

USER'S VOICE

FLEXAVISION F4 package

Compact F4 package is Suitable for Confined Examination Spaces. Useful for Chest Radiography as well as for Gastrointestinal examinations!

Uji-TOKUSHUKAI MEDICAL CENTER — HEALTH EXAMINATION CENTER



Fig.1

■As a core hospital in the southern part of Kyoto Prefecture

Located near Mimuroto-ji temple which is famous for hydrangea flowers that bloom in early summer, and Byodo-in temple, this hospital has been offering emergency medical care services, which represent the essence of healthcare, continuously 24 hours a day since it opened in 1979. In 2016, when it was relocated to a new building (Fig. 1), it established nursing care and special nursing home facilities within the same property so that all people can experience the peace of mind of having a hospital where their life can be entrusted without worry.



Yuji Ikenobu, Chief Radiological Technologist,
 Department of Diagnostic Radiology (Left)
 Koji Shima, Vice-Director,
 HEALTH EXAMINATION CENTER

The HEALTH EXAMINATION CENTER is located on the second floor of a separate building, where it conducts women's health examinations and PET mammography examinations in addition to regular screening services such as comprehensive and general health checkups. In June 2022, the center performed gastric fluoroscopy examinations for 89 people and chest radiography examinations for 752 people.

■ Improving the Overall Workflow of Health Screening Operations

Shimadzu FLEXAVISION F4 package (hereafter, F4) was introduced on the occasion of the renewal of the R/F equipment in the fluoroscopy room of the HEALTH EXAMINATION CENTER. In recent years, about 80 % of the examinees receiving gastric health examinations at the center have selected an endoscopic examination. More than a few examinees have switched from gastric fluoroscopy to endoscopy on the day of the examination, and the number of fluoroscopy cases is on the decline. In contrast, chest radiography is performed for all examinees, which often results in a retention of examinees in the waiting area for their turn for chest radiography. Therefore, key selection criteria for a new system were increasing instrument uptime rates and improving the workflow of overall health screening operations.

■ Single FPD shared for Gastrointestinal fluoroscopic studies and Chest Radiography

During the instrument selection process, the equipment layout diagrams presented by Shimadzu sales representatives showed that the compact F4 main unit would easily fit in the limited examination space available in the center's fluoroscopy room.

Therefore, we considered whether functionality for attaching/detaching the FPD, a key feature of the F4, could be used. In other words, we considered whether we could resolve the center's issue mentioned above by detaching the FPD panel from the R/F table, attaching it to the Bucky stand located in the same room

(Fig. 2) , and using the functionality for rotating the X-ray tube by 180 degrees (Fig. 3) to perform chest radiography.



Fig.2



Fig.3

Before we introduced the F4 system, we were worried about the time and trouble it would require to relocate the FPD panel, but once we started actually doing in practice, we found that the 3.5 kg lightweight FPD could be relocated without significant effort.

The unique functionality of the F4 is very suitable for improving the efficiency of health screening operations.

■ **17 × 17-inch FPD is convenient for Chest Radiography**

The center also has one chest radiography room that is separate from the fluoroscopy room, where a 14 × 17-inch FPD is used. However, we sometimes had difficulty to capture the extremely large examinees that have been increasing in recent years. Since installing the F4 system, we can now perform chest radiography in two rooms. Furthermore, the large 17 × 17-inch F.O.V. is more than large enough for large examinees that were difficult to capture with the 14 × 17-inch F.O.V. In addition, the ability to process examinees in two rooms in parallel at the same time has shortened examinee waiting times. After introducing the F4, the time spent on chest radiography each morning has been roughly cut in half. Staff members also like the system because the improved examinations throughput has also helped avoid congestion in the waiting area.

■ **Also Highly Satisfied with High image Quality Despite Low Dose Levels**

Because chest radiography can be accomplished in short time exposure with a photo timer, it has reduced the X-ray dose levels to about 1/2 to 1/3 of the levels used in the other chest radiography room. In terms of image quality, we have been surprised at the extremely sharp images, which makes it easy to check not only the lung field but also the mediastinum overlapping with the aorta (Fig. 4). Previously, radiography of the barium-filled stomach performed at the upright position often resulted in under-dosed images due to insufficient dosage levels caused by exposure

conditions determined based on the fornix region. We have now been very satisfied with how the F4 depicts the shape of the stomach clearly. (Fig. 5).

With respect to fluoroscopy images as well, the F4 provides clearly high sensitivity and sharp images, which can be expected to depict the early lesions.



Fig.4

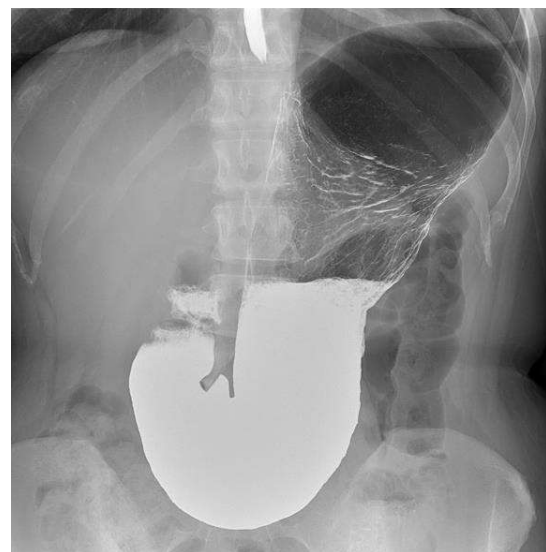


Fig.5

■ Summary

Undoubtedly, the most significant feature of the F4 is the ability to detach and relocate the FPD panel from the R/F table. That functionality enables not only fluoroscopic examinations but also traditional general radiography.

For chest radiography in the fluoroscopy room, we would have needed an additional FPD unit, if F4 system doesn't have a detachable FPD.

Introducing the F4 helped save costs and allowed us to establish a more flexible examination workflow based on extensive functionality of the F4.

As the number of Gastrointestinal examinations is decreasing these days, I think the F4 offers a significant potential to be used in ways that go beyond traditional uses for fluoroscopy and radiography, even if not being used for health screening applications.

The extremely compact size enabled us to configure an environment for general radiography within the fluoroscopy room, which improved the operation rate of R/F X-ray system and improved the overall workflow of X-ray examination operations, including general radiography.



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