

Purpose:

Though equipment and software may claim to be DICOM compliant, interaction with a given electronic environment may result in unexpected problems from poor image quality to a disabled PACS. In order to prevent clinical disruption as a result of introducing a new modality into our electronic environment, we sought to institute a commissioning process that ensures rigor in testing and provides a record of outstanding issues.

Methods:

We developed a generic testing protocol which encompasses connectivity, workflow verification and image quality. The protocol is designed to be adaptable to the requirements of different modalities. First, analysis is done with images created in and sent through a "test" electronic environment which replicates the system used in production (RIS, PACS, worklist broker, clinical viewer and archive). Once the images have passed the "test" system, and we are confident that the modality will not disrupt clinical workflow, the same testing procedure is continued in the "production" system. In our case, testing is a coordinated effort amongst four groups (IT, Engineering, Radiology Systems Coordinators, and Medical Imaging Technology Specialists). A web based tool was set-up to facilitate document sharing, multiple-author-editing of data collection forms and communication between groups. The testing protocol itself consists of five main categories each of which are detailed by each group according to their roles.

Results:

The testing protocol was used in the installation of a digital radiographic unit that was never before seen by our PACS. With this, problems were found and modifications to the modality and PACS were made.

Conclusion:

With the complex interdependent software systems involved in the practice of radiology, adding new systems to a network often results in unintended dire consequences. To mitigate clinical disruption, we've established a commissioning procedure that will be required for introducing new equipment or software into our electronic environment.