

School of Health Information Science Seminar: Unifying Evidence-based Frameworks To Design, Develop, Implement And Evaluate Health Information Technology Tools in Radiation Oncology



Speaker:

Dr. Karthik Adapa MBBS, MPP, MPH, PhD
Assistant Professor, Clinical Informatics, University of North
Carolina at Chapel Hill

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12:00PM PT

Radiation oncology (RO) has a long history of implementing in-house health information technology (HIT) tools such as quality assurance (QA) checklists. Incident learning system studies suggest that most patient safety events originate in the treatment planning stage of the radiation therapy care process. QA checklists have been deployed in multiple institutions without formal human factors and human-computer interaction evaluation and narrowly evaluated. We evaluated our current dosimetry QA checklist (DQC) using the systems engineering initiative in the patient safety model and enhanced it using evidence-based, theoretical frameworks from human factors engineering, human-computer interaction, health informatics, and implementation science to match the specific safety needs of a RO clinic. The enhanced DQC's perceived usability (as measured by a single easy questionnaire, system usability scale, and post-study system usability), perceived cognitive workload of dosimetrists (as measured by National Aeronautics Space Agency- Task Load Index), performance (as measured by the time taken to complete QA tasks) and patient safety (as measured by the number of patient safety events reported) was statistically significant than the current DQC ($p < 0.05$). The evidence generated from the study was used to develop a unifying and comprehensive framework for designing, developing, implementing, and evaluating in-house HIT tools in radiation oncology.

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