Artificial Intelligence and Children's Health
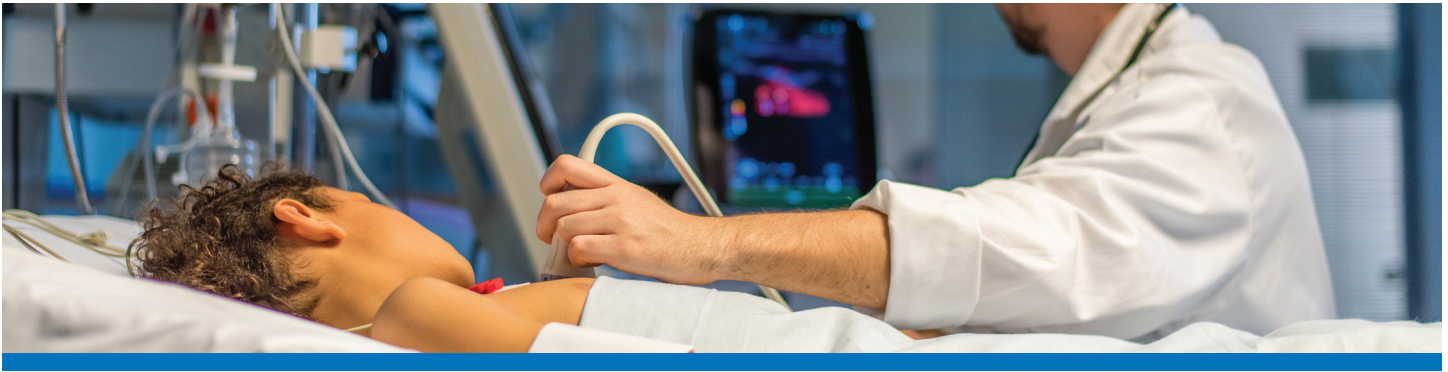
Children's hospitals are implementing artificial intelligence (AI) to improve health outcomes and patient experiences. While useful, AI applications have unique implications for pediatrics that should be considered when regulating AI in health care. Keeping these considerations at the forefront of policymaking will ensure AI tools continue to improve the health care of children.

Opportunities for Pediatric Care

- **Early Diagnosis and Predictive Analytics:** AI quickly analyzes large datasets from electronic health records to identify patterns and predict early onset of disease. The tool also screens and detects disease early in children, which helps prevent disease progression.

- **Imaging and Diagnostics:** AI tools can improve diagnostic accuracy in pediatric imaging, such as reading X-rays and MRIs, reducing the need for repeated imagery and minimizing exposure to radiation.

- **Reducing Provider and Administrative Burden:** AI-driven ambient listening tools can help providers spend more time on patient care and reduce after-hours administrative work. AI tools can also automate medical coding and billing, scheduling, claims processing, and more.

- **Virtual Health Assistants:** AI chatbots and virtual health assistants provide personalized health information, answer families' medical questions, and offer guidance to manage chronic conditions.

- **Medical Education and Training:** AI-powered simulators and virtual reality platforms provide realistic training scenarios, enhancing providers' clinical skills in a safe environment.

Unique Considerations for Children

Lack of Pediatric Data: AI models must be trained with existing large data sets to create accurate outputs. Pediatric data sets are often limited for certain conditions, but data experts at children's hospitals are working to make data sets available for computerized learning.

Complexity in Pediatric Data: Pediatric medical data has more inputs than adult medical data. For example, children's medical data includes inputs for providers, parents/caregivers, subspecialists, teachers, and more. Merging these data sources makes it more difficult to get accurate predictions. Additionally, most health AI tools are tailored to adult care, not taking into account the considerations that make children's health care unique.

Consent to Use Patient Data: Consent to use data is usually initially obtained from a parent or guardian. When the child reaches the age of consent, the child must re-approve use of their health data. This requires strict monitoring of consent status and can limit the use of this data.

Learn more about using AI tools in pediatric care.
www.childrenshospitals.org/artificialintelligence

Innovative AI at Children's Hospitals

EPILEPSY SURGERY: Cincinnati Children's uses AI to reduce referral times for epilepsy surgery. The hospital has trained AI to capture electronic health record data and alert physicians when a patient is eligible to be reviewed by the surgical committee.

PREDICTING DELAYS IN INFANTS: AI-generated "digital twins" can predict neurodevelopmental deficits in infants. UChicago Medicine Comer Children's Hospital utilizes a virtual model of an infant's gut microbiome to identify infants at higher risk of neurodevelopmental deficits.

Contact Us: Milena Berhane | milena.berhane@childrenshospitals.org | (202) 753-5331
Jared Lee | jared.lee@childrenshospitals.org | (202) 753-5521

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