**“Improving Health Insurance Claims Integrity in Rwanda: A Study of Medical Fraud, Denials, and the Feasibility of Digital-Driven Claims Validation”**

**Viella Iradukunda**

**Iradukundavierra4@gmail.com**

**Abstract**

**Background**

Rwanda’s health insurance ecosystem—led by Mutuelle de Santé and RSSB—is critical in providing equitable access to healthcare. However, inefficiencies in claims processing and the rising incidence of medical billing fraud threaten both financial sustainability and trust in the system. This study investigates the prevalence, patterns, and impact of medical claims denials and fraud in Rwanda. It evaluates the potential for a Digital-powered claims validation system to enhance transparency, reduce fraud, and streamline reimbursements.

**Methodology**

Using a mixed-methods approach, the study will collect and analyze health claims data from selected health facilities and insurance providers, conduct interviews with healthcare finance personnel, and identify bottlenecks in the reimbursement pipeline. The research will develop a prototype rule-based and machine-learning claims audit engine and simulate its impact on fraudulent and erroneous claim detection.

**Study Objectives**

1. **Quantify the extent and types of medical claims denials and fraud in Rwanda’s public and private health insurance systems.**
2. **Identify the significant operational and technological bottlenecks in claims verification workflows.**
3. **Design and test a prototype digital claims validation engine using rules and machine learning.**
4. **Assess the feasibility, acceptability, and potential impact of deploying a Digital-powered claims integrity platform.**

**Conclusion**

The findings will inform policy recommendations and/or, if successful, prototype development of a digital claims integrity platform suitable for Rwanda and scalable across similar low-resource health systems.

**Key words**

* **Mixed methods approach**: Exploratory, applied, mixed methods (qualitative + quantitative + prototype design).
* **Mutuelle de Santé**: Community-Based Health Insurance (Mutuelle de santé) is a solidarity health insurance system in which persons (families) come together and pay contributions for protection and receipt of medical care.
* **RSSB (Rwanda Social Security Board):** It is a government agency responsible for managing social security schemes in Rwanda, including pension schemes, health insurance, and other social welfare programs for salaried workers and other eligible populations.
* **Prototype:** an early version of a system used to test and refine designs, focusing on functionality and demonstration.