J-BHI Special Issue on "AIoPT (Artificial Intelligence of Paediatric Things): Informatics in Meeting Paediatric Needs"

Clinical informatics specialists can play a variety of roles in paediatric practice. Informaticians can serve as liaisons between health care providers and programmers, give technical assistance, administer systems and networks, and conduct clinical research. For paediatricians and Health Informatics Experts, providing safe and high-quality care to newborns and children is always a top priority. Unfortunately, thousands of medical errors caused by the healthcare system continue to occur, even though "clinical decision-making and safety" have been one of the healthcare quality domains. AIoPT (Artificial Intelligence of Paediatric Things) has risen to prominence in recent years, not only in terms of improving disease-specific outcomes but also in facilitating the measurement and implementation of safe and high-quality Preventive, Assistive, and Medical Children Health Informatics (PAMCHI). Children's study has revealed that challenges and solutions in pediatric safety and quality have various distinct characteristics. In terms of paediatrics, the PAMCHI must focus on population health while also addressing the rising expenses involved with the development and maintenance of computerized care coordination systems, all while contributing to patient care excellence. As we strive to provide the best and the most affordable healthcare, the tools available to measure, standardize, and peer-benchmark safety and quality criteria must be developed. The application of big data and predictive analytics, overcoming barriers to wider use of clinical pathways, harnessing the power of medical device technology, and the expanding significance of telemedicine are just a few of the intriguing areas that lie under the intersection of AIoPT and PAMCHI. The importance of continuing to educate pediatric residents and fellows on AIoPT principles should be emphasized. Clinical research has been inextricably linked to the current electronic medical record.

Paediatrics is concerned with the health and development of newborns, children, and adolescents and their ability to reach their full potential as adults. Paediatricians must be concerned with specific organ systems and biological processes and environmental and societal factors that significantly affect children's physical, emotional, and mental health and social well-being. Paediatricians have diagnostic tools, medicines, and vaccinations at their disposal to improve health, but most importantly, they know children and their diseases, as well as data generated from their treatment. Informatics and information technology have the potential to enhance health outcomes by using clinical data significantly. These characteristics contribute to their uniqueness and complexity as patients with complicated health information requirements. Despite demands for pediatric-specific health tools, little research on pediatric informatics and much less on children's unique requirements has been published. For example, children are a big and diverse group with different health care requirements from adults. Numerous features of this group and the health care system that serves them need particular attention when designing and deploying improved information technology solutions. Explicitly defining children's specific health requirements concerning the health care community in which they get treatment can assist explain why "one size fits all" solutions do not apply to children's health. Thus, the health service research issues linked to the application of AIoPT in PAMCHI are investigated and would be the focus of the present special issue.

Topics of interest include, but are not limited to, the following:

- Matching Caregiver and Clinician Requirements in a Health Informatics Approaches for Infants and preterm
- The activity of daily living pattern needs of pediatric care
- High-volume multi-modal PAMCHI data processing through AIoPT.
- Roles of machine learning and deep learning for PAMCHI.
- Machine and deep learning for healthcare device authentication during PAMCHI data access and exchange.
- Theories, models and tools for optimizing and operating Pediatric care facilities, services and processes
- Advanced sensing components, networks, and systems for acute illnesses
- Long term and unobtrusive monitoring for children
- Preventive medicine powered by data analytics, unobtrusive monitoring, and Artificial Intelligence
- System Engineering-based methodologies and practices in AIoPT
- Privacy, and security of PAMCHI framework

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