PHILIPS

DoseWise Allura

Making the difference with Live Image Guidance

Dose management in Allura systems

The importance of **radiation dose management**

The harmful effects of X-rays on human tissues had already become apparent just months after their discovery by Wilhem Röntgen in 1895[1]. The main concern for patients is usually associated with the risk of skin injuries[2], which can occur when radiation dose thresholds are exceeded. And the risks are not only limited to the patient, with scatter radiation having been proven to be harmful to the medical staff present during procedures.

At Philips, we have established ourselves as an industry leader in the area of techniques and technologies that provide clinically relevant image quality during each interventional application while reducing dose with our DoseWise Allura solutions.

Protecting your patients and your people

As a result of advances in technology, the growth in the number and complexity of interventional procedures has been significant[3], increasing the risk of patients and staff exceeding dose thresholds. Therefore, efforts to minimize radiation dose are crucial and are today a priority for the healthcare industry.

Successful management of patient radiation dose can only be achieved by optimization of medical imaging technology combined with proper control of the imaging equipment by the operator[4]. In this respect, it is the goal of equipment manufacturers like Philips to provide medical professionals with the technology and features that facilitate the application of the ALARA (As Low As Reasonably Achievable) principle to reduce the radiation dose delivered to both patients and staff. Philips rigorously applies the ALARA principle to its technology, delivering benefits to the health and safety of physicians, patients, and healthcare staff.

DoseWise Allura is integrated across our Allura FD interventional X-ray portfolio. It combines a variety of dose management strategies and techniques that help you to deliver the optimal balance between dose level and image quality.

Philips, leading the way **in dose management**

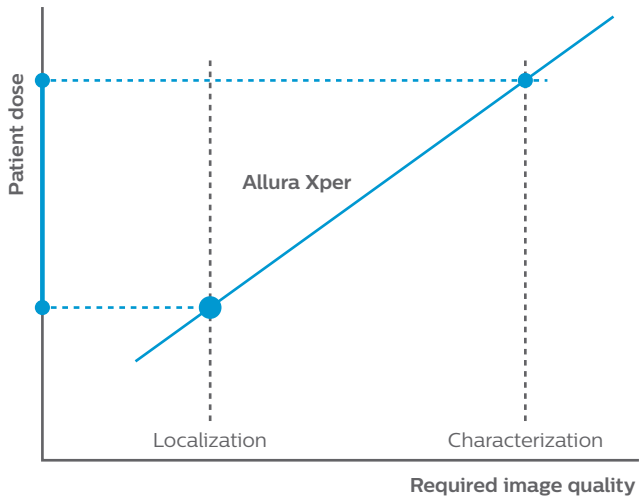
Breakthrough solutions							
Interventional X-ray							
1896	1952	1979	1981	1988	1992	1995	1996
Introduction of the first medical X-ray tube by CHF Müller, Philips	First commercial X-ray image intensifier	Digital Video Image Processor	Digital Substraction Angiography (DSA)	MRC X-ray tube and Spectra Beam copper filtration system	Rotational Angiography	Grid Switched Fluoroscopy	Introduction of collimation on Last Image Hold
1998	2001	2003	2005	2010	2012	2013	2014
Introduction 3D-RA	Introduction Flat panel detector with Xres3 imaging processing	Introduction of X-ray Personalized (Xper) & Dose display	Introduction XperCT and StentBoost	DoseAware - real time dose feedback for physicians	AlluraClarity X-ray system with ClarityIQ technology	Introduction DoseAware Xtend	Introduction DoseWise portal*

*Product under development, not yet for sale.

For decades Philips interventional X-ray systems have been at the forefront of the technological advances that continue to improve patient care and safety. An early example is Philips' invention of dose saving grid switch technology that has been a feature of our interventional products since the 1980's – making Philips a true pioneer in the field of dose reduction and image quality.

Optimizing image quality whilst controlling X-ray dose

Every intervention requires a different balance between Image Quality and X-ray dose, based on procedure type, patient size, projection angle and physician preferences. Furthermore, during an intervention, different tasks may require different image qualities and therefore different dose levels as illustrated in the figure below;



Different tasks require different image quality resulting in different patient dose levels

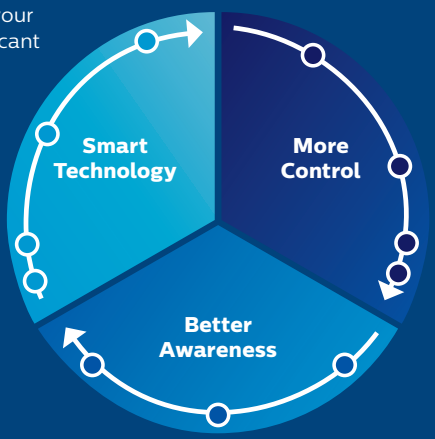
Finding the right balance between image quality and X-ray dose can be a challenging task, involving numerous parameters such as frame rate, copper filtration, collimation, shutter positions, image processing settings and many others.

It is for these reasons that each Allura FD interventional X-ray system is delivered (as standard) with dozens of clinically relevant presets, each containing hundreds of fine-tuned parameters that can be further adjusted by Philips specialists to meet the specific needs of a physician.

Philips DoseWise Allura **Personalized X-ray**

Our dose reduction solutions specific to Philips Allura systems are known collectively as DoseWise Allura; a unique combination of techniques, programs and practices, built into our Allura FD interventional X-ray systems that provide clinically relevant image quality during each interventional application, while reducing dose.

DoseWise Allura offers your patients and staff significant dose-savings using a unique combination of components. At Philips, we divide factors that influence dose and image quality in three main categories:



Our innovations to support you in reducing dose

DoseWise Allura's exceptional image quality and dose management capabilities are made possible by a variety of proprietary technologies developed by Philips. These 'intrinsic' features are those system components that form the foundation of exceptional imaging, such as the generator, MRC X-ray tube, dynamic flat detector, and real-time image processing.

Detector

X-ray conversion efficiency up 25% compared to previous generation

GridSwitch

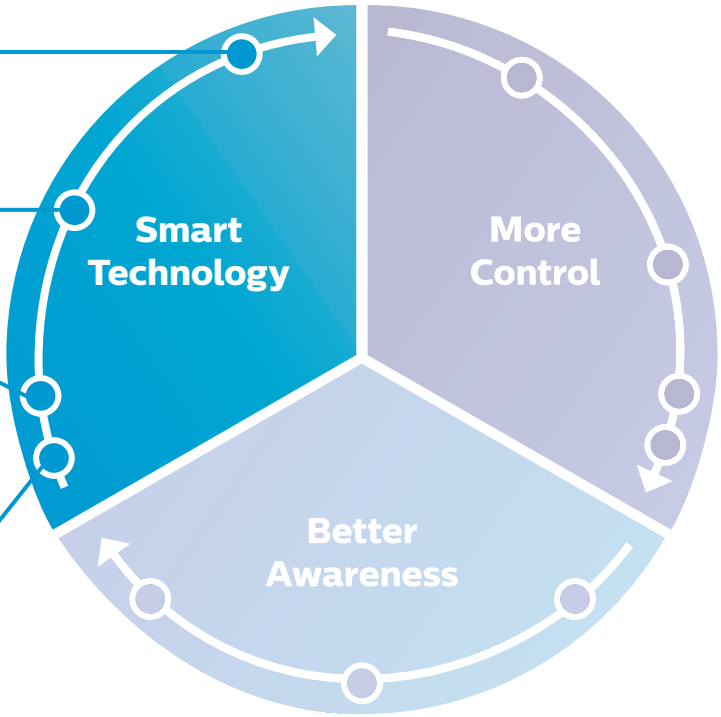
Up to 80% reduction compared to non-gridswitch fluoroscopy

SpectraBeam Pre-filtration

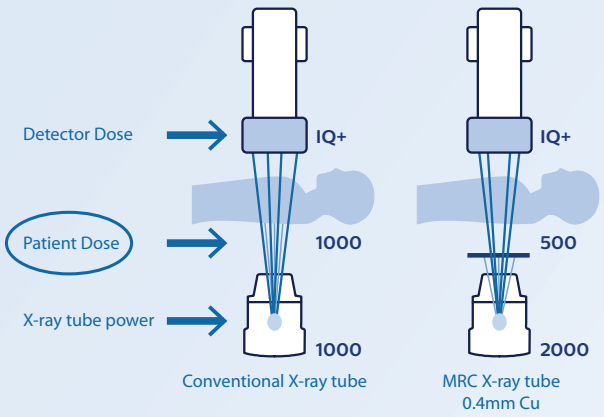
Up to 50% reduction compared to no filtration

Advanced image processing

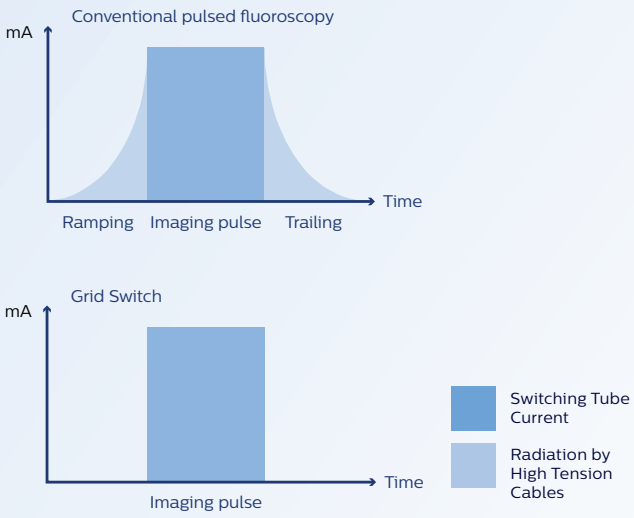
Boost image quality



DoseWise Allura's SpectraBeam filtration enables you to **achieve enhanced image quality at the same patient dose, or reduced patient dose at the same image quality,** with no relation between detector dose and patient dose.

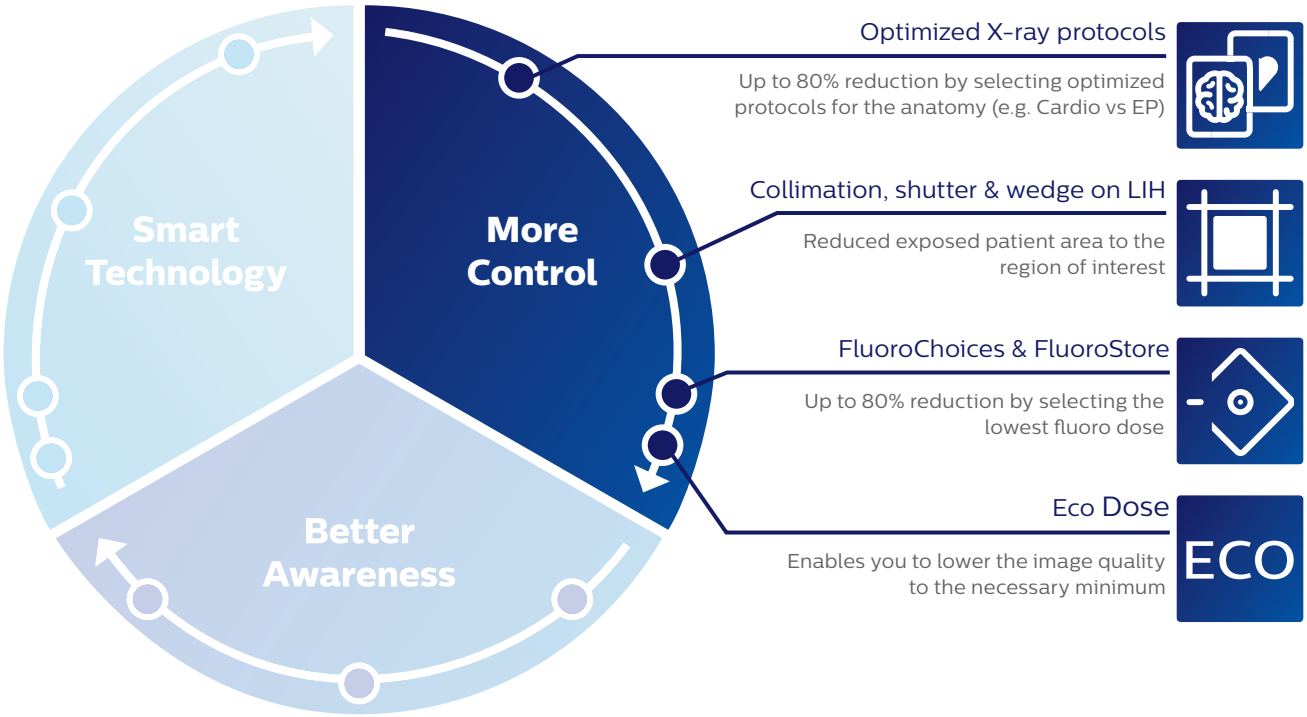


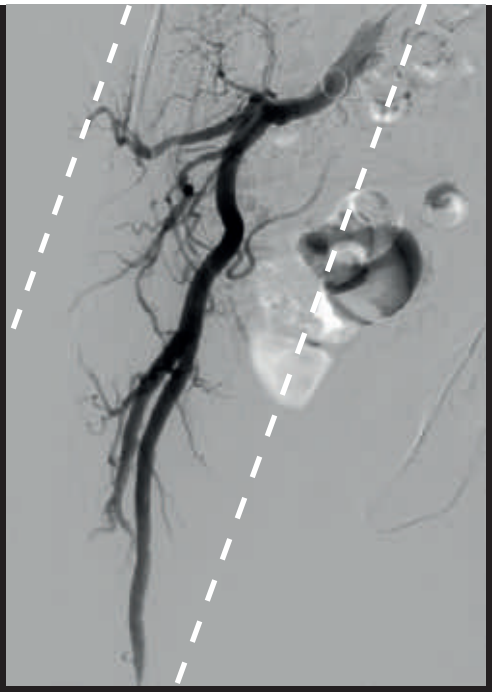
DoseWise Allura's X-ray generation GridSwitch principle can help to reduce emitted dose up to 80%.



Ensuring your workflow is dose optimized

DoseWise Allura offers a variety of unique features which allow you to tailor your system by image quality and dose to meet your specific requirements. These include our clinically optimized X-ray protocols, low-dose protocols, fluoro choices, fluoro store, and collimation on Last Image Hold.



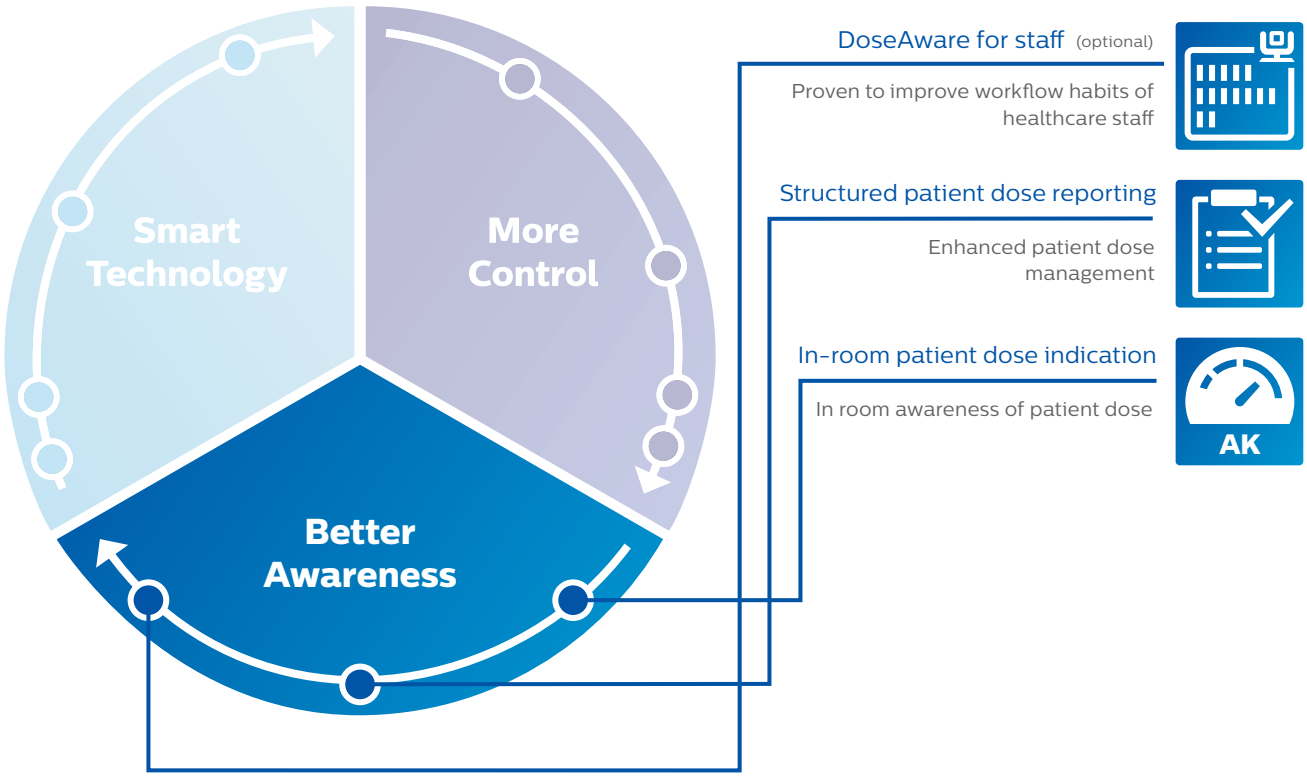


DoseWise Allura gives you **increased control and position of both shutters and wedges** on the last clinical image hold (LIH) enabling improved dose-reduction.

Optimized X-ray protocols such as our Xper settings help to personalize your system to better reflect your needs.

Assisting you in creating an increased awareness of dose

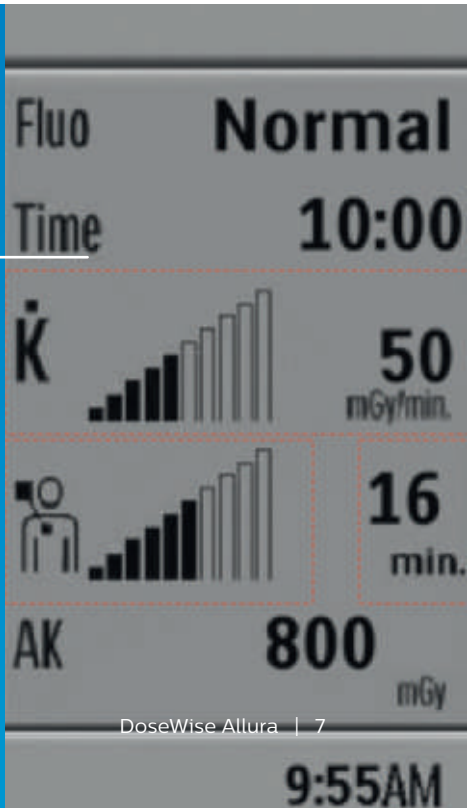
DoseWise Allura assists the user in creating dose awareness via in-room actual zone area AK display, structured patient dose reporting, and real-time staff dose display.



DoseAware Xtend provides you with detailed, real-time procedure based feedback for your staff. You can now display system data information directly on FlexVision and it provides you with data of scattered dose in relation to the dose emitted.

AK

Operators can view a 'fuel gauge' to measure accumulated skin dose. This includes predicted skin dose by body zone and estimated timings until applicable limits are reached.



The Philips **commitment** to dose management

DoseWise is an expression of our longstanding commitment to reduce dose in your patients and staff, while maintaining the acquisition of clinically optimized images. Supported by our proprietary smart technology and awareness programs, we ensure that your needs are central, giving you more control and better awareness at all times during X-ray procedures.

In conclusion **Why choose DoseWise Allura?**

- DoseWise Allura is standard on all Philips Allura interventional X-ray systems
- SpectraBeam provides unique beam filtration over the entire patient thickness range and in all projections
- Provides you with a powerful X-ray tube with Philips patented GridSwitch technology
- Our unique Xper technology enables the flexibility to tune image quality and dose to your individual requirements
- Includes integrated patient and staff real-time dose display on FlexVision with the optional DoseAware Xtend

At Philips we are continuously looking for innovative ways to help you better protect your patients and your people.

For further materials, information, and news on how we are helping healthcare organizations like yours to better manage radiation dose, visit our dedicated webpage.

www.philips.com/DoseWise-Allura

[1] Sansare, K, et al. Early victims of X-rays: a tribute and current perception. Dentomaxillofacial Radiology. 2011;40:123-5.

[2] Balter S, et al. Fluoroscopically guided interventional procedures: a review of radiation effects on patients' skin and hair. Radiology. 2010;254:326-41.

[3] Klein, LW, Donald L Milller, Stephen Balter, et al Occupational health hazards in the interventional laboratory: time for a safer environment"Radiology 2009 : 250(2):538-544

[4] Strauss KJ, Kaste SC. The ALARA (as low as reasonably achievable) concept in pediatric interventional and fluoroscopic imaging: striving to keep radiation doses as low as possible during fluoroscopy of pediatric patients—a white paper executive summary. Pediatr Radiol. 2006;36 (Suppl 2):110–112.

This material is not intended for distribution in the United States.

www.philips.com/DoseWise-Allura

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