Electronic medical records and clinical Decision Support Systems in HIV care in resource-limited settings

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This thesis focuses on the use of electronic medical record (EMR) and clinical decision support systems (CDSS) to improve quality of care for HIV/AIDS patients through better adherence to WHO and national clinical guidelines. HIV/AIDS is a major public health problem; in 2013 nearly 35 million people were infected globally, with 71% living in sub-Saharan Africa (SSA). Approximately 1.5 million people died of AIDS-related illnesses in 2013. Kenya is ranked fourth globally in HIV/AIDS burden. We start by describing the biological and socio-behavioral factors associated with HIV infection among adults aged 15-49 years in Kenya. The main studies included in this thesis, based on rigorous scientific design and conducted in Kenya, provide strong evidence that EMR-based CDSS can improve adherence to HIV/AIDS treatment guidelines in resource-limited countries in SSA, and hence quality of care. We show that EMRs and CDSS can significantly improve timely initiation of life-saving antiretroviral therapy and early detection and action on treatment failure among HIV patients. We also describe the process of standardizing the recording of AIDS-Defining Illnesses (ADIs) and derivation of a reference set for ADIs based on an international terminology system (SNOMED CT). The reference set was implemented as an interface terminology of an EMR at a busy teaching and referral hospital in western Kenya.

Overall, the thesis provides compelling evidence that EMR-based CDSS improve quality of HIV care in resource-limited settings.
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Electronic Medical Records and Clinical Decision Support Systems in HIV Care in Resource-Limited Settings
PhD thesis, University of Amsterdam, Amsterdam, The Netherlands

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