Physicians experience increased effort, uncertainty in cross-coverage of radiation oncology patients

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Radiation oncology physicians who encounter an unfamiliar case when cross covering for another physician experience higher levels of perceived workload and may perhaps also effects on performance, according to research conducted at the University of North Carolina.

In a paper presented at the 2013 American Society for Radiation Oncology conference, study authors Prithima Mosaly, PhD, and Lukasz Mazur, PhD, assistant professors in the UNC Department of Radiation Oncology; Bhishamjit Chera, MD, assistant professor of radiation oncology and Lawrence Marks, MD, Sidney K. Simon Distinguished Professor of Oncology Research and Chair, found a significant decrease in performance and confidence when physicians were asked to plan the treatment of an unfamiliar patient.

Eight radiation oncologists participating in the study, three experienced physicians and five resident physicians, attended two sessions where they were tasked with planning the procedure of a patient based on information from an electronic medical record. Researchers measured the subjective and quantitative experiences of the participating physicians during each session.

During the first session, designed to simulate a "cross-coverage" scenario, radiation oncology physicians were presented with the records of an unfamiliar patient undergoing a routine radiological procedure -

palliative 2-field opposed lateral brain fields. The second session represented a "regular-coverage" scenario where the radiation oncology physicians were presented with the same case after 48 hours.

After each session, the physicians evaluated their experience using the National Aeronautics and Space Administration-Task Load Index (NASA-TLX). Performance was measured using completion time and willingness to approve the generated plan. Overall, the results during cross-coverage revealed a significant increase in perceived workload as quantified by NASA-TLX score and decrease in performance as quantified by longer completion time and reduced approval rate.

The radiation oncology physicians presented with unfamiliar cases in the first session experienced a relatively-high perceived workload and a reduced level of performance. They took more time to complete the tasks and were more reluctant to approve a treatment plan, when compared to the second session where they were more familiar with the case. The level of professional experience of the radiation oncology physicians did not influence the results.

"We had people not willing to approve treatment when in a cross-coverage scenario, but we had 100 percent treatment approval when they were under regular coverage scenario," said Mosaly.

The team's research builds on insights from industries such as aviation, nuclear power plants and transportation that have relied on similar variety of workload assessments to develop safety standards for decades. With the growing use of information technology systems, Mazur said that it is important to develop workload limits for human-computer interaction in order to optimize patient safety.

"It is important for us to look for these boundaries, so that when we have a system it actually builds on human strengths and understands the

limitations," said Mazur.

More information: www.sciencedirect.com/science/ … ii/S187985001300129X

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