Purpose:

To develop a Web-based application (IHE-RO Helper) to allow comprehensive review of the interconnectivity and interoperability of various radiotherapy devices established through testing sanctioned by the Integrating Healthcare Enterprise-Radiation Oncology (IHE-RO).

Material and Methods:

IHE-RO is an initiative sponsored by ASTRO to improve the way computer based systems in radiation oncology share information using well-defined data exchange standards (DICOM / HL7). At the IHE-RO Connectathon events over the last 4 years, 11 vendors with 14 different products have successfully tested and identified solutions to connectivity problems in treatment planning, simulation and delivery. Because the test results are highly technical, the interconnectivity issues amongst the RT devices may get overlooked by the end users. The IHE-RO helper tool is designed to operate in simple clinical terms with queries and presentations organized based on treatment techniques and clinical features that are familiar to the practitioners. For example, if you are planning to purchase a treatment planning system capable of generating plans (e.g. Stereotactic treatments) and are concerned whether the TPS can successfully transfer such data to your treatment management system (TMS) and subsequently to your treatment delivery system (TDS), the IHE-RO Helper can identify the connectivity requirements and list vendors that have successfully passed an IHE-RO Connectathon and validated their solution to the specific requirements.

Results:

The IHE-RO helper tool provides a graphical and textual user interface to effectively demonstrate the solved interconnectivity problems between TPS, TMS and TDS. A report is also provided that explains the interconnectivity problems and its solutions.

Conclusions:
The IHE-RO helper is an effective tool to clearly identify vendor products that are IHE-RO compliant, thereby encourages vendor participation in testing and validation. Such a tool will be invaluable in procurement of new equipment to ensure a priori interoperability with anticipated RT devices deployed in the clinic.

Funding Support, Disclosures, and Conflict of Interest:

This research and development project is supported by the Bankhead-Coley Cancer Research Program grant # RC1-09BW-09-26833