



**PHILIPS**

Digital radiography

Pediatric Solutions

# Innovative imaging techniques

Set new standards for low dose care

# An obligation to your **youngest patients**

Infants and children deserve special consideration when undergoing X-ray examinations. Immature bone development and rapidly dividing cells make them more sensitive to radiation than adults. And cumulative exposure over a lifetime mandates that the dose for the very young be kept as low as reasonably achievable (ALARA).

Smaller anatomy can often be challenging to see clearly. At the same time, image quality must not suffer. How can you easily optimize image quality and dose for your pediatric patients, while still providing exceptional service for your adult population?

The answer comes in the form of two premium DR systems – Philips DigitalDiagnost and Philips MobileDiagnost wDR. Each system showcases our strength in innovative dose management and techniques for the acquisition of quality pediatric images.

## **Advantages**

- Dedicated pediatric protocols cover all patient types
- Automatic selection of optimized parameters to help keep dose low
- System features specifically designed for pediatric use
- Environmental lighting to ease patient anxiety





# Your insights drive **our innovations**

## **We understand the challenges**

From infant to adolescent, from the tiniest baby to the nearly grown 18 year-old, you are presented with a wide variety of pediatric patient types. They share a common trait – they are all growing youngsters. They represent our future. It is your charge to protect their health and provide them with the high quality care.

Pediatric patients put your skills to the test with unique imaging challenges. Skeletal structures provide very low contrast due to still immature formation of the bones and children are at a higher risk of developing radiation-induced diseases.

You are challenged to identify a digital radiography system best suited for the job. Protocols for appropriate dose management and image quality are critical. Features to ease a child's anxiety will help reduce motion artifacts and potential retakes. The system you select will demonstrate your commitment to pediatric excellence.

## **It's all about the kids**

The goals set forth by The Alliance for Radiation Safety in Pediatric Imaging guide our ongoing research to successfully address dose management. By working closely with key opinion leaders to refine our systems, we help that 'imaging gently' becomes a reality.

A long history of leadership in X-ray technology puts us at an advantage. 100 years of X-ray experience and decades of digital X-ray development leads to products designed to meet unique requirements.

DigitalDiagnost, our premium fixed DR system, and MobileDiagnost wDR, premium DR technology on wheels, can effectively handle the wide variations you will find in pediatrics – all at a low dose.

## **Dedicated pediatric settings**

Our systems apply the lowest reasonable patient dose and follow the ALARA principle, by employing a combination of software and hardware technology.

When patient data is received from the RIS, the system automatically proposes optimized exposure parameters dependent upon the age of the individual. These parameters support a wide variety of patients with protocols that have been individually tuned to patient type. We have also developed dedicated exposure parameters specifically for pediatric extremities.

Both DigitalDiagnost and MobileDiagnost wDR are managed by our Eleva user interface, which provides all the tools and controls necessary for seamless procedures. Parameters for every type of examination, view, and acquisition are optimized for virtually every type of patient, from newborns to obese adults. You can easily choose the proper pre-programmed setting and apply it right from the Eleva workspot for image processing, printing, and export to PACS.

Dose Reporting in DICOM SR format allows for detailed exposure dose monitoring on the PACS or dedicated dose management systems (i.e. DoseWise). The exposure index improves dose management and serves as an indicator of the relative exposure used for a particular exam.

# Superb image quality



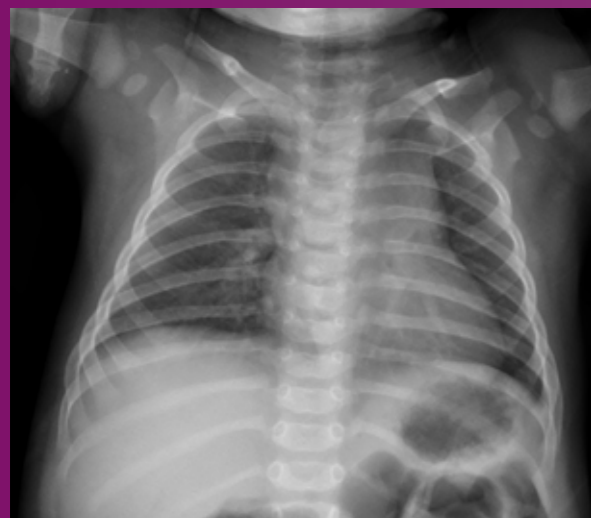
Chest



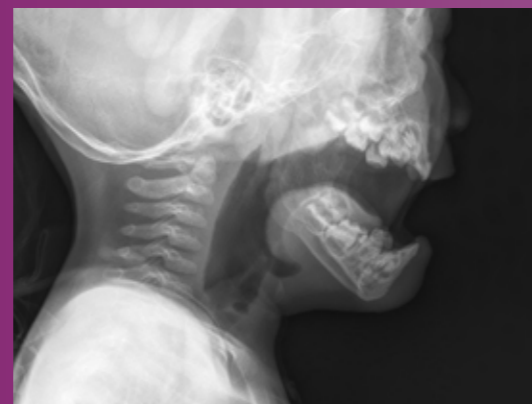
Lower leg



Hand



Chest



C-spine

## Superb image quality

Image quality can be maintained during pediatric imaging so confidence in diagnosis can remain high. Our new SkyPlate wireless portable detectors are based on amorphous silicon with cesium iodide technology, which provides high image quality and excellent dose efficiency.

Compared to conventional techniques, with digital acquisition the image quality can be enhanced at fixed patient dose by appropriately adapted examination parameters.

For example, for the examination of distal extremities lowering the tube voltage to 40 kV and avoiding additional pre-filters\* results in

- Enhanced bone details and better bone border definition
- Enhanced soft tissue definition
- Enhanced overall contrast

Beyond excellent acquisition techniques excellent image quality is achieved through state-of-the-art image processing. UNIQUE image processing is enhanced for pediatric protocols and provides a superb balance between overall contrast and detail visibility, without requiring manual adjustments during image review.

## Versatile system features

Both the DigitalDiagnost and MobileDiagnost wDR have been designed with pediatric friendly features. You will find them well suited for all types of procedures and techniques.

The small size SkyPlate detector (24cm x 30cm / approx. 10" x 12") is very lightweight at only 1.6kg/3.5 lbs. and is appropriately designed for pediatrics. This size promotes fast and easy positioning for small anatomies, fits easily into incubators (intended for neonatology

\* Valid for pediatric extremities only – The whitepaper titled, "Optimizing image quality and dose in digital radiography of pediatric extremities," investigates improved image quality at low, fixed tube voltage.

applications in the neonatal intensive care unit), and allows for easy access for certain difficult projections. When combined with the telescopic tube arm and fine positioning control of MobileDiagnost wDR, you can image in tight locations anywhere in the hospital. In a DigitalDiagnost premium DR room, automatic pre-collimation settings help you support the recommended examination. When required, automatic pre-filtering parameters for exams such as chest or abdomen are quickly and easily applied.

Automatic pre-programmed grid detection helps you to apply grids when appropriate. If you decide to use a grid, Philips carbon grids lead to higher image contrast at a low dose when compared to industry standard grids, which use aluminum interspaces and cover-plates.

Alternately, our innovative SkyFlow technology can be employed to replace grid use. If you choose to do so, you can use SkyFlow to combine the ease of a gridless acquisition workflow with the contrast comparable to grid image, for bedside chest radiography. SkyFlow requires no operator input and automatically adjusts contrast enhancement based on the amount of scatter for the individual patient. Therefore, it is suitable for a wide range of patient types, including pediatric patients.

By refining your pediatric protocols you can work more efficiently. Our optional Clinical QC application helps you do this by monitoring all exams. This powerful tool analyzes rejected images, related operators, and rejection reasons to encourage process improvement. It helps to raise department standards and creates valuable teaching moments.

#### **Easing patient anxiety**

A big machine in a cold, unfamiliar environment can scare children and make them feel anxious. The X-ray exam then becomes stressful and uncomfortable. Consequently the procedure may take longer and results may not be optimal due to motion artifacts. This can lead to re-takes and thus an unnecessary patient dose exposure.

We care deeply about how things look and feel. Good design empowers people and satisfies patients. Your DigitalDiagnost room offers Ambient Lighting to reduce stress and help children feel less intimidated. By putting your patients at ease, you can curtail movement so exams proceed more smoothly and comfortably. Anxiety reduction may also result in enhanced patient-staff communication for enhanced cooperation and more focus on the patient's needs.

More relaxed radiography procedures may result in shorter exam times and increased patient throughput.





# The right choice

Proper imaging of children is never an afterthought for you. We empathize with your determination to provide high quality images at low dose. By selecting DigitalDiagnost or MobileDiagnost wDR, you will not compromise.

With more than 7,000 installations globally, these premium DR systems help provide high quality care for every patient with tools and techniques to optimize results.

Your youngest patients have their whole lives ahead of them. They deserve the best. Let's work together to protect their future. Let's image gently.

