health, supporting emergency medicine during off hours, and more.

Get in touch

Interested to learn more?

We'd love an opportunity to discuss how we can partner to create solutions and services to address your specific needs. Please get in touch with Philips Radiology Informatics.

1 Neitzel E, vanSonnenberg E, Markovich D, Parris D, Tarrant J, Casola G, Mamlouk MD, Simeone JF, The New Normal or a Return to Normal: Nationwide Remote Radiology Reading Practices after Two Years of the COVID-19 Pandemic Journal of the American College of Radiology (2023), doi: https://doi.org/10.1016/j.jacr.2023.04.014. Let's put the footnote at the very end of the paper)
2 https://klasresearch.com/report/2022-best-in-klas-awards-software-and-professional-services/2770

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