



PHILIPS

CombiDiagnost R90

Diagnostic X-ray

Waikato Hospital works at low dose settings and discovers an enhanced workflow with **CombiDiagnost R90 system**

Waikato Hospital (Hamilton, New Zealand) serves a population of more than 390,000. As a 647-bed tertiary teaching hospital, it is the largest hospital for the Waikato District Health Board (DHB). The radiology department conducts between 30-40 diagnostic fluoroscopy exams per week.

The Philips CombiDiagnost R90 is a versatile, cross-functional system which is ideal for high-volume hospitals. When Waikato Hospital upgraded its fluoroscopy service with this system, the team quickly experienced an enhanced workflow.

“With the new CombiDiagnost R90, our clinical workflow is much more efficient for the full range of our routine fluoro exams,” says Angela Karatasiou MD, MSc, Radiology Consultant, WDHB Director of Conventional Imaging. “In addition to easier patient positioning, we see enhanced image quality at low patient dose in our patient care.” A key example of how a new clinical protocol has enhanced workflow is Barium Swallow Studies, which are one of the most common examinations performed in the fluoroscopy department at Waikato Hospital. The clinical protocol was switched from series exposures to fluoroscopy grabs.

Image quality shines and triggers a change in **clinical protocol**

Philips Dynamic UNIQUE is a new technology for real-time image processing in fluoroscopy, providing robust, artifact-free detail enhancement and advanced noise reduction resulting in superb image quality, even in challenging viewing conditions.

Increased clarity of detail

Waikato radiologists have found Dynamic UNIQUE to be particularly advantageous in barium swallow studies. “We require detailed visualization of the pharynx and oesophagus as well as assessment of the gastric outlet,” explains Dr Angela Karatasiou. This poses high demands on image processing, since it requires the visualization of very fine structures in areas of vastly differing radio-densities. Dynamic UNIQUE responds to these challenges, providing clear images from the first frame.

Change in clinical protocol

In the past, to obtain a diagnostically sufficient level of image quality, every barium swallow study was documented using series exposures. With Dynamic UNIQUE, users were so impressed by the quality of the fluoroscopy images, they immediately updated their clinical protocol. “We are now able to document the entire study using low dose fluoroscopy, rather than series exposures. There’s no need for spot images. Today, fluoro images are clear and allow for appropriate visualization of anatomical details, all at low dose to the patient” explains Dr Karatasiou.

Old protocol

Lateral	3 fps – Series Exposure
Frontal	3 fps – Series Exposure
Right oblique	2 fps – Series Exposure
Left oblique	2 fps – Series Exposure
Reflux views	2 fps – Fluoroscopy Grab

New protocol

Lateral	3 fps – Fluoroscopy Grab
Frontal	3 fps – Fluoroscopy Grab
Right oblique	2 fps – Fluoroscopy Grab
Left oblique	2 fps – Fluoroscopy Grab
Reflux views	2 fps – Fluoroscopy Grab



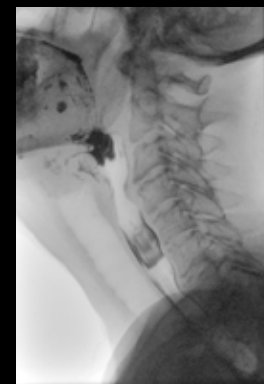
Previous system
Series Exposure
Detector dose: 660 nGy



CombiDiagnost R90
Fluoroscopy grab
Detector dose: 41 nGy



Previous system
Series Exposure
Detector dose: 810 nGy



CombiDiagnost R90
Fluoroscopy grab
Detector dose: 48 nGy



Waikato radiologists didn't consider the change in the clinical protocol to negatively affect the clinical image quality, rather, they felt that the image quality had actually improved. "By replacing our previous system with the new CombiDiagnost R90, we have been able to achieve significantly enhanced image quality at low dose for the patient," Dr Karatasios notes. "The images are clearer and allow for better visualization of anatomical detail."

Patient-friendly system geometry enhances throughput

CombiDiagnost R90 features a patient-friendly, compact footprint and a maximum source-image distance (SID) of 183 cm. One exam that benefits from this system geometry is Video Fluoroscopic Swallow (VFS) exams. "Some of our VFS patients are totally immobile," explains Kathy, a medical radiation technologist. "With the CombiDiagnost R90, we simply position the tube such that we can image patients while they remain in their beds or chairs." This is more comfortable for the patients and saves operators from the strain of lifting patients,

which can lead to a faster and easier workflow. Elizabeth, medical radiation technologist, adds: "Beyond that, patient visibility is much, much better, so we can keep a close eye on our pediatric and elderly patients."

Fast post-processing contributes to efficient workflow

After the examination, review is fast and easy. "There is a lot less post-processing work now, which makes checking and completing the exam a lot faster and simpler, therefore speeding up exam time," Elizabeth states.

Eleva user interface commonality makes transition easy

To meet emergency requirements, Waikato Hospital needed to train more than 60 staff members on how to use its fluoroscopy systems. Therefore choosing an easy-to-use and easy-to-train system was of paramount importance to the medical imaging team. Like all Philips radiography and fluoroscopy systems, the CombiDiagnost R90 features the Eleva user interface. "The workspot is identical to others within the department," Kathy says. "Our staff members find it very user-friendly, and had nothing to worry about."

Philips DRF solutions to improve your clinical outcome

Philips CombiDiagnost R90 – Premium cross-functional system

CombiDiagnost R90 is a remote-controlled fluoroscopy system in combination with high-end digital radiography. As a consistent performer for all DRF studies, its cutting-edge digital radiography capabilities convert your traditional fluoroscopy room into a high throughput 2-in-1 solution. CombiDiagnost R90 supports fast, confident diagnoses with excellent image quality. The remote controlled tiltable table (-90° to +90°) is ideal for all standard fluoroscopy studies. The tabletop as well as the footrest can hold a patient weighing up to 284 kg (626 lb) without restricting movement. Excellent dose management features benefit both patients and staff.

Philips Dynamic UNIQUE – The clarity you seek

Dynamic UNIQUE is a real-time image processing technology from Philips that addresses the diagnostic challenges of fluoroscopic X-ray examinations through image enhancement and intelligent noise suppression. With Dynamic UNIQUE, you will experience clarity of detail for exceptional diagnostic confidence from the first frame to the last. Diagnostic information for each frame is displayed in real-time at optimal brightness. Image representation is consistent and stable even when the image content varies rapidly.

Philips GCF technology – Unrivaled low-dose fluoroscopy

Philips Grid-Controlled Fluoroscopy (GCF) combines the benefits of grid switch technology (eliminating soft radiation from the X-ray pulses) with the advantages of in-pulse dose control. In contrast to conventional after-pulse dose control, in-pulse control enables independent optimization of each pulse in real time. This allows the usage of low frame rates in clinical practice, while managing patient dose patient dose.

Results are specific to the institution where they were obtained and may not reflect the results achievable in other institutions.

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Please visit www.philips.com
healthcare@philips.com

4522 991 39231 * AUG 2019