White Paper

Intelligent Worklist and Business Rules Help Improve Imaging Efficiency Over Multiple Facilities and PACS

Like much of healthcare, the business of radiology is continuously being challenged to search for ways to define their value in an ACO model. Finding the balance between volume-based, efficient care and the desire to be more involved in the patient care team can be difficult. As the demand to be more efficient increases, so does competition. While financial pressures grow, radiologists are challenged to manage complex workflows while expectations of service quality and quick turnaround times grow.

To survive, imaging organizations need to focus on both care and efficiency. Imaging will have to be managed in its entirety, including quality, communication and collaboration. With these trends, industry experts are foreseeing that radiologists will work in flexible, highly distributed environments that will require interactions among multiple clinical systems.

The challenge
The lack of visibility and control The challenge is to become more efficient in an inefficient environment.

If users have multiple PACS systems and require multiple applications to complete their work, reading and performing their required tasks can be inefficient and sometimes unmanageable. Users may lack the ability to prioritize effectively and be prone to missing important cases and urgent requests. If a system lacks integration across multiple business entities and workflow consolidation, manual steps are often required to coordinate prioritization and assignment of studies and tasks. Another factor that can slow work down is geographically distributed reading environments. These environments can result in distributed specialists and

system resources, making it difficult to optimize study assignments and bandwidth.

An inefficient workflow makes it difficult for radiologists to do their job. With disparate systems and data, it is difficult to manage business objectives and care. Organizations strive to put the right case in front of the right doctor at the right time — which is better business health and better patient care.

Working smarter, not harder
Currently, technology is getting in its own way. What really needs to happen to work smarter? The short answer is consolidation of workflow, integration of system functionality and intelligent rules for automation that remove the need for manual intervention. A better workflow enables radiologists to be more efficient and effective. With systems working together, a multi-facility, multi-system organization can

help optimize their resources and workload effectively. Using intelligent rules in an intelligent system can help organizations automate prioritization, task escalation and critical task alerts.

Intelligent workflow — One workstation, one worklist

Technology is available now to help radiology departments integrate and optimize across disparate PACS. Some PACS systems use intelligent workflow, allowing organizations to create a single, integrated worklist across different PACS, quality tools and facilities. With intelligent workflow, the single worklist launches the software components needed for case interpretation. It allows for "synchronized" utilization of multiple applications, enabling the correct applications or tools to launch based on the task to be completed — streamlining the workflow.

Intelligent workflow enables users to view all permissible tasks on demand (e.g., those specifically assigned to the user and unassigned tasks). Users no longer need to move from workstation to workstation to get an idea of what their worklist really looks like. Now users can see all their tasks in one place and identify priorities immediately without wondering what's happening on the other workstation. In addition, a user can define their rotation. Being eligible to read a study is not the only factor to consider when selecting the appropriate task.

The intelligent worklist includes other tasks such as peer review, critical results follow-up, technologist quality improvement, consults and messaging — integrating quality assurance items and communication tasks in the same worklist.. With a consolidated worklist, a user can be more efficient and feel confident about what the next task is.

Intelligent rules

Whether in a single department or a multi-facility configuration, an integrated approach to assigning work has been a challenge when disparate systems were being used. With intelligent workflow systems, you can use intelligent rules to help ensure that you assign work efficiently to the right radiologist.

You can use intelligent rules to help:
  – Assign work based on availability and sub-specialty
  – Assign and re-assign priority and escalate studies based on turnaround time and service level agreement thresholds
  – Optimize radiologist resources across facilities assisting with 24/7 coverage

Assign work based on availability and subspecialty

By setting healthcare system-wide intelligent work eligibility rules in an intelligent workflow system, you can avoid "cherry picking."This practice unfairly distributes work, creates a negative work environment and hurts patient care by delaying

turnaround time on complex cases. An intelligent tasklist assigns and prioritizes studies to radiologists on the basis of intelligent rules such as the radiologist's specialties, patient location, body region, procedure type, etc.

An organization can define intelligent rules to consider individual radiologist specialized skills when making assignments. Organizations may be able to staff sub-specialist radiologists at certain locations, and these individuals are often able to stay well ahead of the incoming studies within their specialties. As a result, these highly trained radiologists end up reading studies outside of their specialties and are under-leveraging their additional training. Meanwhile, other locations elsewhere in the organization's network, have less specialized radiologists interpreting studies that would be better suited for training of the underutilized specialized radiologists. Using expertise level effectively can help improve the quality of the read.

Intelligent rules make the intelligent tasklist customizable to any organization's needs. Rules can be based on factors such as patient location, procedure type, priority, referring physician, modality and patient age. For example, it is typically difficult for organizations to identify and direct pediatric cases to pediatric radiologists. With intelligent rules, the study assignment can be based on patient age to help ensure all

patients age 19 and younger have a pediatric sub-specialists review. Another option would be to assign by referring physician. An organization is able to address its special assignment needs by using intelligent rules.

Assign and re-assign priority and escalate studies based on turnaround time and service level agreement thresholds

The current hard-coded prioritization method available in most PACS systems does not provide the detail required to properly assign a priority to each task. For example, an urgent clinical case such as a stroke is given the priority code of STAT. The same priority code is often assigned to a patient who has an appointment the same day and a quick turnaround is required — two situations with clearly different levels of urgency. Organizations can leverage intelligent rules and the data associated with the task to assign different priorities based on the true urgency. With this new ability to prioritize properly, organizations can reduce manual intervention from a technologist or imaging clerk required to manage vague prioritization.

The advent of the intelligent task list helps ensure that no patient is left behind because individual radiologists are not responsible for selecting the next study. In the new environment, the next most appropriate study is presented in the tasklist for each radiologist, helping ensure that all studies are read in a timely manner, regardless of their level of urgency.

In addition, if a study has not been attended to by a certain time trigger, it can move to another radiologist or group of radiologists. This re-assignment feature creates a dynamic workflow to help ensure studies do not sit on any list for too long.

Most imaging departments have to meet specific service level agreement and turnaround time metrics agreed upon by their customer, the hospital and the referrers. Using the smart rules, users are made of aware of studies that are nearing timing expiry and assign the case to more radiologists or alert someone that this threshold is about to be met.

Optimize radiologist resources across facilities assisting with 24/7 coverage

For a multi-facility organization, it is most efficient to share work across locations. If one location is in a rural area and doesn't get as much traffic, a radiologist in that location can assist the busier locations as needed. This removes the need to have a radiologist at every site 24 hours a day. A radiologist can assess workload using indicators within the workspace. Also, intelligent rules can use alerts to bring attention to critical needs.

Systematically assign tasks to a group or individual user

There are cases within the imaging department that require assignment to specific users or groups of users. For example, certain referring clinicians prefer to have certain

radiologists read their studies or a radiologist specializes in a unique pathology, for these circumstances, assignment to an individual user or group of users is required. Today, this assignment is manual, usually by a technologist. A smart rules engine can take data elements such as exam description and assign specifically. A radiologist may specialize in NM octeroscans (a rare NM exam), and this should be leveraged.

Now is the time

The time is already here for organizations to work smarter, not harder. Using an intelligent tasklist/workspace, users can integrate workflow and priorities across systems and locations. With this type of workflow integration, organizations can become more efficient and effective with study assignments and overall resources. Best of all, while increasing efficiencies organizations are also setting the stage to increase quality of care.

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