





Ysio

As Individual as Your Routine

Siemens Healthcare recognizes the individuality of radiographic workflow in every imaging room of the radiology department. With Ysio, the new digital radiography solution, we introduce a way to tailor your digital radiography system to suit the specific imaging needs of our customers.



In our daily lives, we each have our own individual interests and expectations. The way we learn a language or a sport, the hobbies we enjoy, they all differ. As a result all of us have special requirements and expectations when handling a similar experience or a learning process. Likewise, an imaging facility or radiology department is no different, each having its own requirements for a digital radiography (DR) solution. For example, a satellite imaging facility providing radiography services delivers thousands of radiographs each year, fulfilling the community's imaging requirements. In a tertiary hospital, many more thousands of radiographs are also produced – often in different rooms catering to a wide range of imaging protocols and different patient types. Both these facilities have a

common goal of meeting imaging demands while delivering quality service and patient care, but do these imaging service providers require the same radiography solutions? Probably not. Thus, even when radiography work appears routine with the same imaging results, each room, the workflow and the DR solution it has are different. The reason is simply that the examination volume, imaging requirements and patient types handled by each imaging service is unique. Siemens recognizes this and addresses the unique imaging environment with the introduction of Ysio – as individual as your routine. Ysio is a digital radiographic system that recognizes the individuality of a clinical imaging routine and matches it by providing configurable, optimized digital ra-

diography solutions tailored for virtually all imaging requirements. This means the flexibility to select the key components and features of a DR solution to provide the best fit for the specific radiography needs. How does this work and what are the benefits for a facility in terms of clinical and financial investments?

Tailored solutions for your radiography workflow

To demonstrate how Ysio delivers the optimal DR solution for different imaging areas, let us take a look at some key workflow considerations in the process of selecting an 'ideal' digital radiography solution. These are often:



a - b Dedicated chest imaging

c - f General radiography imaging with specialized imaging protocols

g - j Trauma imaging



- Types of radiographic examinations to be performed in the DR room. Specific imaging requirements like the need for tomography and orthopedic projections should also be considered.
- Volume of examinations and
- Patient types and the clinical environment. This last consideration refers to the patients' state of mobility and physical health, such as level of consciousness and whether it is an emergency environment such as in trauma imaging.

Bearing these factors in mind, let us examine a few possibilities of matching features and functionalities to the workflow of some typical radiographic imaging areas within radiology:

- Dedicated chest imaging
- General radiography imaging with specialized imaging protocols
- Trauma imaging

Dedicated chest imaging

In such an examination room, there is often a high volume of chest examinations. A simple and fast workflow is expected with minimal detector handling and system manipulations. For ease of use, some degree of automated system movements may be preferred. Additionally, fast image preview and excellent image quality enables users to quickly and accurately verify diagnostic quality before proceeding with the next patient. With such workflow conditions, Ysio can offer a

large 43 cm x 43 cm detector on a wall stand to easily accommodate patients with differing chest sizes and synchronized tracking of X-ray tube and detector for fast adjustments of only the detector to fit different patients' height. Further workflow benefits can be gained with the fully automated Ysio system when the anti-scatter grid is changed – as the X-ray tube will automatically change focus distance according to the type of grid used. This saves valuable time and users no longer need to re-position X-ray tube manually but focus on patient positioning for excellent images. In some centers, when workload is high in other radiographic rooms, other secondary procedures like extremities may be transferred to the chest imaging room. The Ysio wall stand detector can of



Typical Ysio solution for a high-volume dedicated chest room.



course be tilted easily to accommodate such examinations. If preferred, the X-ray tube can even be controlled via remote to center itself over the wall detector for faster workflow.

To expand the range of examinations performed within the room, it is possible to purchase a second wireless detector (wi-D)

and simply add a mobile patient trolley - examinations of the lower limbs can be quickly and effortlessly performed – in a routine that is highly familiar to all imaging technicians. This same wi-D can be used to accommodate imaging of wheelchair and trolley-bound patients for enhanced comfort with hardly any interrup-

tion to workflow. There is also limited adaptation of patient positioning techniques leading to minimal fuss and effort from the users.

This dedicated chest room has now become a two-detector room, with an integrated large plate for a high volume of chest examinations and a highly flexible wi-D for image acquisition of all other examinations. Ysio is a tailored solution to match the individual workflow and upgradable* according to clinical needs. Future clinical applications like “Dual Energy” for chests can be considered. It is a technique that is generally agreed to be a valuable tool for chest screening and is gaining acceptance in the clinical arena, although there is still a debate about the ideal protocol for such a screening program. As Ysio is equipped with the 2nd generation detector, which has the technology to potentially accommodate this feature, it further expands the scope of clinical application for the imaging practice.

* requires verification for technical feasibility



General radiography imaging

General imaging covers a multitude of examinations from head to toe and requires a mix of upright and supine positioning techniques. For example, it is common to have patients move from a wall stand detector after a chest examination on to the table for an abdomen examination. Concurrently, other common examinations like skull, pelvis and extremities such as wrist, shoulder, knee and foot X-rays require a constant change of detector workplace and X-ray tube positioning. To cater to this wide variety of procedures with very different patient positions, flexible detector handling is critical for fast workflow and patient comfort. Besides flexibility and patient comfort, examination volume must be considered. High patient volume dictates reduced detector handling and faster, easier system positioning to expedite workflow and patient throughput.

With these factors in mind, Ysio can offer several solutions and features to meet the workflow criteria.

Naturally, when examination volume is low, a single detector solution makes economic sense, as the investment should match functional needs. In this case, a single wi-D will suffice as it delivers both detector handling flexibility and the well-understood benefits of digital imaging. The wi-D* can be conveniently used for free exposures, either in the table or wall stand detector tray. As there is no fixed cable on the wireless detector, the user can move within the room unencumbered – working according to the demands as patient positioning requires. For facilities with high patient throughput and imaging volume, a dual detector DR solution is ideal. This can be a solution with a single large 43 cm x 43 cm (17" x 17"), integrated detector and a 35 cm x 43 cm (14" x 17") wi-D. With Ysio, each workspace can be equipped

with the preferred detector* size. A common scenario would be a general imaging room with a high percentage of chest imaging among the general radiographic examinations – this means, the room can be equipped with a 43 cm x 43 cm detector on the wall stand and a 35 cm x 43 cm detector in the table detector tray. Such a configuration serves to minimize detector re-positioning on the wall stand while affording the handling flexibility from the wi-D for other examinations.

What benefits can the fully automated Ysio provide for such busy general imaging areas? For one, based on the selected organ program, simply press a single button and the X-ray tube is automatically positioned anywhere within the examination room. All the user has to do is to position the wi-D and patient as in a routine examination. Another ergonomic feature is the tableside centering button. Just press this button and the X-ray tube automatically moves from anywhere in the room to center over the table detec-



Trauma Imaging

The range of procedures conducted in a trauma imaging area are similar to general imaging, with the exception that most procedures require modified positioning techniques due to patients' compromised physical conditions. Other differentiating factors are the inconsistent workload, which depends on patient admissions, and a work environment crowded with healthcare givers, especially when patients are in life-threatening conditions. In rooms with fixed structures like gas outlets from the wall, the fully automated Ysio can be configured to bypass such areas during automated travel to the imaging position. This supports the concept of tailored solutions that are not only based on workflow requirements but also on available space.

A variety of solutions is possible depending on the location of the DR system. In the emergency triage area, a mobile generator with a detector or an Ysio system with wi-D and a ceiling-mounted tube are possible answers to the imaging needs. Ysio can also equip emergency imaging with single- or dual detector solutions depending on the size, imaging volume and imaging preference of the facility. Besides the tailored system configuration and the benefits of automation already

tor. This feature saves time and greatly enhances workflow by reducing the manual movements of re-positioning and centering the X-ray tube. To add to the ease of operation, fine adjustments of tube are supported by motor-assisted servo movements and results in it effortless and quick positioning. Naturally, other key features like auto-tracking of the X-ray tube and wall detector dur-

ing detector tilt and height adjustments cut down examination time. Finally, when special acquisition techniques like tomography and orthopedic imaging of entire spine and legs are required, Ysio can be supplied with these functionalities. With these upgradeable options*, Ysio is designed to grow with the clinical practice and provides investment protection for the center.

* requires verification for technical feasibility

Exclusive Benefits of MaxTouch

Electronic measurement of source-image distance (SID)

Examinations are often modified in trauma imaging, to ensure high-quality diagnostic images, the correct SID is critical. In a busy environment, it is not easy to read the measuring tape. To use the electronic SID measurement and display, simply pull out the tape, hold for 3 seconds and the SID is displayed on MaxTouch – no fuss or straining to read the measuring tape. If the user measures the source-object distance, even the image magnification is automatically calculated – allowing adjustments prior to acquisition.

Change of workplace and order of examinations

Upon patient arrival, it is common to change the order of examinations or workplace based on the patient's condition. The choices range from table detector to wi-D or the wall stand detector or according to the preferred order of radiographic projections. The examination drop-down list on MaxTouch lets the user select critical examinations to be performed first and allows changes of workplace to suit the patient's physical condition. Patient comfort and safety are enhanced through this fast and flexible adaptation of workflow.

discussed, Ysio has several features that support an emergency environment's workflow. One key feature is the Max-Touch or the color touchscreen located on the tube housing. This panel allows multiple system control functions like exposure parameters, dose control and selection of tube focus.

Combination matters

As demonstrated in the examples provided, the ability to match detector type to imaging routine, having a choice of single or dual detector systems and the option to combine one integrated detector and one wireless detector in a single DR solution – Ysio can be readily tailored to complement virtually all imaging requirements. Furthermore, the unique key features described translate into workflow benefits that adapt to the individual routine of your radiographic area. Thus, with each proposed solution, we aim to optimize workflow and maximize the investment potential of your DR solution – so that virtually all goals of imaging and care delivery are also met.

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