

Technology and Hospital Information System: A Case of Implementation of Electronic Clinical Records in Hospital Maternity Irene Neto in Lubango, Angola

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Abstract: Introduction: In order to have a good assessment of the quality of maternal and child health care, it is essential that there is up-to-date and reliable information. Objective: To evaluate the impact of the implementation of a computerized database of clinical processes in the admission, archive and medical statistics section, of Maternity hospital Irene Neto/Lubango-Angola. Methodology: A descriptive study with a quantitative and qualitative approach to carry out a retrospective case study deliveries and newborns, records from 2014 to 2017. Final considerations: The implementation of this project may contribute to the improvement of clinical management support management of the hospital as well as facilitating access to information for research and scientific production.

Key words: electronic clinical records; hospital information systems; obstetric clinical processes

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1. Introduction

The approaches in the field of Medical informatics, has reinforced the use of ICT in health “Healthcare Information Technology-HIT” with an increasing focus on the use of Electronic Health Record (EHR) (Greenes & Shortliffe, 1990).

The quality of health information contributes positively to an improvement in the quality of scientific and

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care production. However, it is important to ensure maximum reliability in the data collection and analysis process. The implementation of HIT in health institutions is primarily aimed at storing clinical data, which has been instrumental in supporting hospital management activities and clinical research (Fitzpatrick & Boulton, 1994; Mays & Pope, 2000; Reis Cabral et al., 2011; Sittig, 1994).

The use of electronic clinical records has been the most chosen option in most countries in order to obtain viable solutions such as: reducing errors in data collection, relating data and comparing indicators with similar health institutions, carrying out work (Silva & Laprega, 2005; Wechsler, Anção, Campos, & Sigulem, 2003).

An evaluation carried out in the Health Information System of Angola emphasized the need for computerization of the admission, archiving and medical statistics, services at the level of the main health units of the II and III levels of assistance, with a view to support to the decision-making process in clinical and hospital management, scientific research and clinical teaching and research (Connor, 2010; MINSA, 2010). HIT application still occurs in a timid manner mainly in developing countries (Berner et al., 2005 Fraser et al., 2005; Hersh, Margolis, Quirós, & Otero, Ibagayoko, Dufour, Chaacho, Bouhaddou, & Fieschi, 2010).

One of the concerns of the World Health Organization (WHO) concerns the reduction of maternal infant mortality rates, especially in developing countries. It was estimated in 2015 that 99% of global maternal deaths were in developing countries, of which 18 were sub-Saharan African countries. Angola, which is located below the Sahara desert, in Central Africa, has an estimated mortality of 477/100,000 live births (WHO, November 2015). The quality of clinical records, their storage, treatment and accessibility to information plays a key role in Correct follow-up of the health of the pregnant mother and the newborn (Gaspar, Chagas, Cruz-Correa, & Reis, 2013; Oliveira, 2015; Reis, Correia, & Pereira, 2011; Roberts C., March 2009).

Under the Millennium Development Goals (MDGs), maternal and child health programs have made it necessary for governments at the world level to make efforts to improve the health of pregnant women and children, as well as to improve health information systems, with a view to ensure improvements in the clinical decision-making process.

The project will be implemented in the Irene Neto Maternity Hospital, which is located in the province of Huila, Lubango municipality, is the second most populated province in the country, according to data from the 2014 population census conducted by the National Statistics Institute of Angola (NSI_Angola, March-2016).

The mentioned health institution has an installed capacity of 180 beds and besides the assistance activities in the gynecology, obstetrics and neo-natology valencies, it serves as support to the teaching and research of the students of the Faculty of Medicine of the University of Mandume Ya Ndemufayo, high school of health and technical schools of public and private health professionals located in the city of Lubango.

In this hospital, the statistical area is responsible for the collection, treatment, analysis and dissemination of the statistics of this hospital and does not have any application for information treatment, capable of facilitating its activities, which has made the availability of information of this hospital a process. It is necessary to create mechanisms capable of improving the analysis of indicators and consequently the quality of information, which would influence the improvement of patient care, support for teaching and research, administrative management and legal requirements of this health institution.

In view of the above, the following central research question is posed: Could the implementation of an electronic information system in the file admission and statistical section of the said hospital provide facilities for

the treatment of data recorded in clinical trials and contribute to the improvement in the availability and quality of information?

This study aims to evaluate the impact of the implementation of a computerized database of clinical processes in the section of admission, archive and medical statistics of the Lubango Maternity Hospital.

2. Methodology

This article is part of a doctoral research project in biomedicine at the Faculty of Health Sciences of the University of Beira Interior-Portugal, which has as research line systems and information technologies in Health Services & Hospital Management, which aims to implement in Angola an electronic clinical record system that supports the practice of obstetrics, specifically the academic maternity hospital Irene Neto in Lubango, which in a first phase will proceed with the registration in clinical processes related to deliveries, hospitalizations and newborns, sent to the admission section file and medical statistics of said hospital.

2.1 Characterization of the Study

With this proposal of research project, we intend to carry out a descriptive study with a quantitative and qualitative approach, as well as the testing of a system of electronic clinical records, where the insertion in the application of the data of births and births in the clinical trials (retrospective cases) in the period from 2014 to 2017 (Fonseca, 2002; Marconi & Lakatos, 2003; Reis, Cabral et al., 2011).

2.2 Research Method

Due to the nature of the problem addressed in the PhD project proposal (Implementation of a computerized database of clinical data on obstetrics) it was decided to compartmentalize the research method in four main phases:

- In the first phase: A survey of the actual situation of the clinical processes of patients of the hospital was carried out, through a case study (check the hospital routine for procedures and instruments in use in the collection, treatment and analysis of clinical data and indicators of service evaluation).
- In the second phase: It was adapted in the prototype of the application (fields) of electronic clinical record of obstetrics based on the reality of the hospital and the needs defined for this project, aiming at improvement in the treatment and quality of stored information, production support and scientific research.
- In the third phase: Three questionnaires were drawn up, validated and applied: (i) The first one was applied to seven professionals assigned to the admission, archive and medical statistics section, who will evaluate the impact of the implementation of the prototype (before and after). (ii) The second one applied, to ten hospital administrators of public and private health services in the city of Lubango, who sought to know the degree of use of information technologies in the hospital management process. (iii) And the last one applied to thirty-six members of the management of seven public hospitals of the municipalities of Lubango and Matala, which evaluated the degree of use of hospital information systems in decision-making processes.
- In phase Four: Information about the clinical processes of deliveries performed in the fourth quarter of 2016 is being included in the prototype in the test phase, the data generated are in the preliminary analysis phase. The definitive results of this analysis will be compared with results of similar studies carried out in Portugal and Brazil (a retrospective theoretical study).

2.3 Prototype Development

The development of the prototype for the information, registry of obstetrics users in maternity hospital of Lubango, was based on the adaptation of an application called ObsCare developed by a team of researchers from the Center for Research in Technology and Health Services of the Faculty of Medicine of the University of Porto, owned by Virtual Care-Systems for Life (VC).

This application is fundamentally an electronic clinical record system to give full support to Gynecological and Obstetric practice, hence our option to adopt this application for Angola due to the results of its effectiveness in the collection and analysis of obstetric information from eleven health institutions of the Administration Regional of Health of the north of Portugal that already use it like, for example the University Hospital of the Port “São João” that uses this the application to more than 10 years.

3. Final Consideration

The implementation of this research project may contribute to increase Angolan scientific production, improve the analysis of indicators and the quality of information, which will have an influence on improving patient care, teaching support, clinical and administrative management such as legal requirements, and facilitate rapid access to information for hospital and other institutions' research work.

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