**Title: AI and Cloud Computing for Efficient Data Management and Reporting in Nigerian PHCC**

Abstract:

In Nigeria, Primary Health Care Centres (PHCC) plays significant roles in providing basic and primary health care services to the populace at grass root level. PHCC are the first point of contact for the masses in sorting heath services and it’s the most closest and accessible health facilities to the people covering almost the entire country down to villages. The Traditional method of manual data entry, fragmented reporting has lead to inaccurate and incomplete patient records which limits the efficiency and effectiveness of health care service delivery in PHCC resulting to delays in critical decision making. Additionally, poor IT infrastructure and limited internet access in rural regions exacerbate these challenges. Artificial Intelligence (AI) as emerging technology has been utilized in many aspects of life and industry especially in health sector for optimizing and improving service delivery. This paper explores how AI can be used to improve service delivery in PHCC in Nigeria especially in the aspect of data management for disease tracking, patient management, and enhance reporting, focusing on the unique challenges of rural areas. Qualitative research approach was employed, with focus on interviews with PHCC administrators and professionals in Adamawa state. The interviews aim to explore the current challenges related to data management, disease tracking, and reporting in PHC centres, as well as to assess the feasibility of implementing AI-based solution. Results show that mobile phones AI applications will help health workers in digitalizing patients data offline and then uploading to the cloud when internet is available. PHCC can also leverage on cloud services for managing patients data to curb the problem of lack of IT infrastructure. Machine learning algorithms can analyze historical and real-time data to detect disease trends, predict outbreaks, and support proactive healthcare interventions. Additionally, AI can automate report generation and transmission, ensuring timely and accurate reporting to health authorities. Further study is recommended to investigate the dimensions and challenges faced by the PHCC such as; developing appropriate AI models and ML algorithms that can be used for digitalizing patients data, Cloud computing service models for PHCC, and developing machine learning algorithms that can analyze historical and real-time data to detect disease trends, predict outbreaks, and support proactive healthcare interventions.