The Power of Data Analytics on the Social Health Authority (SHA) for Sustainable Universal Health Coverage (UHC) in Kenya

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ABSTRACT

Universal Health Coverage (UHC) remains a key goal in Kenya's national health agenda. With the introduction of the Social Health Authority (SHA) under the Social Health Insurance Act, 2023, there is an urgent need to develop evidence-driven strategies to ensure sustainability and equity in health service delivery. This paper explores how data analytics can be effectively leveraged by SHA to optimize provider management, beneficiary targeting, claims processing, and policy formulation. It proposes a framework for integrating advanced analytics into SHA operations to enhance transparency, efficiency, and long-term sustainability of UHC.

Key words: Data analytics, Evidence driven strategies, Universal Health Coverage

INTRODUCTION

The transition from the National Health Insurance Fund (NHIF) to the SHA marks a paradigm shift in Kenya's healthcare financing. While SHA introduces three distinct funds (Primary Healthcare, Social Health Insurance, and Emergency/Chronic Illness), it also creates a complex administrative and operational ecosystem that requires accurate, timely, and actionable data. According to the Ministry of Health (2023), these changes are aimed at improving accountability, service delivery, and financial risk protection. This paper argues that leveraging data analytics is essential to achieving the promise of UHC in a resource-constrained setting (Githinji, 2023). The World Bank (2020) emphasizes that data systems are vital for effective UHC monitoring and adaptive policy responses, especially in low and middle-income countries.

LITERATURE REVIEW

Global studies indicate that data-driven health systems lead to better patient outcomes, reduced fraud, and improved resource allocation. For instance, in Thailand, the use of electronic health records and centralized data systems has significantly contributed to the success of their UHC implementation (World Health Organization [WHO], 2022). Similarly, Rwanda's Community-Based Health Insurance Scheme utilizes health informatics to track utilization and target subsidies, enhancing efficiency and equity (Kalk, Paul, & Grabosch, 2020).

In Kenya, prior challenges with NHIF included data integrity issues, claim fraud, and poor targeting mechanisms (Wamai, 2014). Fraudulent medical facilities were making claims even where services were not commensurate to the amount requested and in some cases services had not been rendered at all. The current President of the Republic of Kenya in one of his speeches in 2025 is on record having cited one case of a facility that had more accountants than medical staff among the employees as an indication of how the facility was focusing more on how to pursue fake claims as opposed to offering treatment. The president issued a warning to government facilities that were still charging citizens for outpatient services, despite such services being government-paid under the new Social Health Authority (SHA) program. He stressed that such individual institutions and individual fraudsters would be made to face the law as a consequence. These shortcomings limited the reach and effectiveness of the program, particularly among low-income groups who were supposed to be benefitting from the service. According to Muchiri, Wanjala, and Kamau (2022), Kenya's health financing model required urgent reform to improve efficiency and service delivery. With the establishment of SHA, there is an opportunity to build a more robust data governance framework and leverage analytics for sustainable health financing

(Republic of Kenya, 2024). The old scheme of National Hospital Insurance Fund NHIF) could not deliver services effectively due to frequent fraudulent claims; it included inflated bills, outright fake and double claims among others that dented the fund. It was also characterized by small membership base and not enough contributions that led to depletion of the fund and inability to cover members adequately (AKI, 2020, Coalition against Insurance Fraud, 2022).

Studies by McIntyre and Meheus (2017) show that countries with integrated health data systems experience better prioritization of resources and equitable service delivery. The African Union (2021) has also called for regional collaboration in data infrastructure development to support UHC goals. Furthermore, data-driven initiatives in countries like Ghana have demonstrated how mobile health data can support enrollment and claims validation, especially in rural communities (Adjei, Boateng, & Abor, 2021). This is the reason that the former NHIF scheme could not easily incorporate successfully for the reason that the regulations demanded an overhaul of the whole system. The membership was drawn largely from the formal sector while the members from the informal sector could only be encouraged to join voluntarily. This resulted in a limited contribution to the fund further confining service delivery within strictly regulated space creating high demand anchored on a constrained base of low fund, and data that was not well managed.

Clearly a solution widening the base of membership and opening up quality service delivery was inevitable. It was also crucial to solve problems resulting from poor management of data regarding claims as well as supply of drugs and documenting specific activities and services rendered by various levels of hospitals. This would greatly reduce the data manipulation that resulted in fictitious claims and escalation of fraud. The country required the deployment of data analytics to support the UHC

METHODOLOGY

This paper used a qualitative approach, combining document review, expert interviews, and analysis of SHA's operational documents and job frameworks. It also references secondary data on UHC implementation in sub-Saharan Africa and policy briefs from international health organizations. The study also explored how governments and health authorities could leverage on data analytics to flag out fraudulent claims.

Key Areas where Data Analytics can Impact SHA

This section shows some key areas where data analytics can be employed to bring high impact in the health care sector through SHA. These may include providing evidence of discharge documents in cases of in-patients, doctor's notes prescriptions to accompany the patients biometric information. This will ease counter-checking of claims and correlation of notes regarding service delivery to patients at different health facilities.

Beneficiary Targeting and Enrollment

Data analytics can enhance identification of vulnerable populations through social registries, mobile data, and machine learning models that predict risk and service needs (World Bank, 2020). Techniques like geographic information systems (GIS) and poverty mapping have proven effective in reaching underserved populations (Adjei et al., 2021). If Social Health Authority together with the relevant state departments in the Ministry of Health, more useful data can be collected. With proper analysis, such data can be a strong basis of corroboration or filtering out the outlier information when ascertaining the correctness of information supplied by health institutions. Individual patients as well as medics can be attached to specific location at a given time. This undoubtedly will significantly rid out use of same information by two health facilities in fraudulent moves.

Provider Performance and Empanelment

Using dashboards and provider scorecards informed by real-time data can improve provider compliance, quality assurance, and equitable resource distribution. Studies have shown that real-time or near real time provider analytics are associated with increased accountability and service quality (Muchiri et al., 2022). Only verifiable data provided in real-time and devoid of duplications and consistent with the hospital capacity and performance bestows confidence with authority and enhances accountability.

Claims Processing and Fraud Detection

Predictive analytics and anomaly detection models can flag fraudulent claims, reduce wastage, and enhance trust in the system. Rwanda's use of claim auditing algorithms has significantly reduced fraudulent reimbursements (Kalk et al., 2020). This is the gist of the matter that requires to be embraced in the modern times. Systems must be in a position to raise an alert signaling erratic patterns, inconsistency or anomaly in any claims supplied by the health facilities.

Monitoring and Evaluation

Data-driven Monitoring and Evaluation (M&E) frameworks can support decision-making, flag underperforming regions, and guide adaptive policy reform. WHO (2022) recommends embedding real-time data feedback loops within national health insurance authorities. Whether the service provision is intense or scarce such data helps to inform policies and decision-making processes that are crucial for continued improvement of service delivery.

Proposed Framework for SHA Data Analytics Integration

Establish secure and interoperable digital infrastructure across counties. Such digital platforms allow cross-checking of information not only per a facility but also per service rendered as well as individual recipient in a given locality. It therefore goes without saying that training of staff in data science, health informatics, and visualization tools becomes a reality. On this, issues of Governance and data handling are important and this calls for enforcement of data privacy, ethical use, and transparent reporting through established legal frameworks. For this to be realized the Authority needs to collaborate with academia, private tech firms, county governments, and international health agencies so that it can benefit in research, innovation and technological advancement.

Challenges and Mitigation Strategies

Challenges include weak digital infrastructure in rural areas, resistance to change, data privacy concerns, and shortage of skilled personnel. Solutions include phased digital rollout, robust change management programs, policy enforcement, and strategic capacity development. If this is implemented it can bring the much anticipated transformation. Kenya can also adopt lessons from regional counterparts with stronger digital health ecosystems (African Union, 2021).

CONCLUSION

For SHA to deliver sustainable UHC, it must become a data-literate institution. Anchoring itself on the power of data analytics not only supports better decision-making but also ensures transparency, equity, and resilience in Kenya's health system. As SHA scales, integrating data-driven strategies should be seen not as an option but a core operational pillar. The integration of modern analytics will position SHA to proactively manage emerging health trends and ensure value for money across all levels of service delivery.

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