



# A clear advantage

Philips MultiDiagnost Eleva multipurpose interventional system

**PHILIPS**  
sense and simplicity

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# A clear advantage for you and your patients

## For you

As healthcare facilities struggle to improve the quality of X-ray services they provide to their diverse patient population, it is often important for them to keep examination costs as low as possible. You achieve both with Philips unique MultiDiagnost Eleva with Flat Detector, a C-arm based remote controlled system. Its outstanding imaging capabilities and one-of-a-kind features provide a clear advantage in confidence and speed for interventional fluoroscopy and radiography examinations. This system supports you in providing the best possible quality of care, while improving your workflow and patient throughput.

## For your patients

Philips MultiDiagnost Eleva offers enhanced image quality and patient satisfaction. The system moves around the patient, which increases comfort for those experiencing

pain or discomfort. It also makes it easier for you to get the right result, the first time. The Philips DoseWise program and other system features provide a high level of patient care.

## A clear advantage in

- **Confidence:** leading edge 2D and 3D imaging technology allows for a high degree of diagnostic confidence during procedures
- **Speed:** the revolutionary Eleva concept increases workflow efficiency and patient throughput
- **Comfort and results:** patient-centric design, projection flexibility and unique protection features allow more comfortable procedures and “first-time-right” results
- **Easy to use:** intuitive user interface simplifies system operation

# Exceptional clinical results

Thanks to its versatile design you can carry out a large spectrum of examinations, ranging from interventional fluoroscopy to radiography. Use it as a universal Radiography/Fluoroscopy (RF) room, vascular overflow lab, interventional suite, or dedicated room for urology, pain management, orthopedic, gastrointestinal, and trauma procedures. That makes it a smart investment if your facility wants to increase room utilization, reduce examination costs, or attract new referrals.





Kidney intervention  
high resolution exposure



Coronal MIP of pyelo,  
ureter and bladder

### Urology

Full fluoroscopic capabilities, including image grabbing, are ideal for dynamic studies. Dedicated urology tools provide comfortable access to the patient. An iso-centric, split table top makes it easy for clinicians to access the region of interest during ureteroscopy and other examinations.



Hip joint cement injection



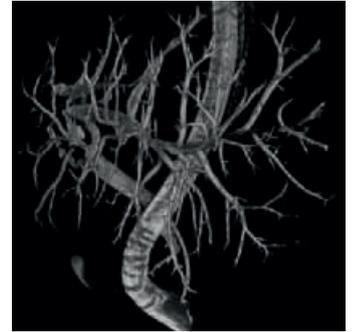
Cervical spine pain management  
coronal view

### Pain management

The optimal patient position - standing, sitting, or prone - can easily be achieved during procedures. This system moves around the patient so they can remain stationary during spinal injections and interventions. The 2K imaging matrix provides high quality imaging for excellent visualization of fine details.



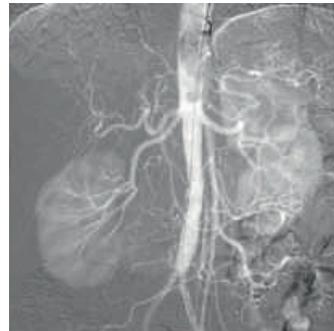
Barium swallow digital exposure



ERCP 3D-RX of a complete bile duct system

### Gastrointestinal

High-resolution images visualize small anatomical details and support both GI diagnostics and interventions on the same system. Dynamic video fluoroscopy can show the esophagus function in real time. A left suspended table is available for optimal access to the patient during ERCP fluoroscopy procedures. 3D-RX imaging provides better insight in the complex anatomy of the biliary system.



Aortogram in conventional digital subtraction technique



Aorta bifurcation with 3D-RX oblique view

### Vascular

The system moves around the patient to provide exceptional visibility over the full body length. The X-ray Vascular Analysis package provides advanced vascular processing and viewing features. Bolus Chase and 3D-RX imaging offer superb visibility of vasculature with enhanced workflow.



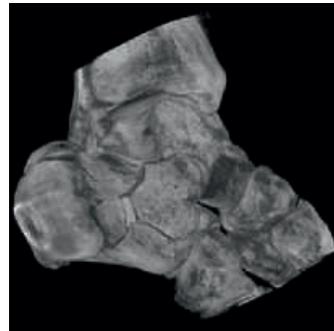
Radiography of a foot  
in 2k2 acquisition mode



Coronal image  
of a weight bearing knee

### Orthopedics

The patient can stand comfortably on the floor for weight-bearing X-ray examinations that are visualized in superb 2D and 3D images. These images can help support clinicians in seeing where joint spaces are missing or where the abrasion of the bones on each other is occurring. You can zoom the image to reveal fine details down to the sub-millimeter level - at full resolution. Having a full 2K imaging chain means that the system can be used as a backup for routine skeletal examinations.



Volume reconstruction  
of a calcaneus fracture



Coronal MIP reformat of a proximal  
humerus fracture

### Trauma

The system offers exceptional projection flexibility to image the full body length without moving the patient on the table. High-quality radiography, dynamic fluoroscopy, and cross-sectional imaging can be performed in the same room.

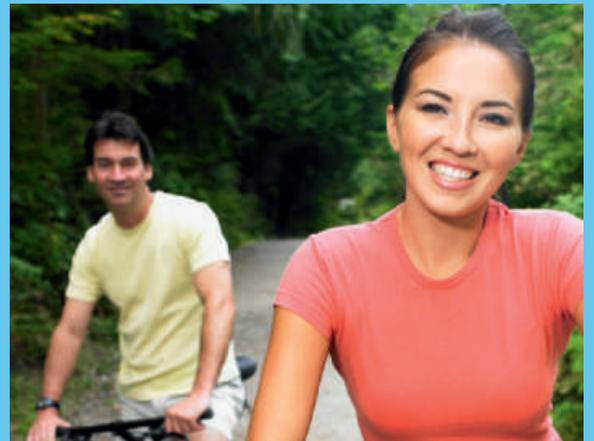
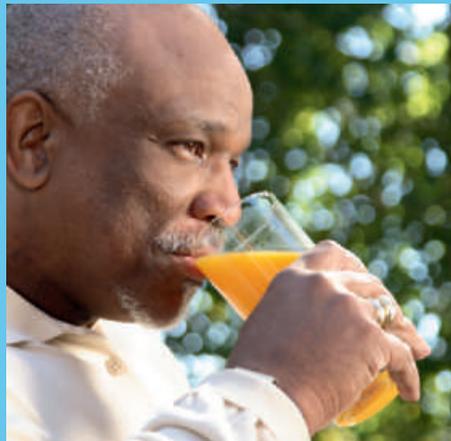
# Creating a positive

An inside look at different users' experiences with the innovative technology of the MultiDiagnost Eleva that had a positive effect on their patients' health.

## **Loraine Froescul**

Medical radiographic technologist in Royal Columbian Hospital, Vancouver, Canada, describes a case of a child that was X-rayed with a cast on his ankle, but they could not see the fracture. A 3D-RX scan was performed on the MultiDiagnost Eleva.

“We brought the child over here and did a quick sweep and yes, there was the fracture and they couldn't see it with any other films. It was beneficial because we were able to avoid the trauma of using the saw to remove the cast. Instead, we used a simple, plain X-ray and he was kind of excited watching the thing spin around him, but not touch him. Things like that are very beneficial to the patient.”



# experience

## **Dr. Jean-Baptiste Martin**

Diagnostic and interventional radiologist, Geneva, Switzerland. Having the 3D-RX option of the MultiDiagnost Eleva in the examination room enables Dr. Martin to get an idea about the effect of the procedure while the patient is still present. The option also helps him during the intervention, especially for cement implantation and nucleoplasty.

Dr. Martin says, "This week I did a vertebroplasty case of the pelvic ring and I was in trouble because of the needle position and injection. The 3D-RX confirmed the needle position inside sacral ala, permitting injection of PMMA (Polymethyl methacrylate) and control."

Dr. Martin is impressed by the image quality of the 3D-RX option. A patient with pain in her right hip joint was examined using 3D-RX on the Philips MultiDiagnost Eleva. Although the left hip already had a prosthesis, the coronal slice images clearly showed the cause of the pain in her right hip with hardly any artifacts in the image.

## **Professor Josef Menzel**

Head of Medical Clinic II, Klinikum Ingolstadt, Germany, says that the patient benefits from the enhanced diagnostic possibilities of the MultiDiagnost Eleva.

A 45 year-old female patient presented with pain in the right abdomen. Numerous examinations with ultrasound, CT and MRCP in different institutions failed to help detect a bile duct stone or other pathology. In the absence of pathological laboratory findings, conventional ERCP was performed in the Klinikum Ingolstadt, but also failed to show any stone.

The MultiDiagnost Eleva performed rotational scanning in several regions, with 3D reconstruction. The 3D reconstructions showed small stones in the common bile duct and the gall bladder. In all, there were three small stones with a diameter of about 5 mm. The stones were extracted and the pain was immediately relieved.



“Getting multiplanar imaging from a multipurpose C-arm will add another level of confidence and another level of visualization”

*William W.Y. Siu, MD, FRCP(C) Radiologist, Royal Columbian Hospital, Vancouver, Canada*

# Experience three

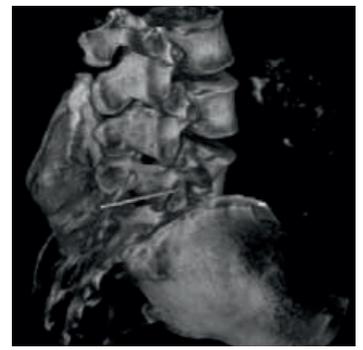




The MultiDiagnost with Flat Detector provides you with outstanding imaging capabilities

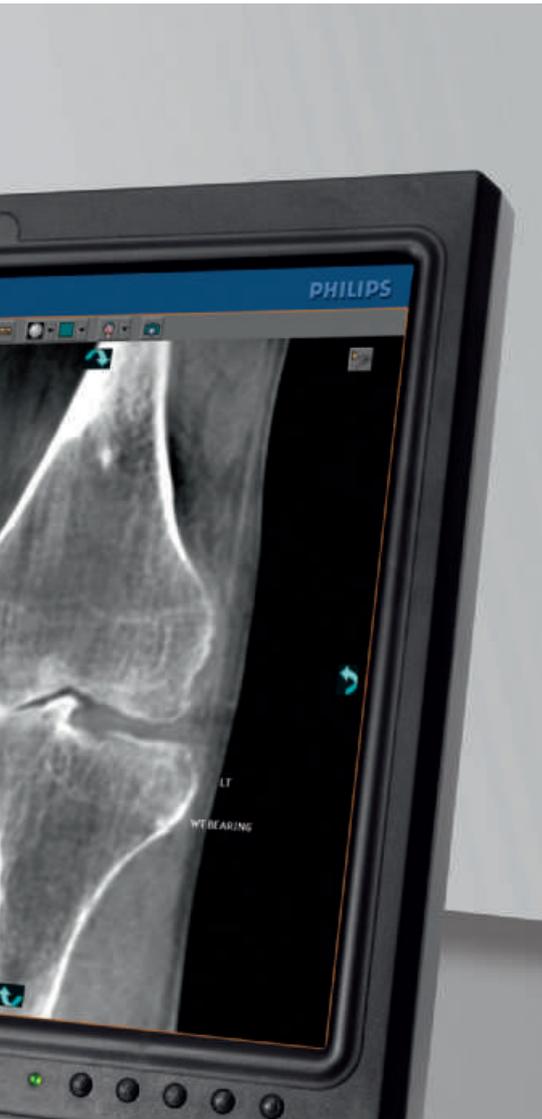


Calcaneus fracture repair-  
post treatment



Lumbar spine puncture for  
pain management

# dimensional insight



The combination of our 2K imaging, flexible positioning and 3D-RX offer new possibilities for enhancing patient care. You will experience new clarity with its three dimensional and cross-sectional imaging capabilities.

## Unique weight-bearing X-ray

The C-arc of the MultiDiagnost Eleva moves around the patient in a full 180° “iso-centric” rotating scan. This makes it the only multipurpose X-ray system that can acquire cross-sectional images in one 180° run of a patient in a standing, weight-bearing position. These images provide a comprehensive evaluation of musculoskeletal alignment and conditions not previously available on a multi purpose system. It can enable you for instance to see bone abrasions or joint gaps and supports physiologic assessment of the alignment of the spine and joints.

## Superb resolution images

The complete 180° rotation range of MultiDiagnost Eleva with 3D-RX provides the necessary reconstruction data for superb, high resolution 3D image quality. These images give excellent insight into tortuous vasculature, complex structures, and other pathological processes. Head to toe coverage enables volumetric imaging of any relevant part of the body. The 3D reconstruction is available within seconds so you can assess the results of procedures while the patient is still on the table.



**The system moves instead of the patient**

The system moves around patients so they can remain stationary, whether an AP, lateral or oblique projection is required. Patients can remain comfortably in place throughout the examination, which can minimize movement artifacts and the need for retakes.

**Patients can stand or sit comfortably**

The patient can stand on the floor during weight-bearing examinations, which feels more secure and helps to improve your imaging results. Patients can also be imaged in a wheelchair or stool to reduce strain if they are feeling unwell.



Easy access for patient care



3D-RX weight bearing imaging of C-spine

# More patient comfort

At Philips we understand that X-ray examinations can sometimes be a stressful experience for patients. The MultiDiagnost Eleva has several unique features that make examinations as comfortable as possible. This allows you to get excellent results and can reduce repeat examinations.

## **BodyGuard protects patients during system movements**

BodyGuard senses the position of the individual patient and stops moving just before the flat detector would touch the patient. This enables clinicians to safely take advantage of the system's full projection capabilities.

## **More examinations in one room**

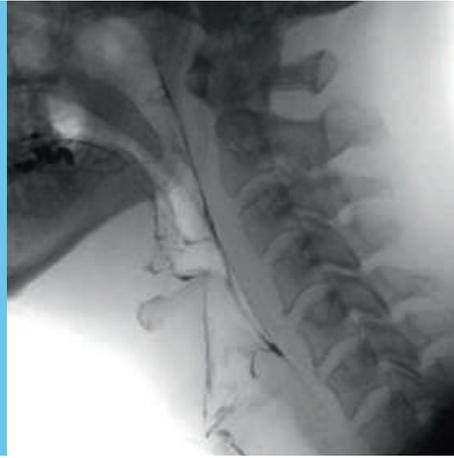
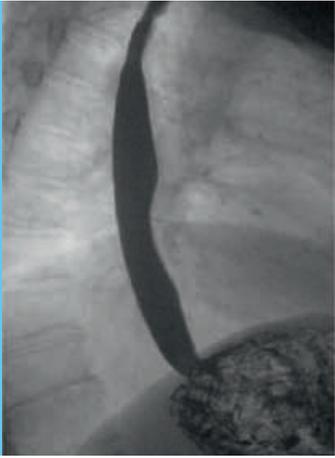
You can perform a full range of radiography and fluoroscopy examinations, as well as interventions, all in the same room. For one patient, you can carry out dynamic studies with fluoroscopy, make a single exposure or series at 30 frames per second, do a 3D-RX scan, without moving the patient.

## **Easy access**

The height of the table and of the entire C-arm can be adjusted up or down as needed. It can be moved to a very low position to make it as easy as possible for patients to get onto the table. For standing examinations, no footrest or step-up is needed. The patient can stand on the floor while the system moves around them.

## **Secure table design**

Patients feel comfortable and are held securely in place in the curved table top that is shaped like a cradle. It is made of easy to clean, durable materials and can firmly support patients.



Esophagus - gastroesophageal junction Modified barium swallow examination

# The right balance

Philips takes the safety of its customers and their patients very seriously and has therefore developed DoseWise radiation management for all its X-ray systems.

## **DoseWise - outstanding image quality at a low X-ray dose**

DoseWise is a set of techniques, programs, and practices that ensures excellent image quality, while protecting people in X-ray environments. It's a philosophy that drives Philips to develop innovative new strategies in dose management. DoseWise focuses on three highly effective strategies for dose management in the MultiDiagnost Eleva.

### **Smart Beam management**

Our DoseWise technologies modify the X-ray beam's energy spectrum, shape, and frequency (semi-) automatically. Giving the impression that the beam can "think" for itself, adapting to each examination.

Our prime techniques used are:

#### **In-Pulse control**

- Eliminating over- and under-exposure in every pulse
- Providing immediate information with the first pulse

- Allowing very low fluoroscopy pulse frequencies
- Determining exposure settings without applying fluoroscopy

#### **SpectraBeam**

SpectraBeam uses a smart way to remove unwanted "soft" radiation. These are the X-rays that reach the patient but do not have enough energy to reach the image detector. Filtering reduces patient X-ray dose and scattered radiation for you and your staff while maintaining high image quality.

#### **Grid Controlled Fluoroscopy (GCF)**

GCF extends the In-Pulse control concepts with specially designed pediatric fluoroscopy curves. GCF also uses a grid switched X-ray tube. Compared to conventional "on/off" switching, grid switched pulsed fluoroscopy maximizes the efficiency of the X-ray beam and reduces X-ray dose even more.

Achieving outstanding image quality is only half the battle. Doing so while maintaining a low X-ray dose, is the real challenge. DoseWise, the unique Philips approach to dose management, supports you all the way.

The decisions you make are influenced by the quality of images you take. That's why the Philips MultiDiagnost Eleva includes a leading edge Flat Detector and digital imaging chain. The addition of 2K imaging even helps you to visualize fine details down to the sub-millimeter level.

#### Less radiation-on time

In-Pulse control ensures that the beam always has the correct power to deliver excellent image quality for fluoroscopy and exposures. When using Image Quality eXposure (IQX), Philips unique In-Pulse control concept for adapting exposures, you get images that are "First Time Right" and retakes may not be necessary.

During fluoroscopy, radiation-on time is minimized by pulsing the beam. Plus, a choice of very low pulse frequencies delivers major X-ray dose savings, while ensuring diagnostically relevant images.

Radiation-on time can be further reduced by:

- **Collimation on Last Image Hold** - for radiation free positioning of the collimator shutters
- **Store and Recall** the position of your system for radiation free positioning
- **Collimator with Light** (depending on system configuration) for radiation free positioning, using the collimator light.

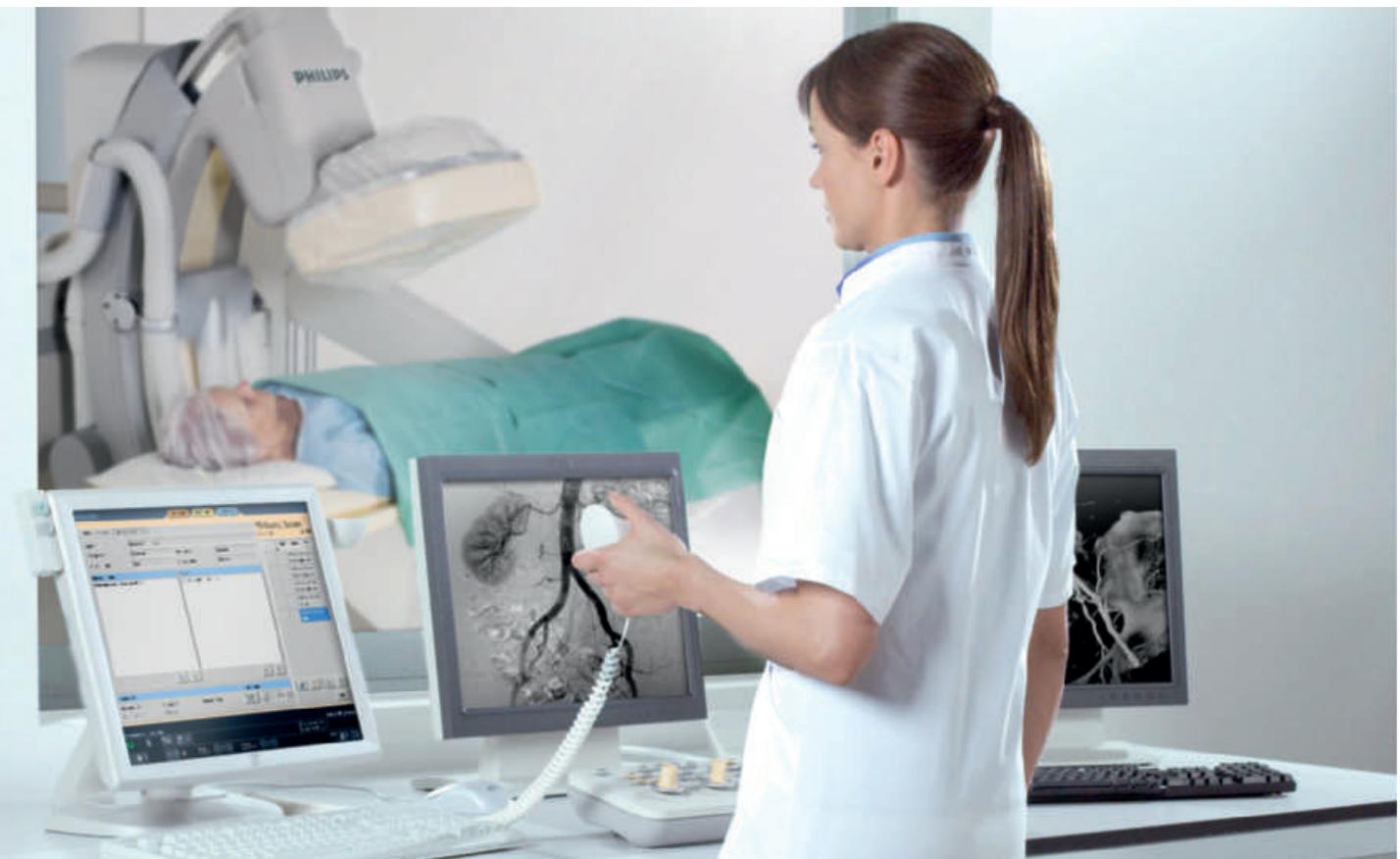
#### More Awareness

The DoseWise philosophy has driven the development of simple, easy to read displays and reporting - keeping you aware of dose levels, and fully in control. All based on the ALARA (As Low As Reasonably Achievable) principle for X-ray dose management. Philips goes one step further by providing an X-ray disable button which prevents X-ray from being accidentally switched on during room preparation and helps protect people in the examination room.



# Saving you precious time

Designed to meet the challenges of busy healthcare facilities, the MultiDiagnost Eleva is developed to simplify and speed up examinations, allowing you to increase efficiency and workflow.





## Smooth fit with IT infrastructure

Due to its state-of-the-art technology and embedded security standards, the MultiDiagnost Eleva can be integrated smoothly into existing environments. The system offers complete DICOM functionality, including Modality Performed Procedure Steps

(MPPS), worklist management, storage commit, and Query and Retrieve. It takes full advantage of your IT infrastructure - enabling complete integration with your PACS and RIS. Providing all relevant data, right at your fingertips.

Going beyond the standard pre-set that many systems offer, the MultiDiagnost Eleva lets you customize exam types and patient-related parameters. The system effortlessly switches to a new operator or exam type in the blink of an eye to avoid lengthy delays between exams.

Empowered by a highly intuitive user interface, all functions are located exactly where you expect them. When you connect the MultiDiagnost Eleva to your Radiology Information System (RIS), the RIS automatically triggers the appropriate pre-set to save further time and minimize the risk of mistakes.

### **Efficient room utilization and training**

Perform a large spectrum of diagnostic and interventional examinations in one room to make the most efficient use of your resources. Minimize training time for system users with the simple one button Eleva concept which eliminates complicated menus and unnecessary steps.

### **Faster procedures – every step of the way** **Preparation**

- Patient info and Eleva exam pre-sets are automatically activated by your RIS

### **Acquisition**

- In-pulse control for automatic fine-tuning of fluoroscopy and exposure parameters
- Rapidly switch between diverse diagnostic and interventional exams using your customized preferences

### **Post-processing**

- Parallel operations let you acquire and post-process images at the same time

# Focusing on people

At Philips, we simplify healthcare by focusing on the people in the care cycle - patients and care providers. By combining human insights and clinical expertise, we aim to develop innovative solutions that improve patient care and lower overall costs.



## Every aspect of the MultiDiagnost Eleva lives up to this promise.

- **Practical design.** It is designed based on the needs of healthcare practitioners and patients. Moving the system around the patient and allowing users to create their own custom pre-sets are just two examples of this practical approach.
- **Simplicity** is a core principle of Philips. The MultiDiagnost Eleva includes BodyGuard, a single button user interface concept, and a broad range of automation features to reduce effort during procedures.
- **Advanced technology** takes your X-ray procedures to the next level of quality and efficiency. Philips MultiDiagnost Eleva 3D-RX, IQX, GCF, and SmartBeam are just a few of the unique technologies offered by this system.



## Services - a full lifecycle solution

Philips provides a full lifecycle solution designed around your patients, your people, and your organization. We help you succeed in every phase of system ownership, from planning to start-up, through peak usage and renewal.

### **Planning**

Understand how and when the right equipment and services contribute to better patient care and better economics.

### **Start-up**

Make the most of your system as quickly as possible.

### **Peak Usage**

Extract maximum utility out of your system day to day.

### **Renewal**

We'll help you make smart decisions on upgrading or transitioning to a new system.

### **First-rate care**

Philips global service network, our highly qualified engineers, the individual attention of our service technicians and the internal availability of spare parts combine to provide our seamless service support.

**Philips Healthcare is part of  
Royal Philips Electronics**

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