Keeping medical imaging safe for children

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When a doctor recommends medical imaging for a child, parents may find themselves confused and concerned.

What's the difference between an MRI and a CT scan? An X-ray and an ultrasound? Will it involve radiation that could harm the child in the long term?

Penn State Health follows the principles set forth by the Image Gently Alliance, which works to improve safe and effective imaging of children worldwide.

Dr. Sosamma Methratta, division chief for pediatric radiology at Penn State Children's Hospital, said radiologists often talk with the doctor ordering an image to learn specifically what he or she is looking for, so they can determine which type of image would be best.

Ultrasound and MRI do not involve radiation because the images come together through sound waves and magnetic energy, respectively. Both X-rays and CT scans send low radiation beams through the body to produce images.

"The risks of the radiation are incredibly small, but still, we try to eliminate them when we can," Methratta said. Because the cells in children's bodies are not fully mature, they can be more sensitive to radiation than adults. Children also have more years ahead of them in which long-term effects of radiation could develop.

Methratta recommends that parents ask whether a particular test uses radiation, and whether there are other ways to make a diagnosis without that test.

"However, you really need to have a background in disease and how you image diseases to understand why you would pick one and not another," she says.

Also, although an MRI may not involve radiation, young children who go through the procedure often need sedation so they can stay still enough for radiologists to capture the images they need. And sedation comes with its own set of risks.

"People should not be unduly stressed," Methratta said. "The reason the test was ordered is because there is an issue we are concerned about. It would be a disservice to the child not to do the test – to let nature take its course or to guess at the diagnosis."

Dr. Michael Moore, a pediatric radiologist at Penn State Children's Hospital, said the goal is always to get the best images to answer the questions that patients and their parents need, and to do it as safely as possible.

"The most important thing is to let parents know that we use as little radiation as possible to answer the clinical question," he said.

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