



Utilising of A FAIR Based Data Pipeline for Routine Syphilis Screening and Treatment During Antenatal Care Visits, The Case of Ayder Comprehensive and Specialized Hospital



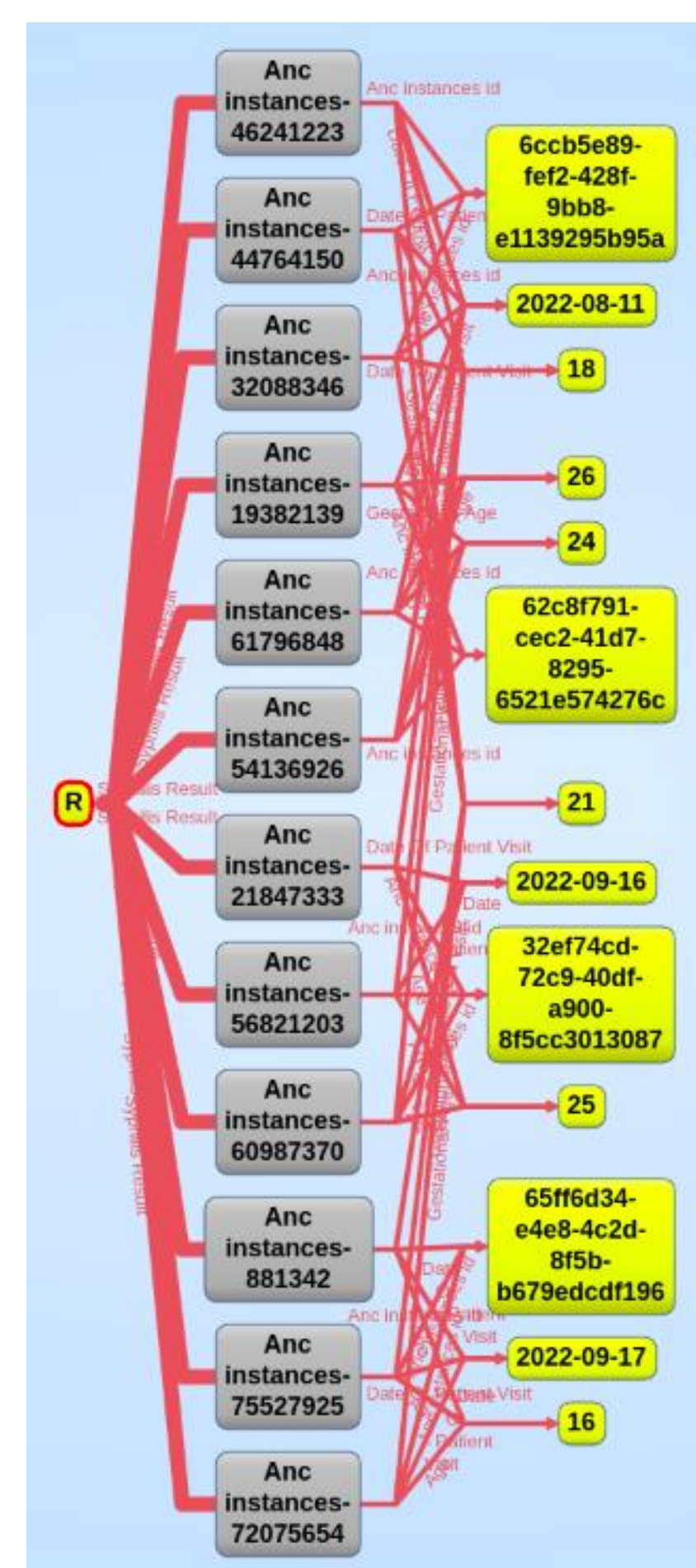
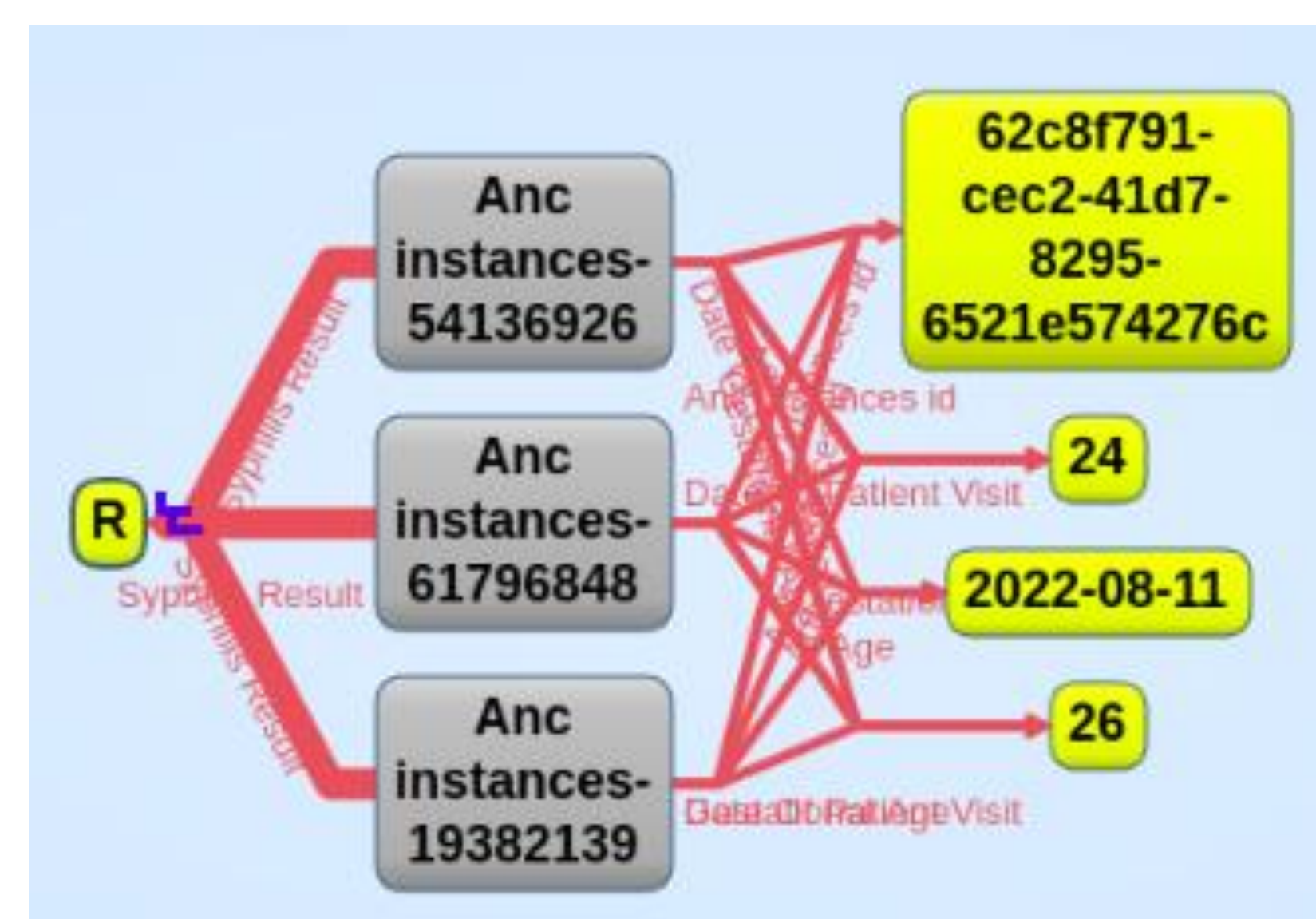
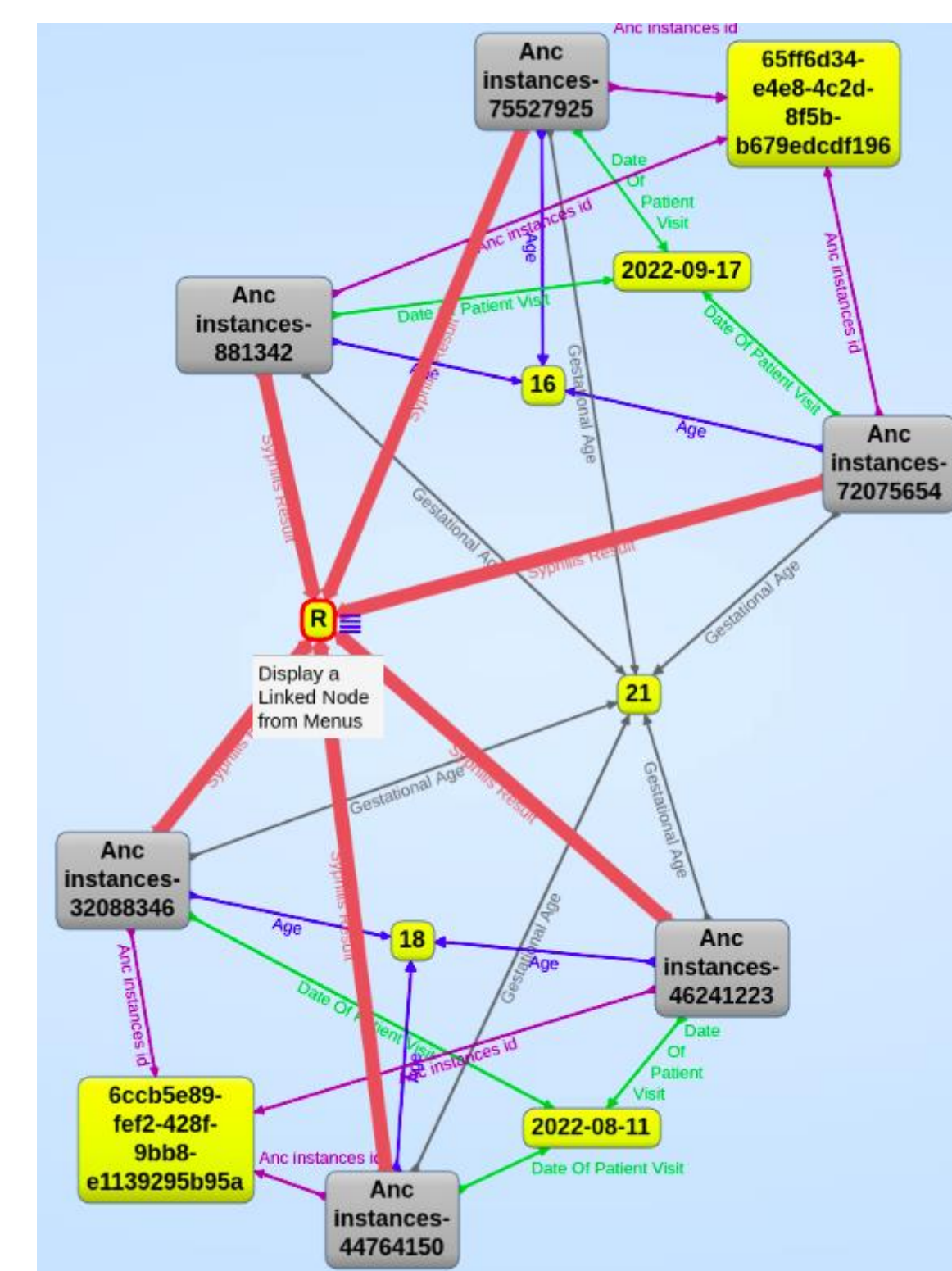
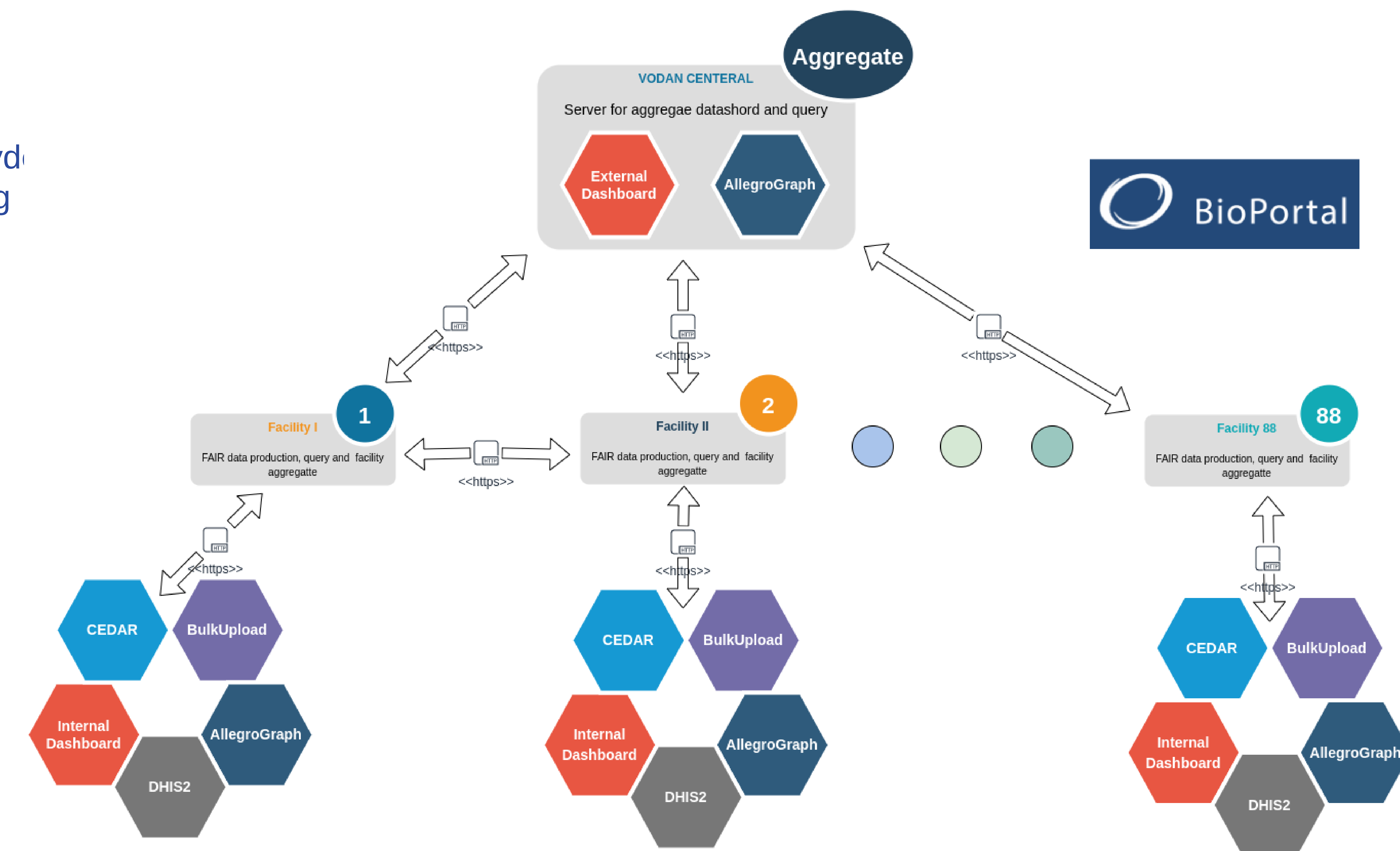
Introduction

In nine African nations and 88 healthcare facilities, we have employed a technology that established a federated, machine-readable, Findable, Accessible, Interoperable, and Reusable (FAIR) data pipeline. Ayder Referral Hospital's snapshot results were utilised to illustrate the significance of such a system in assisting syphilis patients and treatment of other maternal and child health related issues.

Objective: to demonstrate how our data pipeline can be used in enhancing the treatment scheme of syphilis during pregnancy in particular and maternal and child health care enhancement in general

Method

Method: a case study design is used to demonstrate the relevance of the data pipeline. We have developed a set of software platforms that help FAIR data production, data visualisation using internal and external dashboards and setup a platform that helps conduct remote query using SPARQL. We have then converted the FAIR data into a knowledge graph to help us analyse and learn about the cases through visual queries. Exploratory approach to understand the nature of syphilis and similar cases will be employed on the knowledge graph built on the VODAN Africa platform.



Results

We have demonstrated a simple visual representation of syphilis reactive and non-reactive cases as well as clearly filter adolescent pregnancy in Ayder Hospital using the knowledge graphs. Narrowing the visual query we have also been able to provide warning signs for congenital syphilis (CS) which is a disease that occurs when a mother with syphilis passes the infection on to her baby during pregnancy.

Conclusions

Having such a data pipeline enabled us to collect FAIR data and apply data science tools and techniques to help in tracking, providing early warning signs and treatment of congenital syphilis. We recommend that the data pipeline can be used for both routine services and pandemics prone diseases in order to trigger prompt public health interventions.