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Laboratory Information Management System for the Accessioning, Tracking and Storage of Specimens in an Influenza Research Laboratory: A Case Study of Makerere University Walter Reed Project, Influenza Research Laboratory.

This dissertation was concerned with the planning, designing, development and implementation of a Laboratory Information Management System (LIMS) to replace an outdated system at the Influenza Research Laboratory (IRL) one of the lab facilities under the Avian Influenza Pandemic Influenza (AIPI) surveillance programme, Makerere University Walter Reed Project. The main mission of the AIPI programme is to carry out surveillance of circulating viruses that cause influenza and influenza like illnesses in Uganda. The LIMS will be used to enhance the business processes and work flow at IRL through managing and tracking of specimens. The old system has a standalone database, which is insecure, lacks proper IT infrastructure, prone to errors as it lacks data validation mechanisms, has manual report generation and hence leads to high turnaround time of specimen processing. It was, therefore, found imperative that the existing system be replaced with a new LIMS that would enhance the business processes and workflow at IRL through having a centralised database, validation mechanisms, specimen tracking, maintain data quality and integrity and enhance reporting. Methodologies, techniques and tools used included: data collection tools, the software development life cycle, developmental prototyping, business process re-engineering and unified modelling language to come up with the required system requirement specifications. PHP a web-based design programming language was used to build the user interface and link it to the database, which was designed using MYSQL a Relational Database Management System. The new LIMS will help integrate all the business processes at IRL, enhance security, improve the turnaround time of specimens, enhance reporting, improve data accuracy and reliability, automate test resulting, and support specimen repository.

Keywords: Information Management System, Accessioning, Tracking and Storage, Influenza, Makerer University