

AbstractID: 3336 Title: Interoperability Validation of DICOM Portable Data for Imaging in Nuclear Medicine

**Purpose:**

In PACS (Picture Archiving and Communications System) environment, the export of DICOM portable data for imaging (PDI) has been increased in accordance with the demands of patients referring to other hospitals. The DICOM PDI currently stored in a CD (Compact Disk) causes the problems of retrieve and archive occasionally in PACS environment of destination hospital although it was created under obeying DICOM standards.

**Method and Materials:**

DICOM validation toolkit was developed for verifying the DICOM data sets complying with the DICOM standard PS 3.3 to improve compatibility between the DICOM PDI and multi-vendor PACSs. The interoperability of problematic PDI in nuclear medicine imported to Yonsei University Medical Center in Seoul, Korea was evaluated through validation of DICOM CD data using the DICOM data validation toolkit. The evaluated PDIs were 5 NM (Nuclear Medicine) series and 10 PT (Positron Emission Tomography) series.

**Results:**

The main factors of the problematic NM PDI are that series number, content data, and content time presented null value and detector vector had no tag. As for the problematic PT PDI, series number presented null value, pixel aspect ratio had no tag, and both of image orientation and image position had no any values for VM=3 and VM=6 defined by DICOM standards.

**Conclusion:**

The DICOM data validation toolkit is expected to play an important role in validation of problematic PDI for patients and hospitals. Evaluation of problematic PDI will enable to bring the feedback of incompatibility to PACS vendors and PACS operating team in hospitals to improve interoperability of PDI.