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# Decolonizing Data Discovery: Metadata Syndication Model for FAIR and CAREful Health Data Governance in Africa

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Fragmented health data systems across Africa perpetuate inequities in crisis response and research participation, echoing colonial legacies of extractive data practices. In a decisive move toward sovereignty, African Ministries of Health and national data custodians are advancing federated approaches that retain local governance while enabling cross-border collaboration through standardized metadata and interoperable models. This shift not only reclaims agency over sensitive health information but also redefines partnerships in global health research centering African leadership in balancing local priorities with transnational scientific goals.

We introduce a federated metadata syndication framework developed with African partners through the INSPIRE Network to advance FAIR (Findable, Accessible, Interoperable, Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility, Ethics) aligned population health data governance. By enabling collaboration at the metadata level, the framework ensures that data remains under local control, where sensitive information stays at home and only FAIR metadata and analytical results are shared across borders. This approach bridges fragmented data systems, fosters equitable access to valuable research insights, and respects local sovereignty demonstrating a scalable model for ethical, inclusive, and decolonized health data systems. Importantly, the framework aligns with the wave of new national data protection laws across Africa, which assert citizens' rights over their personal data and mandate stronger governance in data sharing and research partnerships.

Key components include:

1. Data Documentation Initiative Lifecycle (DDI-Lifecycle) for standardized documentation of variables, study designs, and provenance, ensuring robust data governance aligned with indigenous data principles.
2. Observational Medical Outcomes Partnership Common Data Model (OMOP CDM) to enable standardized, interoperable analytics and machine learning on locally stored data without moving sensitive information.
3. Schema.org annotations to enhance search engine discoverability, facilitating open research and collaboration across interdisciplinary health data ecosystems.
4. Low-code/no-code platforms to empower local institutions to actively participate in federated research workflows, such as secure multi-site machine learning, enhancing responsibility and reproducibility in data science.

The framework's practical application spans mental health research, population-based longitudinal surveys, and national data hubs supporting Sustainable Development Goals (SDGs) and pandemic preparedness. By embedding ethical and technical design principles in real-world infrastructure, this approach:

- Demonstrates interoperability without centralization;
- Amplifies African agency in data-driven health innovation;
- Fosters inclusive global knowledge systems where African institutions are equal stakeholders, not merely data sources.

By aligning technical frameworks with ethical imperatives and legal developments, this work contributes to decolonizing global health data practices, ensuring African institutions are not just data providers but equal partners in setting research agendas and specifying governance models. Our proposal outlines a pathway for

data-intensive research infrastructures that empower African countries to actively shape health research and drive positive change both locally and globally

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