

National or Regional PACS and RIS: Editorial

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Picture archiving and communication system (PACS) and Radiology Information System (RIS) from Carestream Health which known as (Carestream Clinical Collaboration Platform) have been implemented in many hospitals in Saudi Arabia at the regional level in 2020. The southern region is connected by one PACS and RIS that save the patients' data (radiological requests, scans, and reports). The PACS and RIS are connected to the internet and to log-in, one must have an internet connection. The speed of the PACS and RIS are related to the speed of the internet. The systems supports a paperless environment which can be sent from the emergency room or other clinics in the hospital to the radiology department which is a good measure during this pandemic spread (i.e., COVID-19) to stop patients/staff contact which could spread the virus. Any hospital can send a request to another hospital to conduct a certain radiological scan or examination. The patients' history can be seen and search in all the hospitals in the region. The reports from any hospital are available online. When this system was implemented, the previous PACS and RIS were deleted, which was a catastrophic mistake (i.e., the previous PACS can help in seeing the previous scans of any patient which used to contain almost 7 years of data which are gone now). Both systems can be connected on a national level which will allow seeing the patient examination in any hospital on a national level. A standardized report formatting is applied in this system which is another good point. Any scheduled scan can be printed that contains the patient's information with the date of the scan which was available in previous systems. The performance indicators can be seen and analyzed to see which hospital takes more cases and which hospital takes less patients. The scheduled cases can be seen and the waiting list of all hospitals can be checked.

The new system is impractical in some aspects. One of the disadvantages is the need for too much registration information which can take up to 5–10 min of data entry and the system is not a work-friendly system based on personal experience with the system. The low speed of the system is

due to the low speed of the internet which can be applied in a country with fast internet service as fiber to the home technology or 5G or any other technology, while undeveloped countries cannot use such system. The online security of this system is another challenge that needs the full support of the company which means more contract payments for the company not for maintenance, but for security services which will increase the charges. If a patient was wrongfully diagnosed and the patient left the hospital to another hospital in the region, the doctor in the second hospital can make a treatment plan based on the wrong diagnoses from the previous hospital which cannot be corrected by the system or notify the other hospitals of this mistake. The system allows more supervision on Radiologists' and Radiographers' work on a regional level. The system makes every case to be clear who is the Radiographer who did the scan and who is the Radiologist who made the report which allows more legal implications on medical professionals. The system has many accesses that can allow any hospital to see what cases the other hospital work and it could jeopardize patients privacy. If a scan needs to be done in two different rooms like a standing chest X-ray on one machine and a lumbar spine on another machine due to the machines' design in one hospital, the system does not make it easy to send two requests to both X-ray rooms (it needs more work on the system to literally send the request to both of them). The system requires more time to fill in many data such as religion, race, ethnicity, nationality, middle name, name in different languages, set the time on a poorly designed timeline, approve the case, approve the patient's arrival, and approve that the patient is ready for the scan, etc. All this data entry is must be done, which takes too much time. The system does not focus on the main important data such as name, gender, age, ID number, and type of the examination which is a huge mistake. Some old machines cannot be connected to this new system which is another disadvantage for the new system. Sometimes, a radiology request could be sent through the RIS to the radiology department in another hospital instead of

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sending the request to the radiology department in the same hospital. The data are accessible for the operating company (Carestream) which could affect the patients privacy.

The system needs to develop more to be able to help medical professionals to do their jobs. This system is not

work-friendly or practical. It adds more issues than helps in solving radiology departments difficulties worldwide.

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