AbstractID: 8274 Title: The Benefits of Integrating the Healthcare Enterprise (IHE) Efforts for the Radiation Oncology Physicist

Purpose:
An issue for the practicing clinical physicist is the integration of computer systems in support of radiation therapy. Standards such as DICOM and HL7 exist, however, applications in the process apply these standards differently, resulting in unreliable exchanges of data at points in the imaging, planning, and delivery of treatment. Solving this problem requires the support of users, vendors, and professional societies to achieve a global solution and allow 'best-of-breed' selection of applications.

Method and Materials:
IHE (Integrating the Healthcare Enterprise) is an effort started by RSNA and HIMSS. Its goal is improving the integration of information systems in support of clinical care. IHE-RO (IHE Radiation Oncology) is an effort supported by ASTRO, AAPM, other societies, and vendors aimed at identifying issues of computer integration and developing solutions. Meetings were held to identify bottlenecks in the treatment process. Use cases were written and an "Integration Profile" was developed for the exchange of CT, Region-of-interest, treatment plan, and 3D dose calculation data among different vendors. Vendors then tested their product implementations using test tools developed in support of the effort, 2 rounds of testing (informal and formal), and a public demonstration.

Results:
In the first two rounds of testing a number of incompatible interpretations of DICOM protocols were identified. At the formal Connectathon, manufacturers were able to prove compliance with the Integration Profile for applications that included RT-Archive, CT-Simulation, Treatment Planning, and Dose Display.

Conclusion:
IHE-RO is an effort that is beneficial to the practicing medical physicist. It provides a venue for controlled and demonstrable testing of multi-application compatibility. It reduces the effort required in selection and integration of new systems into clinical practice by providing a reference of proven integration. The improved robustness of application-to-application information transfer results in reduced quality assurance requirements of such interfaces.