Towards Implementing a Nationwide Electronic Health Record System in Nigeria

Jerry S. Pantuvo, Coventry University, UK
Raouf N.G. Naguib, Coventry University, UK
N. Wickramasinghe, RMIT University, Australia

ABSTRACT

The World Health Organization identified inadequate Health Information Systems as a challenge in Nigeria. Many developed countries have either implemented or are in the process of implementing an Integrated Electronic Health Record (EHR) system because of its potential benefits. Pilot projects in many developing countries like Kenya, Malawi, Peru, and Haiti are demonstrating the viability of EHR in resource constrained areas. This study shows that the health system in Nigeria is pluralistic and complex with Federal, State and Local Governments, Health Related Agencies, Non-Governmental Organizations, private healthcare providers, patients, and researchers as the major stakeholders. The drivers for adoption of a nationwide EHR include the need to report data; improve patient safety, improve work place efficiency; comply with government reforms aimed at reducing the cost and increasing access to health services. Corruption, poor coordination among stakeholders, and lack of constant supply of electricity are some of the barriers to a successful implementation of a nationwide EHR. Factors considered critical to a successful implementation of a nationwide EHR include enforceable legislation, a trained and motivated workforce, and significant and sustainable funding.

Keywords: Health Care, Health Services, Health Information Systems, Implementation, Nigeria

1. INTRODUCTION

Nigeria, with a population of over 140 million is the most populous country in Africa. It lies in the Gulf of Guinea in West Africa and runs a presidential system of government. It is made up 774 local government areas divided into 36 states and a Federal Capital Territory. According to the national statistics, there are 17,068 health facilities, out of which 151 (representing less than 1%) are owned by the Federal Government, 1,385 (8.1%) by the State Governments, 7,580 (44.4%) by Local Government Areas, 579 (3.4%) by communities and religious organization, while the remaining 7,373, or 43.2%, are privately owned (National Bureau of Statistics, 2007). Public expenditure on health is under $10 per capita compared to the $34 recommended internationally. Private expenditure is estimated to be over 70% of the...
total health expenditure with most of it coming from out-of-pocket expenditures in spite of the endemic nature of poverty in Nigeria (Federal Ministry of Health, 2004).

Despite its growing income from the rising cost of crude oil in recent years, which is the mainstay of the Nigerian economy, its health indices have remained abysmally poor. The World Health Report 2000 ranked Nigeria 187 out of 191 countries for health service performance. No significant improvement has occurred since then. For instance, Infant Mortality Rate has in fact deteriorated. It was 85 per 1000 live births in 1982, 87 per 1000 live births in 1990, 93 per 1000 live births in 1991 and 110 per 1000 live births in 2007 (World Health Organization, 2008).

Part of the challenges facing the Nigerian health system as identified by the World Health Organization (WHO) is an inadequate health information system for monitoring and analysis of health indicators (WHO, 2009b). The existing health information system in Nigeria, as described by the NHMIS Policy Document, is characterized by extensive duplication of data collection, entry and analysis (no fewer than 50 data forms are in use at the Federal level alone); multiple data pathways; lack of standard case definitions; lack of clarity with regards to data submission and responsibilities; inadequate quality control measures; inadequate and ineffective staff training in data analysis, interpretation and use at all levels; misreporting of conditions, poor understanding, low confidence and acceptability; weak monitoring, evaluation and managerial capacity at the periphery and the absence of a strong central coordinating institutional framework (Federal Ministry of Health, 2006).

As evidence continues to emerge of the ability of EHR to radically transform medical practice, many developed countries have either implemented or are in the process of implementing an integrated EHR system because of its potential to improve the safety and quality of healthcare, reduce costs and enhance efficiency. Even some developing countries have pilot projects of implementation going on. For instance, the District Health Information System (DHIS), a flexible, open source, free software developed for public health management information systems by the international HISP group, has been piloted in South Africa, Mozambique, Tanzania, Malawi, Ethiopia, Vietnam and India (World Health Organization, 2010).

A nationwide health information system will, among other benefits, enable data to be accessed and shared at multiple sites, backed up automatically at more than one site, and extend the possibility of debugging and upgrading of remote sites over the internet without physically visiting the site (Fraser et al., 2005). Other benefits, not necessarily linked to the wide area network, include the promotion of evidence-based practice, reduction of medical errors, promotion of knowledge sharing and reduction in cost of health services through increased efficiencies and collaboration (Gailmard, 2009). However, the rate of EHR adoption is generally considered very low, partly because of a dearth of reliable evidence on its benefits, few success stories of large scale implementation and the associated cost. With the viability of such projects in developing economies now being demonstrated (Fraser et al., 2005; Williams and Boren, 2008), the rapidly growing coverage of mobile telephone services (Pyramid Research, 2010), the emerging low cost information and communication technologies, perhaps Nigeria should begin to look to a nationwide electronic health record to help integrate the health system and generate the much needed reliable health data for research, budgeting and allocation of resources as well as monitoring and evaluation of intervention programmes.

A nationwide EHR which is an integrated patient-centric health record will provide a longitudinal view of an individual’s key health history and care, including physician visits, hospitalizations, diagnostic images and reports, laboratory test results, prescribed drugs and immunizations (Canada Health Infoway, 2008). Its nationwide implementation brings to the forefront further challenges such as data exchange standards, data security and confidentiality issues.
Related Content

Process Level Benefits of an Electronic Medical Records System
[www.irma-international.org/chapter/process-level-benefits-electronic-medical/13050/](www.irma-international.org/chapter/process-level-benefits-electronic-medical/13050/)

An Approach to Design a SOA Services Governance Architecture for an u-Healthcare System with Mobility
[www.irma-international.org/article/approach-design-soa-services-governance/66417/](www.irma-international.org/article/approach-design-soa-services-governance/66417/)

Detection of Alzheimer's Disease Electroencephalogram Temporal Events
[www.irma-international.org/article/detection-of-alzheimers-disease-electroencephalogram-temporal-events/95931/](www.irma-international.org/article/detection-of-alzheimers-disease-electroencephalogram-temporal-events/95931/)

Smartwatch as an Assistive Technology: Tracking System for Detecting Irregular User Movement
[www.irma-international.org/article/smartwatch-as-an-assistive-technology/191121/](www.irma-international.org/article/smartwatch-as-an-assistive-technology/191121/)

Bio-Behavioral Medicine and Information Technology
[www.irma-international.org/chapter/bio-behavioral-medicine-information-technology/35776/](www.irma-international.org/chapter/bio-behavioral-medicine-information-technology/35776/)