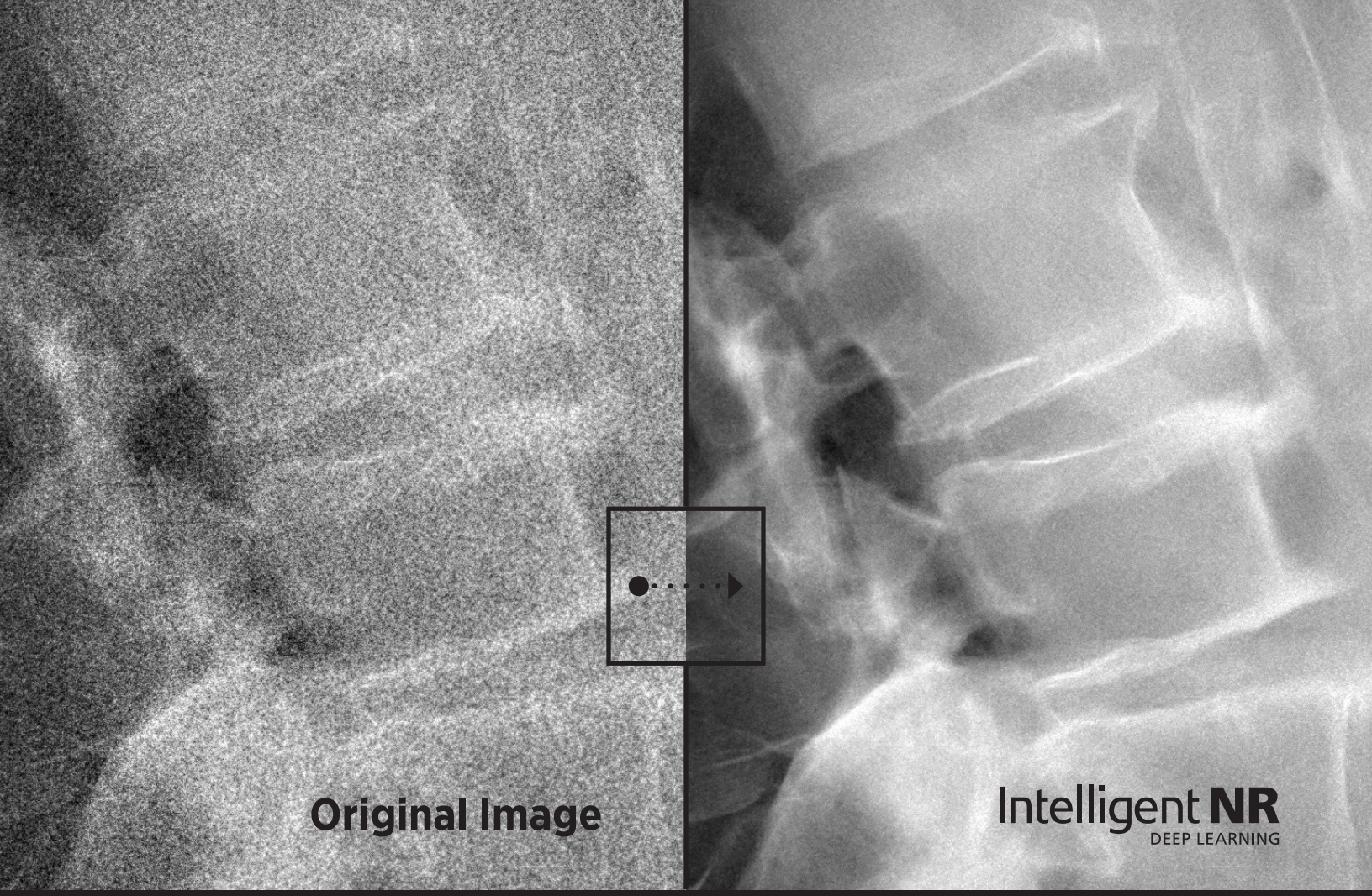


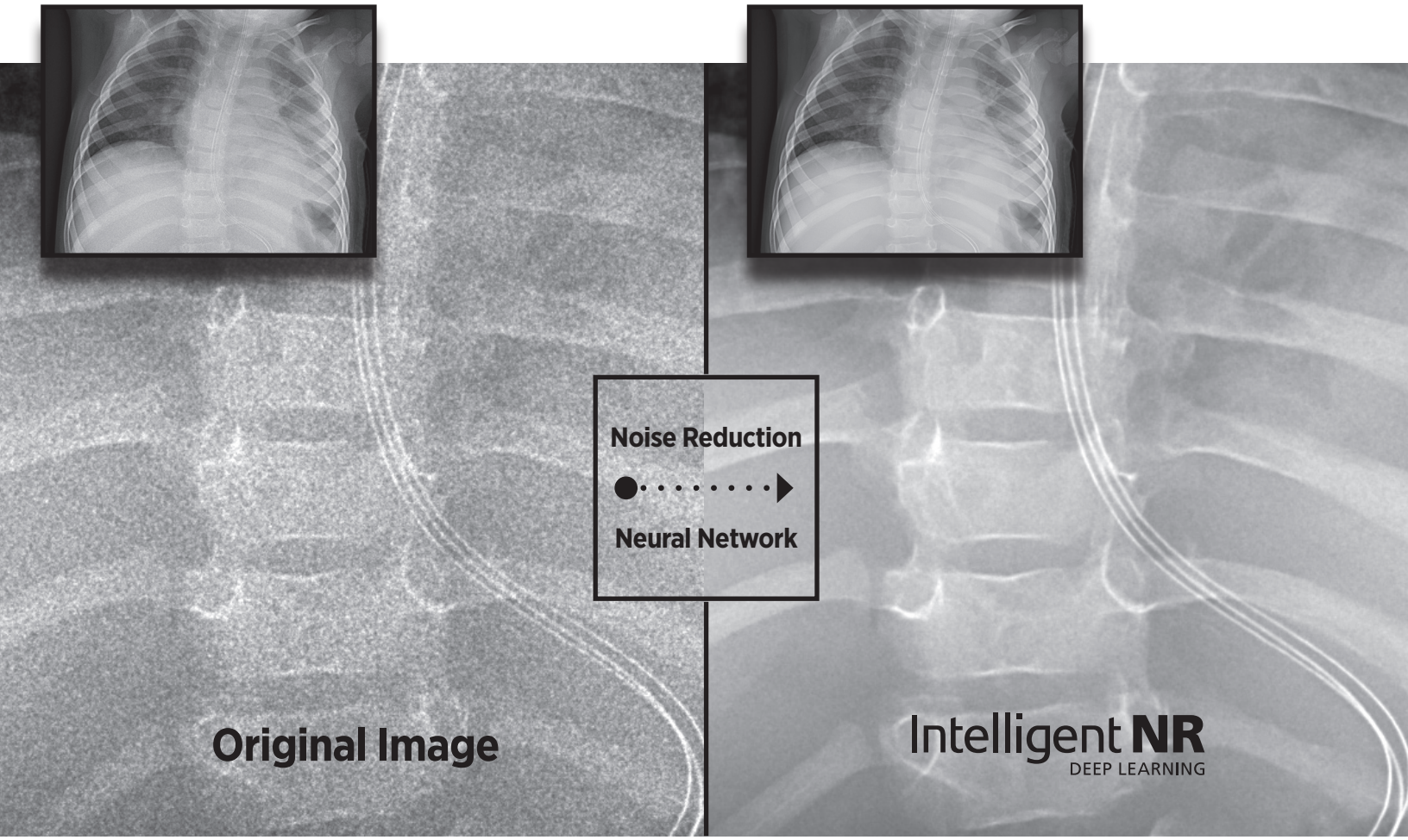
Intelligent NR
DEEP LEARNING

The Future Generation of Imaging

Canon

Intelligent Noise Reduction (Intelligent NR)

Canon's new AI image processing uses a pre-determined model which has been trained by deep learning on noise characteristics in X-ray images from a clinical image database.



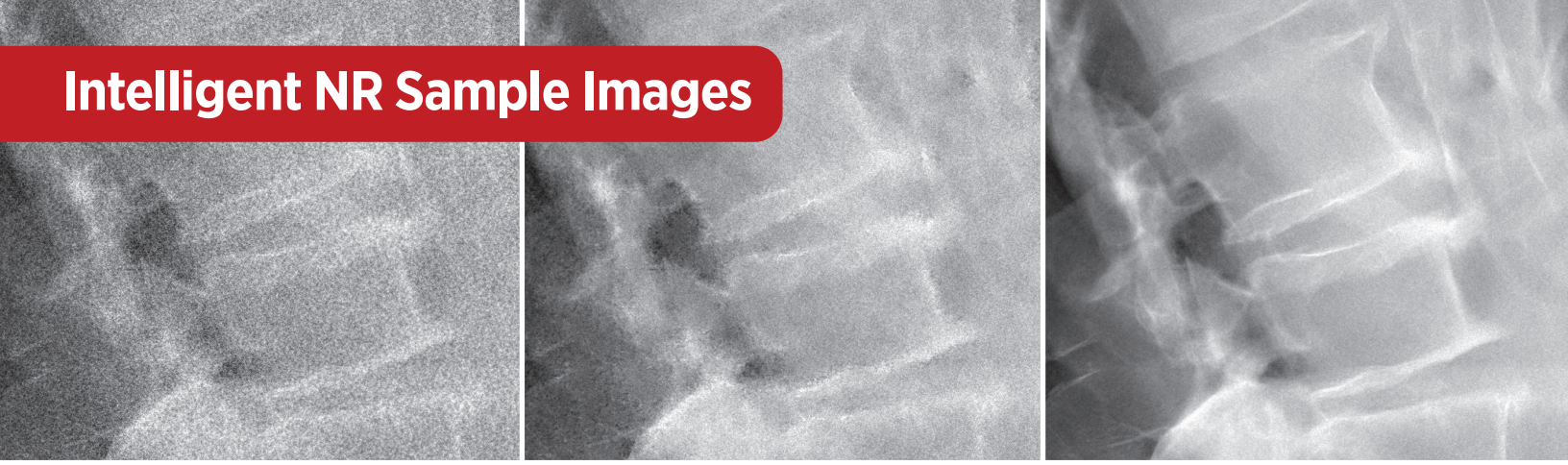
Efficacy of Intelligent NR

Superior Diagnostic Image Quality

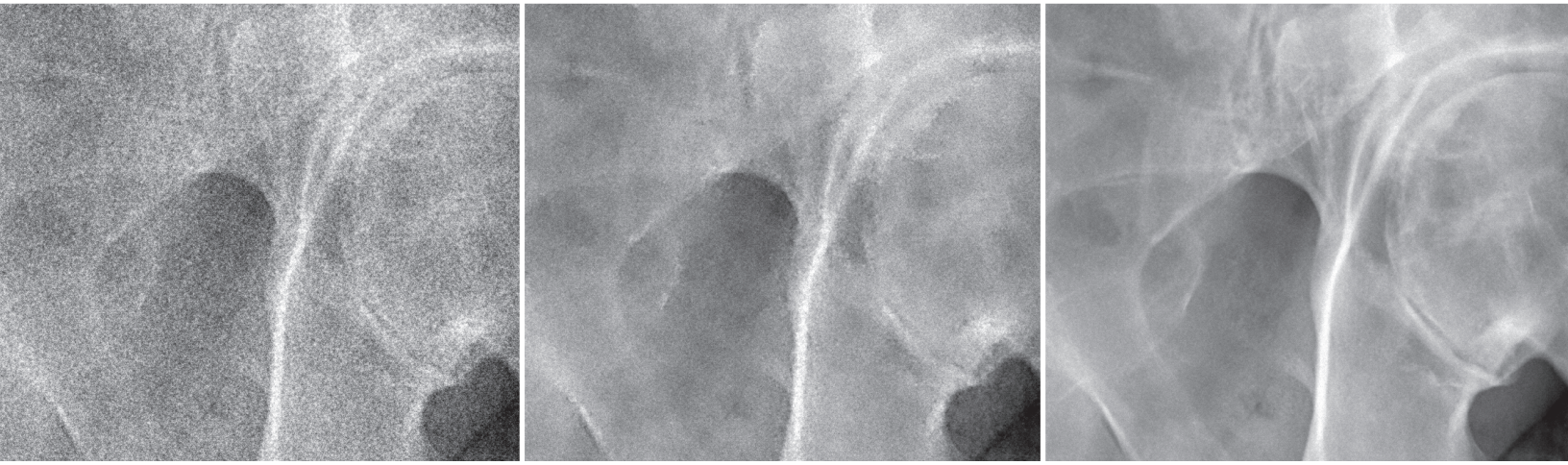
Intelligent NR is a substantial step up from conventional noise reduction. Intelligent NR will provide radiologists high-quality diagnostic images containing significantly less grainy noise with no noticeable loss of detail. This should make improved diagnosis possible for their patients.

Intelligent NR makes it possible to reduce the noise content without losing the fine details of the anatomy, even in low dose regions. For this reason, it is superior to conventional noise reduction. Intelligent NR results in an optimal diagnostic environment, especially for infants and pediatric patients where dose is a prevailing concern. But the image improvement will benefit all patients and exam types by providing superior images even in inherently noisy conditions such as the dense anatomy of the abdomen. With Intelligent NR, there is the potential for significant dose reduction while retaining equivalent image quality (noise content).

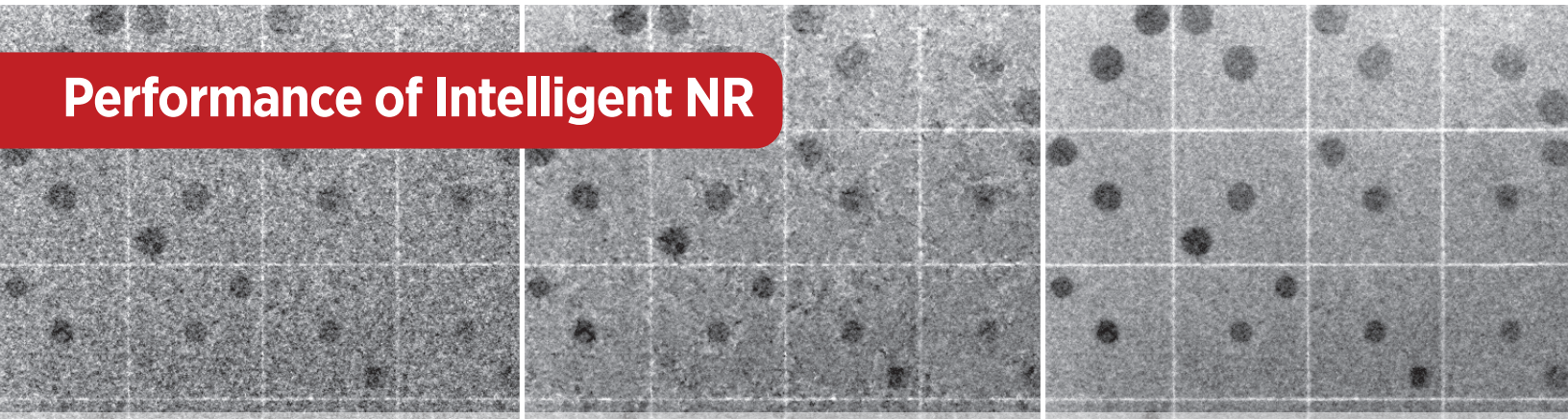
Intelligent NR Sample Images



Original Image | Conventional NR | Intelligent NR DEEP LEARNING



Performance of Intelligent NR



(1) Original Image | (2) Conventional NR | (3) Intelligent NR DEEP LEARNING

Noise content removed from the above phantom images.

In the case of conventional NR, some parts of the image may be concealed or removed with the noise component. However, with Intelligent NR almost none of the desired signal is removed with the noise component.

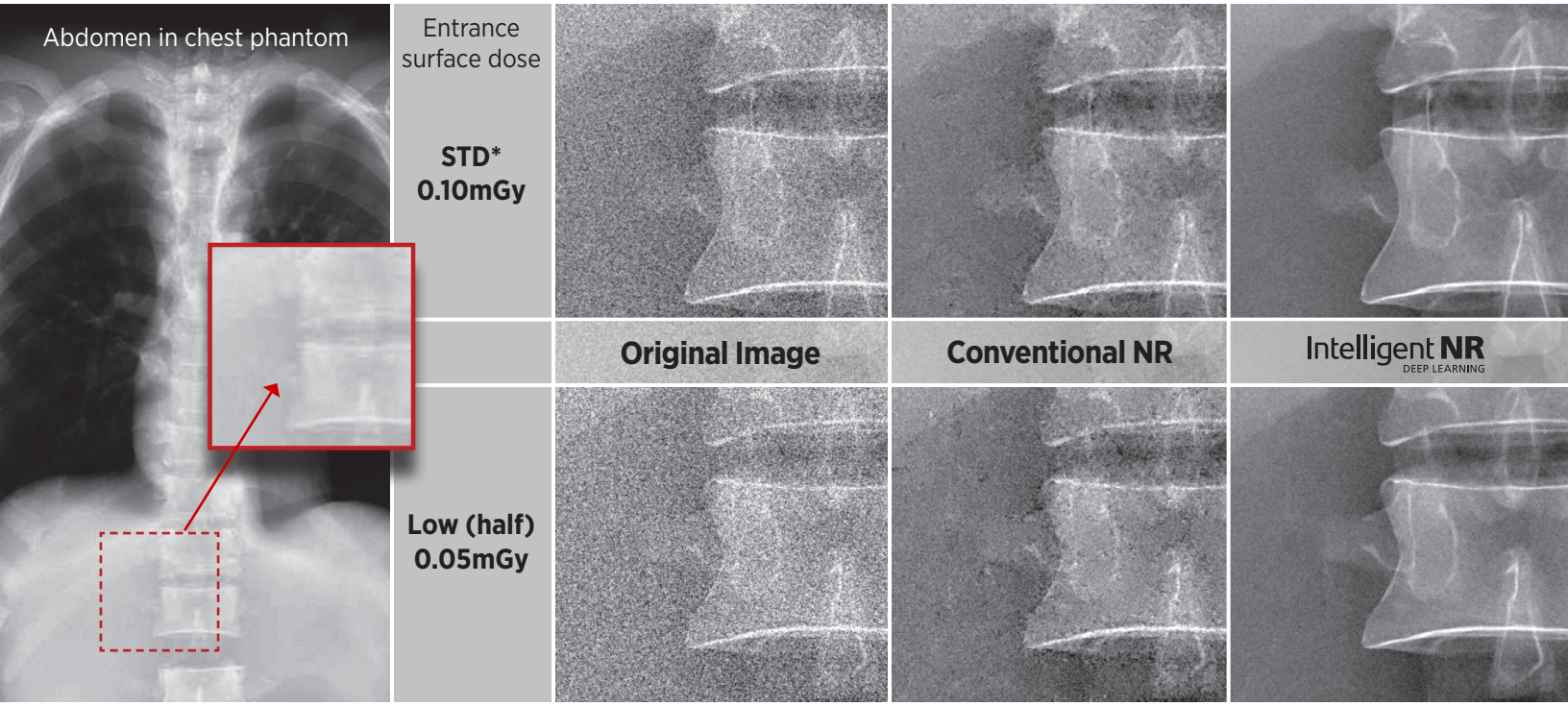
(1)-(2) | (1)-(3)

Collaborative Research

In collaborative research with St. Marianna University School of Medicine Hospital (Japan), the hospital reported Intelligent NR shows a higher visibility than conventional NR and that Intelligent NR should be useful with almost no texture distortion. Compared to conventional NR, the results suggest that using Intelligent NR should enable the acquisition of better images at lower doses.

Visible Results

Edited excerpt from Tanuma et al. St. Marianna University in The 57th Autumn Assembly of the JRS (2021).



*STD : Median dose of representative hospitals (57 hospitals) of the Japan Radiological Society

Low (half) dose Intelligent NR image has less graininess than standard dose Conventional NR image in this study.

**Intelligent NR is available with the following Canon detectors CXDI-710CW, 810CW, 410CW, 720CW, 820CW, 420CW, and 420CF. Adding the option to existing systems, may require additional computer hardware.

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DRB-042 Rev. B

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