

Wireless communications in radiology

How quicker response improves service, reduces risk and makes better use of investments

Digitalization and the introduction of advanced Radiology Information Systems (RIS) and Picture Archiving and Communications Systems (PACS) are boosting the efficiency of radiology departments. Digital images are available at the touch of a button at any convenient computer screen, and computerized coding technology has sped up the sample analysis process and reduced the scope for human error. The challenge now is to make sure the investment in new technologies is fully capitalized upon and the benefits maximized both within and beyond the radiology department. Wireless communication has a key role to play in making the best use of resources, improving service and reducing risk in this environment.

Radiology is growing in importance in modern healthcare; becoming the centre for diagnosis and treatment of an increasing range of medical conditions. This means it involves a growing number of physicians, nurses and other radiology service consumers – all of whom need to be seamlessly integrated into the information flow, decision-making and procedures, both within the radiology department and outside it.

Hold-ups in information flow, problems in contacting the right people, or delays in getting specialist and patients to where they are supposed to be at certain times can all lead to serious problems in a clinical environment. It's not just patient welfare that could be affected: there may well be accreditation and legal implications.

Helping information flow to *people*

While advanced RIS and PACS solutions enhance the ability to view, store and distribute radiology images and reports, they do not make it *flow* to the people who need it, when they need it. Wireless communications solutions enable authorized personnel to send and retrieve information at the time and place they need to. Reports, or parts of reports, can be sent to the patient's bedside terminal, or to a physician's wireless device. Referring physicians can be notified when information is ready – and confirm that they have received and checked it – and do not have to pick up the phone or check the fax, email or hospital intranet. The radiologist can let the x-ray nurse know immediately if additional images are required.

Smoother workflow, less waiting

Radiology involves a continuum of processes and activities, each involving a variety of personnel with their own area of responsibility (as shown in Figure 1). Wireless communications solutions can make this workflow run more smoothly at every stage by speeding up and automating key functions. The result is quicker response, faster throughput and less waiting for all concerned.

A good example of how wireless communications can help is in in-patient scheduling. Traditionally, the process looks like this:

- Request from physician sent by post. In-patient scheduled
- Ward phoned and time noted in patient record
- Ward phones transport department when scheduled time is close
- Transport department phones a porter. Everyone waits
- Porter fetches patient. Everyone is still waiting
- Patient transported to radiology department. Porter phones transport department for new job, and waits for new order.

This is how the process can be streamlined with integrated wireless communications:

- In-patient scheduled in RIS
- RIS triggers automatic events:
 - booking sent to ward and transport department
 - patient booked for transport
 - confirmation sent to radiology department
- When scheduled time is close, porter is automatically paged and moves patient to radiology department
- No phone calls. No check-lists. No missed transport. No waiting.

Similar efficiencies can be made throughout the whole radiology cycle depicted in Figure 1. For example, through smart integration of wireless communications, the RIS can automatically send an instruction to a porter by pager to collect a patient as soon as the radiology nurse has approved and signed off an examination in the system. In emergency situations, the referring physician can be sent a confirmation message about a suspected critical condition as soon as the examination has been checked by the radiologist, directly from the viewing station.

Better accountability and safety

In any busy hospital department, mistakes happen, and radiology is no exception. X-rays can be mislabelled; patient information can contain inaccuracies; 'broken studies' occur. The challenge is to identify and put right any errors or omissions before they become embedded in the system. With wireless communications in place, the radiologist who discovers a mistake or inconsistency can immediately inform the appropriate person that corrections need to be made. Not only are mistakes corrected sooner, there is also an audit trail to show what actions were taken.

Wireless communications can also alert a system administrator as soon as equipment errors occur, so that remedial action can be taken before any serious downtime is incurred.

More accessibility

Physicians and other healthcare specialists are busy people and are permanently on the move. But often these people are the only ones who know the answer to a particular question, or who have the authority to approve a scan or a particular treatment. With wireless communications in place these key personnel can be reached wherever they are, whether by voice or text communications. Responses and confirmations can be given in an instant.

More time for caring

Workload and shortage of specialist personnel in busy hospitals mean there is less and less time available for physicians and nurse to spend with patients, delivering high-quality care. By improving information flow and procedures, wireless communications helps medical personnel make more time for patient care – raising patient satisfaction and potentially speeding recovery.

Making investments work harder

The real beauty of integrating wireless communications into radiology department systems is that it helps hospitals get the most out of existing and new investments in systems and applications. The benefits of new technology become available to a wider group of personnel: information moves instantaneously between systems, departments and people; personnel in different departments find it easier to work as a team.

Through smart integration of wireless communications, radiology departments will benefit from quicker response and improved efficiency – leading to better-quality patient care, reduced risk of error and improved utilization of valuable resources. As demands on radiology departments grow – and the healthcare environment in general becomes more commercial and competitive – these benefits could be life-savers.

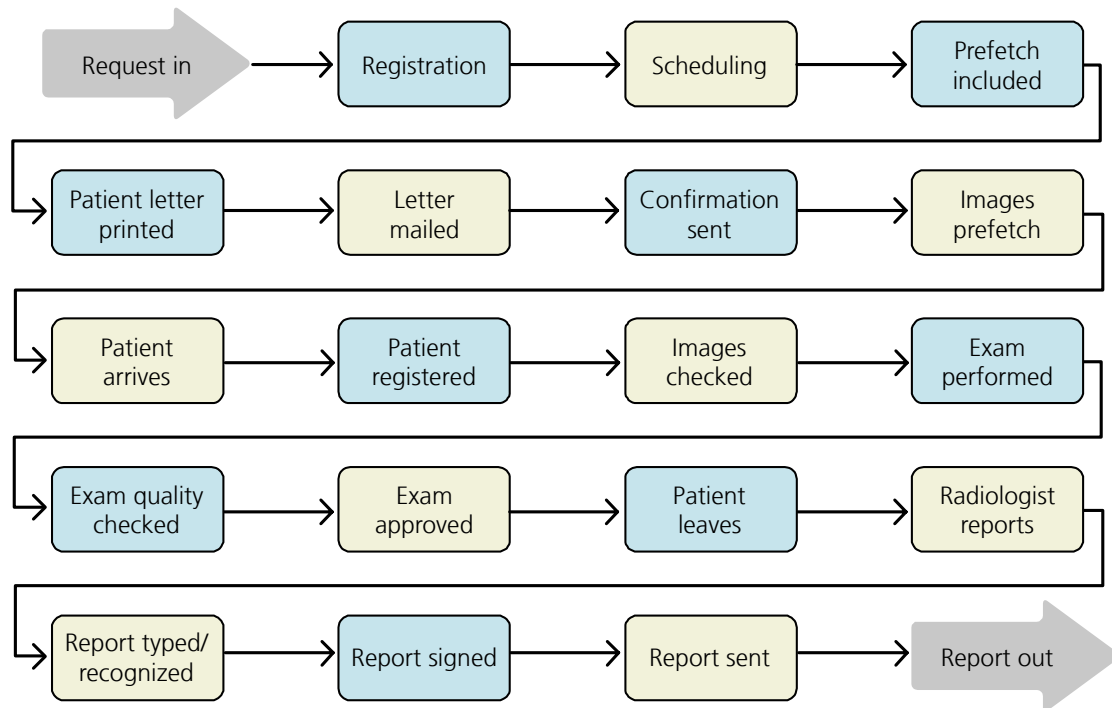


Figure 1. Workflow in a typical radiology department. Wireless communications enhances efficiency and quality of care at every point.