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DEVELOPMENT OF AN INTEGRATED DATABASE AND DATA COLLATION SYSTEM FOR MONITORING AND EVALUATING THE PUBLIC SECTOR ANTIRETROVIRAL TREATMENT (ART) IN THE FREE STATE PROVINCE, SOUTH AFRICA

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ISSUES: Paper-based structured clinical records are widely used for monitoring and evaluating the public sector HIV antiretroviral (ART) treatment program in South Africa. Computerized systems are sometimes used for operational data capture but are usually limited to individual clinics and hospitals. Important information also exists in other databases. A requirement exists to collate information into electronic format and integrate data from a variety of sources to facilitate reporting and quality controls.

DESCRIPTION: Handheld computers (PDA's) were used to collate data from paper records at urban and rural sites during the first nine months of the ART roll-out program in the Free State province of South Africa. Thereafter a commercial online computer system (Meditech) was implemented. A Microsoft SQL Server 2000 database server was used to deploy the information into a relational and dimensional format using Microsoft Data Transformation Services. External laboratory and resistance data were integrated as well. After 18 months 19013 patients were registered on the system, of which 2743 were ART patients. A total of 143751 forms have been captured with a median of 4 forms/non-ARV patient and 26 forms/ARV patient. Six quality categories with a total of 32 quality routines were implemented. The system has also been used to compile quarterly reports and national indicators.

LESSONS LEARNED: PDAs compare favourably with online systems for data collection from remote rural and urban sites and are useful where online systems or connectivity are lacking. Dimensional data modelling and data warehousing techniques are fundamental for creating databases that are optimized for querying, aggregated reporting, longitudinal analysis and research.

RECOMMENDATIONS: Data quality remains the most challenging aspect of information systems for monitoring and evaluation. The next phase will be to feed information back to the health care workers and patients to give them the benefit of information systems and to encourage better input data quality.

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