

AbstractID: 12798 Title: Solutions to transforming a radiotherapy clinic with multigenerational equipment into a paperless and filmless facility

Purpose: To present solutions to transforming a radiation therapy clinic with multigenerational equipment to a paperless and filmless facility. **Methods and Materials:** Becoming paperless and filmless (digital) is not only more efficient and cost effective but also more environmentally friendly, however not all equipped systems are digital ready. Here we present in-house developed digital solutions for those clinics with a similar clinical setting and the inclination of becoming digital: CT and analog simulators, Philips Pinnacle³ RTP systems, BrainLAB iPlan RTP systems, conventional LINACs with IGRT capabilities, TomoTherapy units and planning systems, brachytherapy planning and delivery systems, stereotactic radiosurgery modalities and hyperthermia apparatus. A few software systems have been developed to either upgrade purchased systems or interface involved ones. System customization procedures were also performed to get them ready for a digital clinic. **Results:** An add-on system, PortalSim, was developed to transform a conventional analog simulator to a digital fluoroscopy and dynamic simulation system with DICOM connectivity; a RT image pumping utility, iPump, was devised to interface BrainLAB ExacTrac IGRT system and Record and Verify (R&V) system; a DICOM screen dumping tool, ScreenBee, was created to capture computer screen of any system that lacks the effective communication channel with R&V system. Some RTP systems have been customized to meet digital requirements. As a result, all clinical data and documents from plans to quality assurance reports are consolidated in one place in digital form. **Conclusion:** Having a centralized data management clinical setting without using paper and radiographic film is the way to go for a digital radiation therapy clinic. Scanning everything is one of the solutions some may think of, but it is laborious and not truly paperless. There are better solutions by in-house system development and system customization.