# Supplementary Material

## Data Analysis

| Type | Author | Year | Aim | Methodology | Outcomes | Findings |
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| SOTA | Amrit et al. | 2017 | To assess the efficacy of ML and text mining in predicting child abuse cases. | Primary data collection from child specialities. Unstructured data is processed in ML algorithms for extraction and classification. | The API was found to be the most potential ML model to achieve the predictive classification of child abuse cases. | ML can convert clinical unstructured notes and EHR into structured data.<br>ML can characterize cases of abuse based on information extracted from structured data. |
| SOTA | Ge et al. | 2020 | To predict PTSD with diagnostic accuracy in children survivors of an earthquake using machine learning models. | XGBoost, an ML model trained on children's clinical data. Children were survivors of disaster. | ML achieved 60-80% diagnostic accuracy while predicting PTSD in children suffering from accidental trauma of a natural disaster. | ML can detect important factors or variables such as lifestyle deterioration and property loss and generate inference for the impact of PTSD and its possible consequences in children. |
| SOTA | Fathi et al. | 2020 | To carry out diagnostic analysis of leukemia in children using ML. | ANFIS as ML models were used for data inference. Comparative data analysis was performed. | An ML-based neuro-fuzzy interface system can best differentiate between paediatric cancer patients and non-cancer patients. | NFIS can use children's clinical information to diagnose leukaemia cases and work on the same principles of data extraction, mining, and inference. |

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| SOTA | Zhu et al. | 2020 | To demonstrate improvement in the diagnosis of PKU in children using ML models. | The logistic regression analysis model with the aim to minimize false-positive rates in the results of the initial PKU test. | ML screening models can detect PKU cases with better efficacy at 95% CI. | ML is able to extract metabolic data of children and perform data precision to suggest the diagnostic efficacy of PKU cases. |
| SOTA | Lin et al. | 2018 | To predict myopia development in Chinese school-age children group using refraction data in ML. | A longitudinal study is collecting children's refraction data over the period 2005-2015. ML algorithms are used to achieve the prediction of myopia development. | The results showed a prediction of long-term myopia development in children over the period and with better accuracy of results. | It was found that ML can use refraction values extracted from the clinical records of children in the standard structured form and interpret findings for the development of myopia. |
| SOTA | Anagnostopoulou et al. | 2020 | To review representative description of the role that artificial intelligence plays nowadays at the assessment of autism. | An extensive literature review. | The review suggests early and accurate diagnose is the key point for an individualized and successful intervention which aids the academic as well as the personal development of the child | There are some applications of artificial intelligence that are used already or are in a preliminary phase aiming to highlight the use of smart technology in the diagnosing process of autism. |
| SOTA | Brasil et al. | 2019 | To list several examples of how AI has boosted therapeutic development in RDs | An extensive literature review. | RDs' AI-mediated knowledge could significantly boost therapy development. | AI boosted therapeutic development in RDs, entailing the identification of disease biomarkers, the increase of patient recruitment, and the discovery of drugs for repurposing. No "one size fits all" AI solution in biomedicine. |
| SOTA | Huang et al. | 2022 | To assess the role of AI in the analysis of pediatric brain tumour imaging and its clinical impact | A systemic Review | AI may streamline clinical workflows by improving diagnostic accuracy and automating basic imaging analysis tasks. However, adoption of AI in clinical practice requires | Using AI Tumor diagnosis was the most frequently performed task (14, 64%), followed by tumor segmentation (3, 14%) and tumour detection (3, 14%) |

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| SOTA | Hunt et al. | 2020 | To discuss possible entry points for Artificial Intelligence (AI), big data, and mHealth approaches to violence prevention against children, linking these to the World Health Organization's seven INSPIRE strategies | An extensive literature review. | The indicators of predictors of violence, could be integrated into routine health or other information systems and become the basis of AI algorithms for violence prevention and response systems. However, developing AI and other technological infrastructure will require substantial investment, particularly in low- and middle-income countries. | The findings show a clear directions for technology-enabled violence prevention. There is a need to develop reliable, and valid population and individual/family-level data on predictors of violence. |
| SOTA | Kalhori et al. | 2021 | To review the application of health information technology and especially artificial intelligence (AI) methods for treating childhood disease using Precision or personalized Medicine (PM). | A systemic Review | Though the largest number of clinical articles are devoted to oncology, the analysis showed that genomics was the most PM approach used regarding childhood disease. | The number of published papers on AI for PM in childhood diseases increased from 2010 to 2019. The most applied methods were machine learning algorithms. |
| SOTA | Shah et al. | 2022 | To review the applications and limitations of machine learning techniques to empower clinicians to make informed decisions at the bedside. | An extensive literature review. | It summarizes machine learning and artificial intelligence techniques that are currently in use for clinical data modelling with relevance to pediatric critical care. | Various forms of clinical decision support utilising machine learning are described. Highlighted the applications and limitations of ml techniques within clinical context, which aid providers in making more informed decisions at the bedside. |

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| Oppurtunities | Clarke et al. | 2022 | To discuss the review of future medicine in paediatric. | A review methodology. | The results suggested that ML can improve in multiple areas, such as improving workload efficiency, diagnostics, precision, precision medicine, and drug development. | The findings revealed that AI could facilitate several opportunities in the future and in the clinical decision-making to improve paediatric clinical care. |
| Oppurtunities | Filipow | 2022 | To provide a scoping review of ML-based prognosis of chronic respiratory condition in pediatrics. | A scoping review (Qualitative data analysis). | ML significantly predicted CRC cases in almost all included studies with results of cases of asthma (80%), cystic fibrosis (12%) and 4% childhood wheezing and 4% bronchitis. | The cases of chronic respiratory disease are difficult to manage because of the severity of the symptoms. ML prediction models in all included literature demonstrated the successful diagnosis of cases. |
| Oppurtunities | Radebe et al. | 2021 | To assess ML-based diagnosis of thyroid nodules and clinical decision support. | A primary study using a random forest model on biopsy data of children in tertiary care. | The model predicted non-benign/malignant cases of thyroid nodules in children. The decrease in false-positive rate and increased accuracy were anticipated that be achieved in the study outcomes. | The findings showed that ML could also use clinical cytological data to interpret useful findings, such as from the biopsy results of patients. |
| Oppurtunities | Shu et al. | 2019 | To review the past, present, and future perspectives and outlooks of artificial intelligence in paediatric medicine. | An extensive literature review. | The results showed that in the future, AI and ML models would have profound implications with the inclusion of Big Data, cloud computing, virtual assistance, clinical decision support, and precision medicine. | Big Data and cloud computing technology can handle large datasets, and heterogeneous classification of data would ease with such systems in AI, and therefore precision medicine and clinical decisions would be supported. |
| Oppurtunities | Aylward et al. | 2022 | To provides a brief primer on AI in health care. Introduce AI methods & evaluation metrics | A qualitative analysis. | AI approaches promise to reduce barriers to care and maximize the time clinicians are able to spend with their patients. | The clinical utility of AI metrics are presented. Future research is still needed to address impediments to widespread clinical adoption. |

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| Challenges | McCartney | 2018 | To provide a discussion paper highlighting the challenges of AI in paediatric medicine | A secondary qualitative analysis was done on the literature. | AI faced rigor, authenticity, and challenges in the evaluation of technology, such as how Babylon, a UK app, received from the market. | The findings revealed that the Babylon app was not tested for clinical diagnostic accuracy for symptom checking. |
| Challenges | Vogl | 2020 | To review the experience of child duplication records in the child welfare sector and problems of AI. | A secondary review. | The results suggested that data quality issues in child welfare and protection services become barriers to data collection and mining in AI. | The data quality issues can cause misinterpretation and misattributions, which may change the inference of clinical findings of children and propose false-positive results. |
| Challenges | Xiao, Choi and Sun | 2018 | To identify the opportunities and challenges of artificial intelligence. | A systematic review. Secondary data collection with thematic analysis. | There found still unnoticeable challenges in the AI associated with a lack of labels and clinical complexity. | The findings revealed that clinical complexities are mainly found in the long-term investigation, causing temporality and irregularity. |
| Challenges | Davendralingam | 2021 | To discuss the challenges of paediatric imaging. | A qualitative analysis. | The results concluded that data security issues and legal and ethical aspects of clinical challenges. | The findings concluded that ethical issues and standardized clinical terms and problems in their interpretation are causing challenges and opposing the introduction of AI. |