



Title	Computed Tomography for Pediatric Patients: Review of Clinical Effectiveness and Indications for Use
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Aim

To determine the clinical effectiveness of computed tomography (CT) scanners with various numbers of slices for pediatric patients in obtaining acceptable images for diagnosis and minimizing radiation dose for common indications, eg, head CT for trauma, chest CT, cardiac CT, and abdominal CT.

Conclusions and results

We found little published evidence. Although studies on adult populations have been performed, only two multislice computed tomography (MSCT) studies involved pediatric patients and mentioned the number of slices. Based on data from the included studies, the image quality of 64-MSCT and 16-MSCT was comparable, and the 64-slice scanner resulted in reduced radiation exposure. A comparison between a 16-slice MSCT scanner and magnetic resonance imaging (MRI) showed that CT was not as sensitive as diffusion-weighted MRI in detecting brain injuries in children.

Methods

A literature search encompassed key health technology assessment resources, international health technology agencies, and a focused Internet search. The search was limited to articles published in English. The initial search filters were expanded to include observational studies when no relevant articles were identified during the first search. We used the Google search engine to search for information on the Internet. Two independent reviewers screened articles for selection. Any disagreements were resolved through discussion until consensus was achieved.

Further research/reviews required

Well-designed clinical studies are needed to inform evidence-based decisions about using MSCT in a pediatric population. No recent, relevant, clinical practice guidelines were identified. Hence, there is a need to develop guidance for clinicians on the use of MSCT in children.