

Patient-centered visual aid helps physicians discuss risks, treatments with parents

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A series of illustrations and charts designed as decision aids for parents of children with minor head injuries helped them communicate with emergency medicine physicians and make informed decisions about

their child's care, according to a study that will appear Sept. 21 in *JAMA Network Open*.

The study, led by investigators at the Mayo Clinic, was conducted in seven medical centers, one of which was UC Davis Medical Center's [emergency](#) medicine department in Sacramento. It included 172 clinicians who cared for 971 children aged 2 to 18 who were evaluated for minor head trauma and were at intermediate risk for TBI.

"Parents who used the decision aid had a better understanding of the symptoms of concussion, their child's relative risk of [brain injury](#), and the pros and cons of cranial CT scans compared with active monitoring of signs and symptoms at home that would require a return visit to the [emergency department](#)," said Erik Hess, an emergency medicine physician and first author of the study who is now at the University of Alabama Medical Center in Birmingham.

When a child comes to the emergency department with minor head trauma, physicians use well-established prediction rules to determine whether a low, intermediate or high level of risk exists for significant traumatic brain injury (TBI), which guides whether computed tomography (CT) imaging—and exposure to ionizing radiation—is necessary.

"While the decision to get a CT scan is clear for children identified at the low or high ends of the spectrum, for children at intermediate risk, physicians may recommend CT imaging or monitoring at home based on the physician's clinical experience, the child's progression of symptoms while in the ED and the preference of the caregivers. Use of a decision aid can assist in the decision making process by facilitating knowledge transfer and identification of preferences between provider and caregiver," said James L. Homme, an emergency medicine physician at Mayo and a co-author of the study.

Parents whose physicians used the visual aids to discuss their child's treatment plan had greater knowledge of the risk of a [traumatic brain injury](#) and the available diagnostic options. They had less decisional conflict, more trust in their physician and more involvement in the CT decision-making process.

While there was no difference in the use of CT scans in the emergency department between the group of patients using the decision aid and those receiving standard care, parents in the group using the decision aid tool had shorter lengths of stay in the emergency department, and used fewer health care services in the subsequent 7 days, including laboratory testing and X-rays.

"When the decision to obtain a CT scan in a child with minor head trauma is not clear, this study shows that involving the guardian with a visual aid helps them understand the tradeoffs, and leads to better engagement, education and trust in their [physician](#)," said Nathan Kuppermann, professor and chair of emergency medicine at UC Davis Medical Center and a senior investigator of the study.

"Shared decision-making likely has a role in many similar situations where the clinical decision is not clear," Kuppermann said.

According to the U.S. Centers for Disease Control and Prevention, more than 450,000 children are evaluated in emergency departments in the U.S. for head trauma each year. While CT imaging is the standard test for diagnosing TBIs, less than 10 percent of CT scans of children with minor head trauma show evidence of brain injury, and only 0.2 percent require neurosurgical intervention.

Prediction tools and shared [decision](#)-making with parents are approaches that enable [emergency medicine](#) physicians to apply the latest scientific evidence and patients' values and preferences to reduce children's

lifetime exposure to ionizing radiation, which has been linked to the development of multiple cancers.

More information: *JAMA Network Open* (2018).
[jamanetwork.com/journals/jaman ... etworkopen.2018.2430](https://jamanetwork.com/journals/jaman...etworkopen.2018.2430)

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