



A Centralized Database System for The Management and Processing of HIV-Related Information

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OBJECTIVE: To adapt and improve a database commonly used in a virology laboratory and clinical centre with the aim to provide clinicians and virologists with a centralized database system with integrated laboratory and decision support functionalities.

METHODS: Starting from the existing system, a thin client application was developed using the MySQL (v.3.23.36) database system on a Linux-Apache server. The server-side HTML embedded scripting language PHP and Practical Extraction and Report Language (PERL) programming were used to handle database functionalities and to adapt existing bio-informatics tools. The client-side is using commercial web-browsers to access intranet interfaces through a local area network (LAN).

RESULTS : The new system is an interactive, centrally hosted thin client installation. More than 500 patients (totalising more than 700 virus isolates) have been retrieved and stored in the LAN hosted database system. HIV-1 oriented bio-informatics tools (e.g. HIV drug resistance interpretation and subtyping) have been included, leading to a complete data management software. All patient-related and sample information (demographics, antiretroviral treatments, serologies, vaccinations and participation in clinical studies and others) are also stored. Automatic queries enable the user to screen over time for viral load, CD4 count and treatment history for each patient. By clicking on interactive data reports, the user mines data such as HIV-1 mutational patterns and their predicted levels of resistance. In both cases, the user can compute graphical outputs.

CONCLUSIONS : Using open source freeware we were able to create a low cost database and management system with integrated bio-informatics tools, guarantying easy backups, upgrades and maintenance. The thin client installation opens widely the system to delocalised working groups.

Abstracts