Definium™ Tempo

Definitive insights. Exceptional experience.

gehealthcare.com

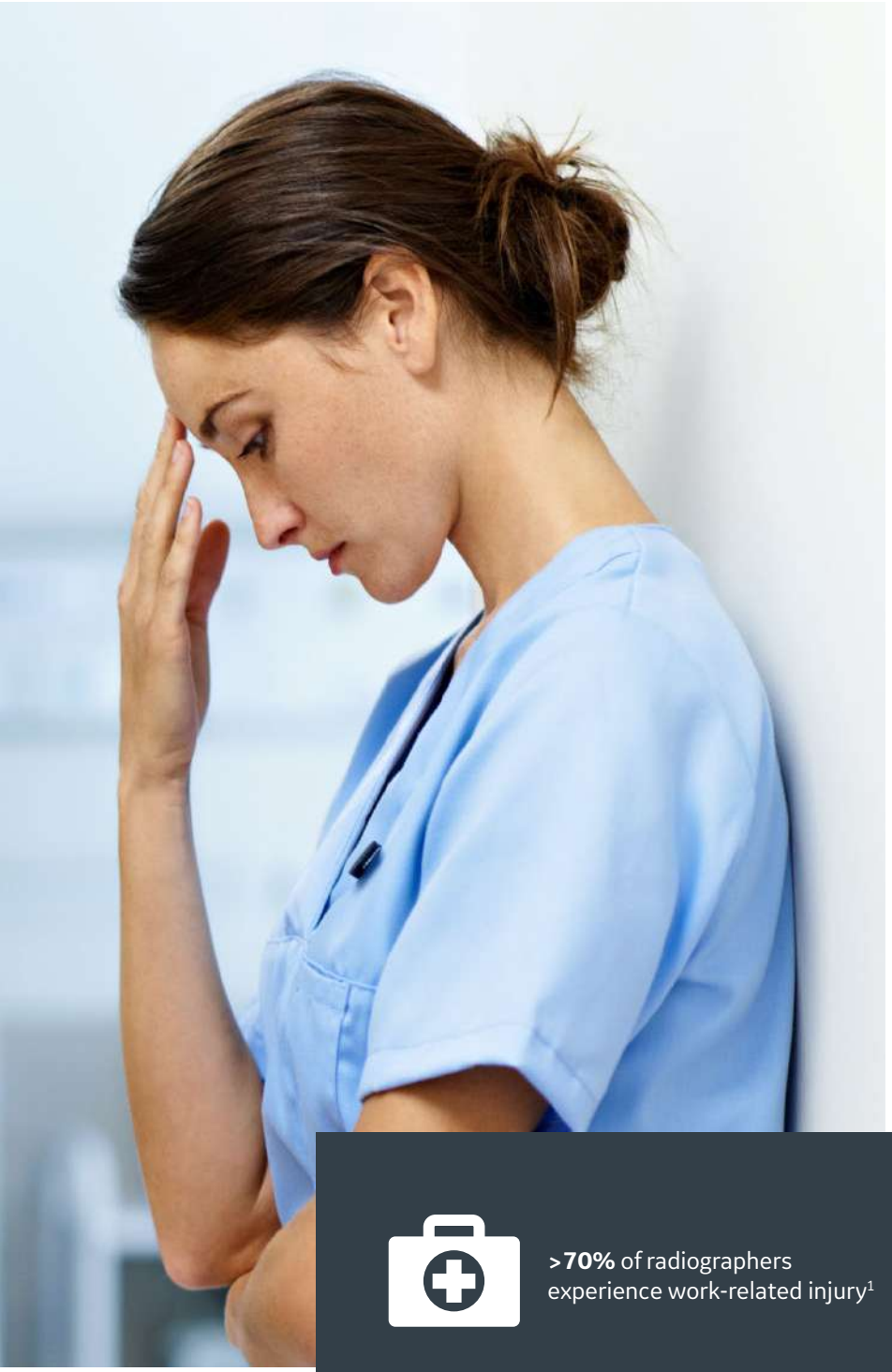
Pressure Continues to Build on Radiology Departments

Traditional X-ray systems don't meet today's needs

In most health systems, radiologists and technologists are tasked with handling an ever-increasing workload, despite scarce resources, and an imperative to deliver superior images and an exceptional patient experience. What's more, there is ever-mounting pressure to keep radiology departments running smoothly and profitably.

Unfortunately, traditional X-ray systems are not always designed to be user-friendly and often require workflows with unnecessary steps. Additionally, a dated system design can result in inconsistent images, positioning errors, and significant variability in image quality that make it difficult to deliver accurate diagnoses quickly and easily.

- Numerous Workflow Steps
- Imprecise Operation
- Physically Demanding Movements
- Complicated Patient Setup
- Poor Image Quality
- Limited Clinical Applications



Physically, mentally, and emotionally draining

Technologists confront the daily challenges of heavy lifting, repetitive motions, long hours, and uneasy patients that lead to a work-related musculoskeletal disorder rate that exceeds 70%.[1]

Radiologists and Technologists alike are frustrated by repeated and rejected X-rays (which can reach as high as 25%)[2] often caused by variability in patient positioning and exam setup that results in increased workloads and inefficiencies.

Radiology Administrators struggle with the constant mandate to "do more with less" to accommodate more patients, more clinical applications, and more complex procedures amid staffing shortages, equipment breakdowns, increased reporting and compliance requirements.

As the number of cases and X-ray exams increase, it's never been more important to have a system that acts as a collaborative partner and a personal assistant to intelligently help drive efficiency and improve health outcomes.

>70% of radiographers experience work-related injury[1]

Reject rates can be as high as **25%**[2]

X-ray exams contribute to approximately **60%** of imaging[3]

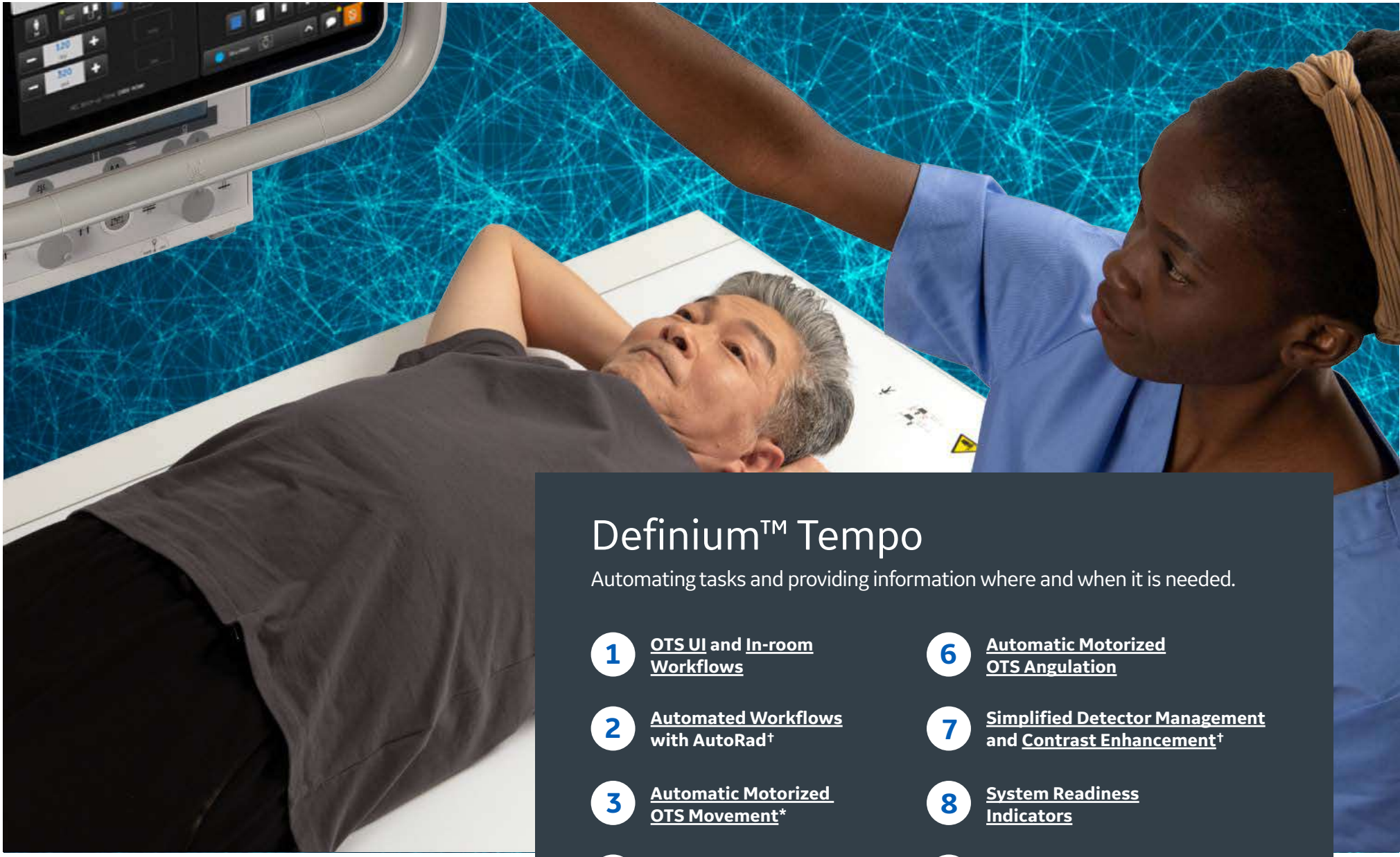
"This machine is like your second technologist, like your back up man, he's saying do you have this right, do you have that right, we are ready to go, let's get it"

— Nadia Dorson, X-ray Technologist, North Central Bronx, NY

Definium™ Tempo

A Personal Assistant for Technologists

Definium™ Tempo is a highly automated, AI-powered digital imaging solution that enables technologists to take advantage of streamlined exam workflows, decrease physical stress on their bodies, operate efficiently, reduce errors and repeat exams. Equipped with intelligent applications, the system provides assistance to ease the burden on technologists and to focus on what matters most — the patient.



Definium™ Tempo

Automating tasks and providing information where and when it is needed.

1. OTS UI and In-room Workflows
2. Automated Workflows with AutoRad†
3. Automatic Motorized OTS Movement*
4. Patient and Safety Accommodation Features
5. Synchronized OTS and Detector Movement
6. Automatic Motorized OTS Angulation
7. Simplified Detector Management and Contrast Enhancement†
8. System Readiness Indicators
9. Common UI
10. Live Streaming Video and Intelligent Workflow Suite†

*Auto-positioning features are only available on the Tempo Pro configuration
†Denotes optional features

The most technologically advanced, ergonomic, and usable tube head console you can get.

The 12" touch screen UI on the OTS console delivers full functionality of work list management, exam setup, protocol selection, positioning setup, and technique modification. This technology allows the technologist to finish the exam setup and positioning while remaining close to the patient.

Complete Workflow Control in The Exam Room

Definium Tempo allows technologists to do everything they need at the patient bedside without having to walk back and forth to the acquisition workstation outside the room. It combines an exceptional user experience controlled at the tube head touch screen and automated component positioning to reduce the amount of movement and manual work required by technologists.

"You can do everything in the room which is pretty amazing and you save a lot of time that way"

— Indranantha Kumar, X-ray Technologist, North Central Bronx, NY

Automatic and Synchronized OTS, Table, Wall Stand, and Detector Movement

The system assists technologists by automatically positioning its components, so you don't have to manually move them. This saves time, reduces exertion, and can make positioning more precise.

Auto Positioning*
(triggered by remote, OTS, or in control room)

The OTS, wall stand, and table automatically move to pre-set or selected positions based on the selected procedure and view with just the push of a button

Auto Centering*

The OTS automatically moves to the center of the wall stand or table detector's current position

Auto Tracking

The tube and detector maintain alignment and SID by automatically moving to synchronize position at the table or at the wall stand

Reverse Tracking

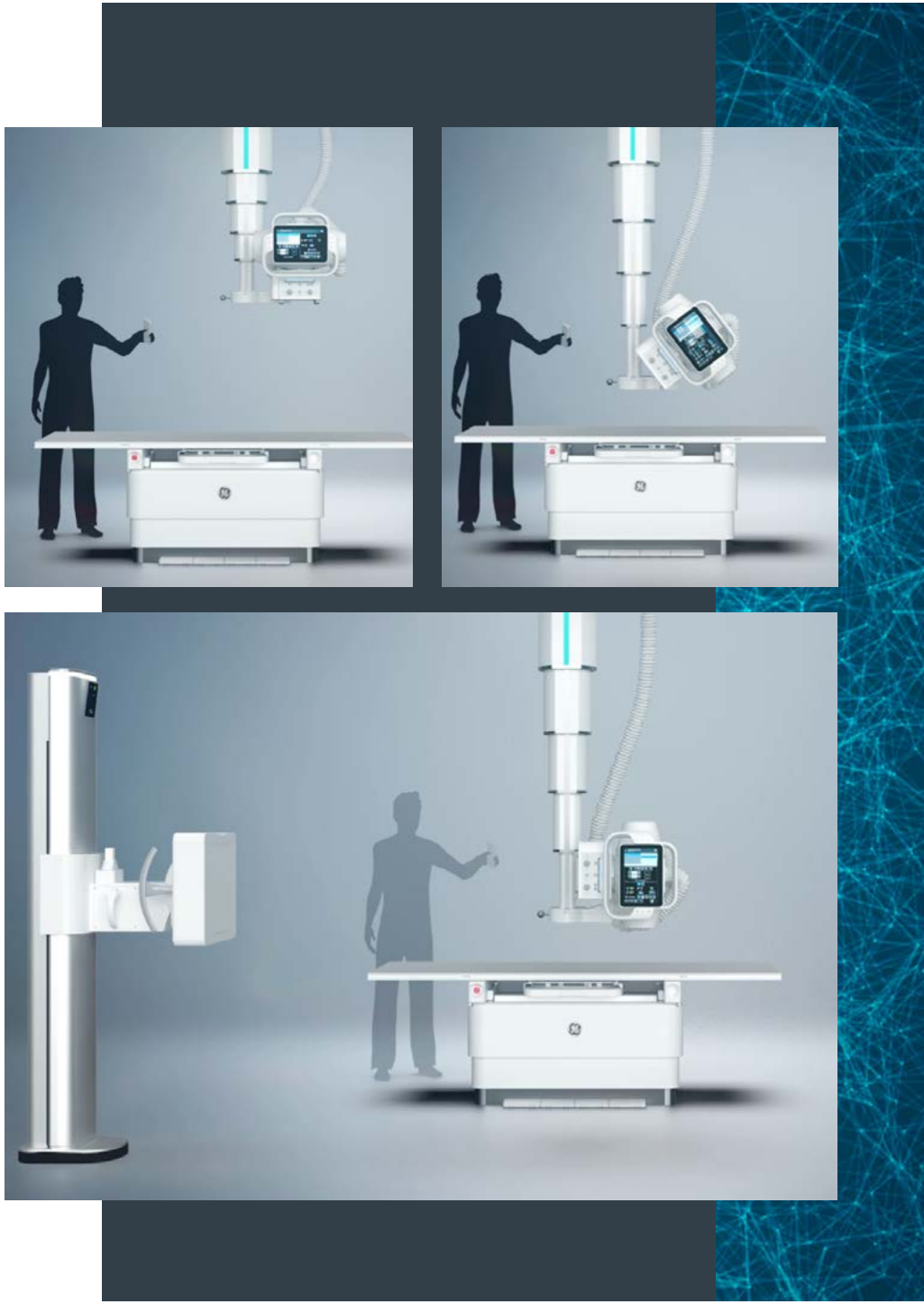
The wall stand housing can automatically move to synchronize with OTS movements

Auto Angulation

The OTS automatically moves to change the tube angulation to a predefined position at the push of a button

Auto Field of View†

Sets the size and orientation of the collimation automatically based on the procedure and view that has been selected



*Features are only available on the Tempo Pro configuration
†Denotes optional features

Live Streaming Video

A live video stream of the patient imaging area appears on the acquisition workstation screen. This assists technologists with monitoring the patient's status, movement, and orientation before an X-ray is taken to potentially reduce rejects and help with patient safety.

Intelligent Workflow Suite†

Consistent images, the first time, every time.

Enabled by live streaming video and 3D depth camera, the Intelligent Workflow Suite combines computer vision, video analytics and precision engineering to deliver a solution for common radiology department errors and inefficiencies.

Position Assist†

Shows the detector boundaries, ion chamber locations, and the active ion chambers as an overlay on the live video stream to assist with proper patient positioning.

Technique Assist†

Automatically measures the thickness of the patient and suggests a habitus for 30 customizable anatomy/view combinations. Assists technologists to quickly select the optimized, patient specific technique, for improved image quality.

Patient Snapshot†

Sends a secondary DICOM® optical image to the PACS, providing context of the exam conditions. This additional information assists the radiologist to understand the imaging situation, such as positioning limitations or foreign object identification, without the need to call the technologist.

†Denotes optional features

Exceptional Image Quality Yields Confident Clinical Diagnostic Decisions

FlashPad HD provides extraordinary anatomical detail at low dose.

The latest wireless detectors provide high resolution (100 micron, 5 lp/mm) and excellent dose efficiency (75% DQE). FlashPad HD detectors have four times more pixels per area for sharp X-ray images.

Helix 2.1 provides customized enhanced image looks.

Helix™ 2.1 advanced image processing delivers AI-driven automated brightness and contrast to improve consistency regardless of variations in dose, patient positioning, field of view, and metal implants. Anatomy specific image enhancement, Local Contrast Enhancement (LCE), and Detail Preserving Noise Filter (DPNR) combine to provide exquisite bone detail and clear delineation of soft tissue.

Advanced Image Processing with Helix™ 2.1

Helix 2.1 Advanced Image Processing delivers all of the benefits of Helix with improved noise reduction and with AI-driven automated brightness and contrast, delivering improved consistency despite variations in exposure technique and challenging exam conditions.

Extraordinary anatomical detail at low dose in every X-ray image.

AI-driven brightness and contrast regardless of variations in dose, patient positioning, field of view and metal implants.

Anatomy specific image enhancement for exquisite bone detail and clear delineation of soft tissue.

Up to 40% increase in detectability[4] harnessing the ultra-high resolution and dose efficiency of FlashPad HD.

The power of Helix™ advanced image processing coupled with FlashPad HD improves small detail detectability by up to 40%[4] thanks to ultra-high resolution and enhanced noise control.

With Helix Advanced Image Processing

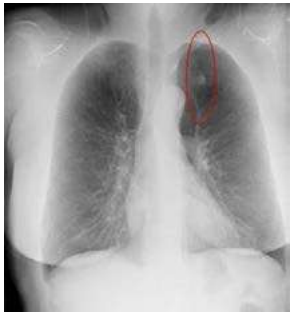
Without

Available in 10”x12”, 14”x17”, and 17”x17” standard cassette sizes.

Advanced Clinical Applications Provide More Diagnostic Information

In 90% of the cases where errors in diagnosis of lung cancer occur on chest X-rays, it may be challenging for radiologists to distinguish a lung lesion from bones, pulmonary vessels, mediastinal structures, and other complex anatomical structures.[5]

Dual Energy Subtraction† in less than 160 ms generates a standard X-ray, a soft tissue image, and a calcium-based bone image. Dual Energy Subtraction can help to eliminate obstructions from overlying bones to allow detection of abnormalities that may have been hidden in a conventional radiograph while providing additional information on calcifications.



Auto image pasting at the wall stand enables automated acquisition of two to five images covering up to 150 cm (59 in). Easy and efficient for technologists with acquisition time less than 10 seconds and a fully stitched image appearing in less than 22 seconds for a 35.4 cm coverage area, the images provide radiologist the data they need.

Long-leg and spine studies require fast image stitching, free from distortion caused by parallax.

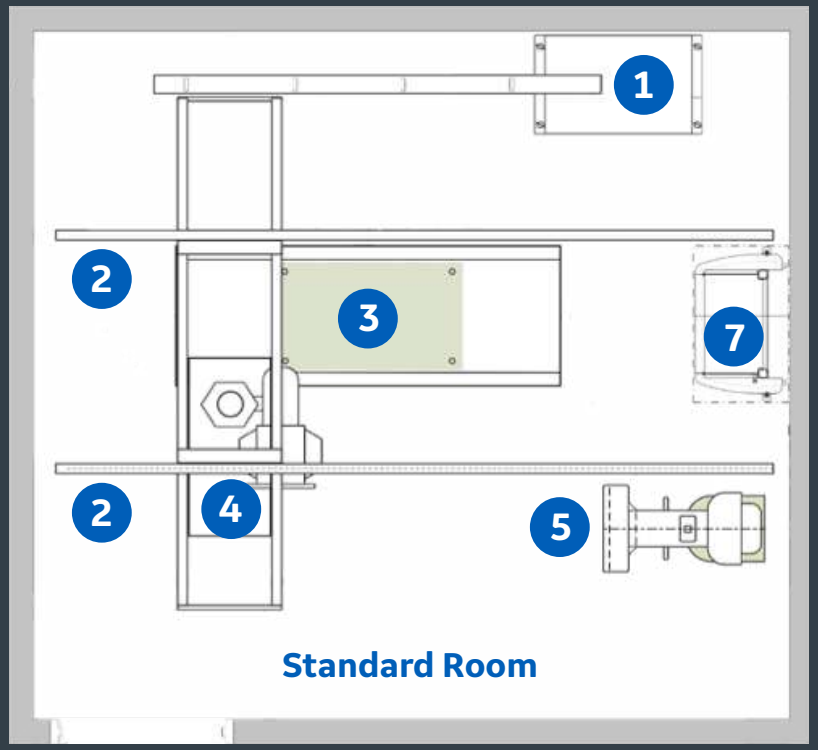
Auto Image Paste† is a highly automated and efficient procedure that creates a single stitched image that extend beyond the size of the detector. For spine images, the intelligent Auto Spine algorithm follows the contour of the spine for vertical equalization to enable a natural balance of brightness and contrast along the patient's body.

†Denotes optional features

Smoother, More Profitable, Imaging Operations

With low space requirements and flexible configurations, radiology departments have a budget-friendly option for system replacements or new installations. Definium Tempo™ is designed to meet the custom needs and room size requirements of each department while being a reliable, easy to use, and efficient imaging solution.

> *"The system has been an impressive addition to the department, it has had an immediate favorable impact, it has been well received especially by our technologists and most definitely by the radiologists"*
>
> — Dr. Orlando Ortiz, Radiologist, North Central Bronx, NY



Standard Room

1. System Cabinet
2. Longitudinal Station Rails
3. Elevating Table
4. OTS and Bridge
5. Motorized Tilting Wall Stand
6. Cable Rail / Bracket
7. Image Pasting Barrier

Component Configurations

- 2 Axis Motorization (Tempo Plus) or 4 Axis Motorization (Tempo Pro)
- OTS Only: without table and wall stand
- Routine X-ray: full table and wall stand
- Small Room: low ceiling heights or small dimmensions
- Physical check / chest configuration: OTS and wall stand only
- Emergency room: Extended wall stand and stretcher table
- Trauma bay configuration: extended length rails to reach multiple beds

Room layouts and size depend on components selected including:

- Rail size (longitudinal range range)
- Bridge size (lateral travel range)
- Wall stand type: Extended Arm, Standard Arm, Non-tilting
- Table type: Premium, Stretcher
- Image pasting option

Imaging Operation Solutions to Help Improve System Utilization for Your Fleet

X-Ray Quality Application† to understand the cause of repeated X-rays

Definium Tempo™ is compatible with GE Healthcare's X-ray Quality Application, an on-premise enterprise solution which automatically collects, aggregates, and reports quality assurance data to determine the source of rejects. It enables targeted training, improves efficiency, and reduces repeat exams and unnecessary patient dose.

iCenter™† to help optimize asset utilization

iCenter uses the power of data and analytics to provide valuable insights about the utilization and workload of all X-ray assets to help improve workflow optimization and reduce costs.

Cybersecurity solutions protect your system and patient data

Detect, protect, and secure. Audit and accountability, identification and authentication, system and information protection, network security. Updates available via software download.

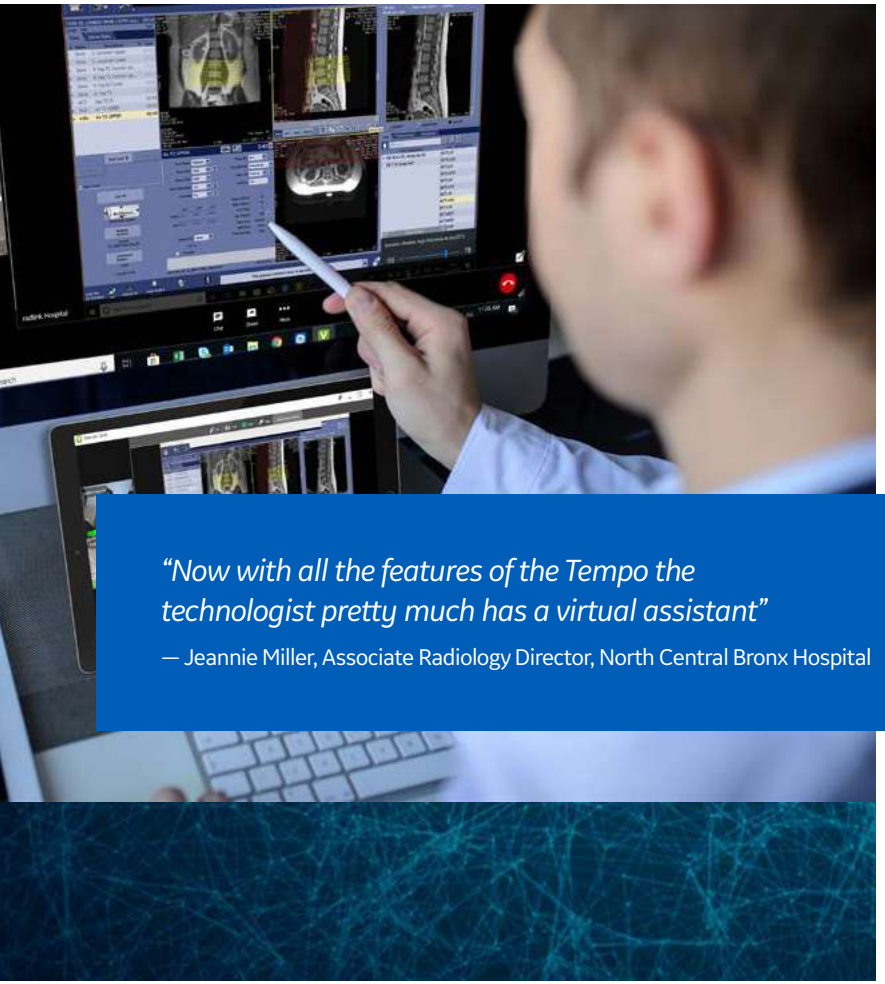
Continuity™†protects your investment by keeping your system current

Standardize the user interface, functions, and performance of your entire fleet with lifecycle upgrades to help improve workflow efficiencies and clinical capabilities.

†Denotes optional features

"The technology in this case has gotten it right, we are actually doing the right thing for the patient because it assists the technologist and enables the technologist to focus on one of the reasons they wanted to become a technologist, to take care of people"

— Dr. Orlando Ortiz, Radiologist, North Central Bronx, NY



"Now with all the features of the Tempo the technologist pretty much has a virtual assistant"

— Jeannie Miller, Associate Radiology Director, North Central Bronx Hospital

Flexible and Scalable Service and Support to Meet Your Needs Now and Beyond

X-ray service and support

GE Healthcare provides expert service engineers nearby and cutting-edge dashboards and analytics that enable remote monitoring and management of the equipment as well as programs to keep system hardware and software current, to ensure the latest imaging capabilities. A comprehensive parts network provides for quick repairs when needed.

InSite™ Remote Service Platform (RSvP)†

Enables real-time, remote diagnostics and troubleshooting for faster resolutions, increased uptime, and proactive monitoring to detect and resolve issues before they occur.

Digital Expert† provides clinical expert support at your fingertips

Support when you need it. Live video with screen sharing to help with workflow questions big and small.

GE Healthcare Services can help you reduce disruptions and focus on what really matters—your patients.

†Denotes optional features

Building a world that works

About GE Healthcare

GE Healthcare is the $18 billion healthcare business of GE (NYSE: GE).

As a leading global medical technology and digital solutions innovator, GE Healthcare enables clinicians to make faster, more informed decisions through intelligent devices, data analytics, applications and services, supported by its Edison intelligence platform. With over 100 years of healthcare industry experience and around 50,000 employees globally, the company operates at the center of an ecosystem working toward precision health, digitizing healthcare, helping drive productivity and improve outcomes for patients, providers, health systems and researchers around the world.

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[1] Work related musculoskeletal disorders among radiologists and radiographers Deepak SHARAN, Mathankumar MOHANDOSS, Rameshkumar RANGANATHAN, Jerrish JOSE, Joshua Samuel RAJKUMARHUMAN FACTORS IN ORGANIZATIONAL DESIGN AND MANAGEMENT – XI.
[2] Emerg Med J 2001;18:263–269 - Diagnostic errors in an accident and emergency department
[3] World Health Organization Report - Communicating Radiation Risks in Pediatric Imaging.
[4] GE whitepaper: High resolution for improved visualization (DOC2045904).
[5] Missed lung cancer: when, where, and why? Annemilia del Ciello, Paola Franchi, Andrea Contegiacomo, Giuseppe Cicchetti, Lorenzo Bonomo, and Anna Rita Larici; 2017 Feb 16. doi: 10.5152/dir.2016.16187.

JB17649XX