Management of Electronic Medical Records. Decision-Making Tool. MINSA Hospital Case – Peru

Danicsa Karina Espino Carrasco[1(✉)], Moisés David Reyes Pérez[2], Luis Eden Rojas Palacios[1], Carmen Graciela Arbulú Pérez Vargas[1], and Alberto Gómez Fuertes[3]

[1] Cesar Vallejo University, Pimentel, Peru
despinoc@ucvvirtual.edu.pe
[2] Universidad Privada Norbert Wiener S.A., Lima, Peru
[3] Universidad César Vallejo, Trujillo, Peru

Abstract. In the last decade, Peru has made significant progress in the development and implementation of digital technology policies that allow strengthening health information systems in hospitals, turning them into modern institutions that provide health services throughout the world. Country. The general objective of this article is to manage the implementation of the electronic medical records registry in an integrated information system, in order to improve the efficiency of care processes. Specific objective Design a methodological proposal for the management of the EHR in the public hospitals of the minsa of Peru. The design was non-experimental, descriptive level and qualitative approach. The population was made up of health professionals in the area of clinical record management. The sample was made up of the entire population. The following techniques and instruments were used to collect the information: Documentary analysis Instrument: Interview and educational analytical summary (RAE) which were validated through the expert judgment technique, who evidenced the relationship between the objectives set, the categories, the indicators, the items and the response options considering their coherence, relevance and wording. The results obtained show that in order to strengthen the health system, the registration of electronic medical records should be implemented from the first level of care, with powerful, efficient and timely information technology, it has to do with governance, management, infrastructure, financing and most importantly trained human resources willing to face challenges and achieve changes in management, following guidelines in an orderly manner approved by the Ministry of Health (Planning, organization, direction and control). It is concluded that the electronic medical record is a tool that will allow strengthening medical assistance in a timely manner and that, through the interconnection with the different health institutions of the minsa, will help in decision-making in the care provided to the patient.

Keywords: Medical records · Electronic medical records · Decision making · Hospital

C. Stephanidis et al. (Eds.): HCII 2022, CCIS 1654, pp. 420–426, 2022.
https://doi.org/10.1007/978-3-031-19679-9_53

1 Introduction

1.1 Problematic Reality

The quality of care is the application of science and medical technology that is used in a way that maximizes its health benefits without increasing the risks. Health institutions face great challenges in order to determine the level of satisfaction that patients have. Users regarding the service received and thus identify errors and try to implement improvement plans. (Gavilánez 2020).

In the last fifty years, information and communication technology (ICT) has been developed to benefit the health sector worldwide, in order to improve the quality of life of the community and the well-being of people, The medical record is a unique medical record that needs to be standardized and merged to allow doctors to better understand the real condition of patients.

The standardization of medical records has been taken seriously in some countries, including Spain, which despite its territorial expansion and various difficulties has managed to establish a centralized and efficient system. (Gavilánez 2020). The main information systems in eHealth developed and implemented by the General Office of Statistics and Informatics of the Ministry of Health in Peru, have been the registration of the certificate of live birth online, geominsa, take care of your mobile health, telehealth, medical appointments online and his, these policies and advances in the implementation of technology have made it possible to take an important step, to bring the public services of the Ministry of Health closer in a timely and effective manner, strengthening public health management and decision-making. of decisions. (Curioso, 2014) The Peruvian state approves the Regulation of Law No. 30024, the purpose of said Law is to create the National Registry of Electronic Medical Records and establish its objectives, administration, organization, implementation, confidentiality and accessibility; involving health institutions, public, private or mixed, to digitize the medical record, with the purpose of standardizing data, maintaining the record of electronic medical records, ensuring the availability of the clinical record, where it will allow access to the user or their representative legal and health professionals, obtain information on the care provided, likewise, this system will improve the quality of care in health institutions. (Rojas et al. 2015).

In this regard, the hospitals have a software called Galenhos that was made available by the Ministry of Health to all establishments in the regions free of charge, in order to improve the registration of information and improve hospital management processes, each The health institution will make the decision whether to use the software, since there is no regulation or obligation to use it. It has been shown that this software is being used in other areas, but it has not yet been implemented for electronic medical record information., both for the outpatient, emergency and hospitalization areas (Curioso 2014).

Likewise, in the public hospitals of the Ministry of Health, the electronic medical record has not yet been implemented despite the existence of current laws, policies and regulations, as an automated tool, we have made little progress in determining the management and use of this source of information, at present, manual medical records are still being used where they have to be written and most of the time is spent on it, having to dedicate that time to the people who are cared for and favoring their care,

in addition, these clinical history documents are lost and deteriorate due to the lack of space in the file area, likewise, it is observed that for many hours people form queues to be able to access an appointment or care, in this regard, the health sector has a greater demand for people who require care, and many times there is a duplication of medical records for each person served.

1.2 Literature Review

Historically, administration has emerged recently, being a science focused on doctrine in the 20th century. Likewise, it has a history of more than a century, the result of the accumulation and participation of different pioneers, economists, politicians and philosophers, who develop and disseminate their hypotheses and works in the area that have evolved over time. Some historical citations from ancient civilizations such as Egypt, Assyria, and Mesopotamia believe that there are leaders who have the ability to plan and guide thousands of workers in their efforts to complete magnificent projects, and these projects continue to this day. Management by results is one of the methods, created by Peter Druker in a work on management by objectives, he explained that his work is based on his own experience, rather than based on administrative discipline. Being a method for managers and subordinates to determine 20 general goals, and use it as a guide to formulate joint goals, specify joint goals, determine the obligations of all and attribute the expected results to the expected results. Both were evaluated. The results will be compared to the planned plan to determine if you have achieved the expected results.

By analyzing the systematic theories of goal management and the different management models that have emerged in history, it is believed that management continuously achieves goals through planning, organization and direction. The management of the clinical history and the management of objectives is a fundamental link, since at the beginning of each period, the establishment of goals under the intervention of managers and subordinates allows efficient and effective management to be achieved because they analyze the goals to reach Likewise, the theory of the system and the management of medical records, is of equal importance because it will work in an interrelated way to achieve certain objectives.

A deep analysis was carried out in different bibliographic sources that support the study. In this regard, research conducted by (Smaradottir et al. 2020), showed that there is a lack of interoperability between digital systems and limited support for teamwork between organizations, resulting in the need for more manual work to maintain the information flow of coordination and planning tools between organizations, proposed a cloud-based health portal, which has shared workspaces, organizations, teamwork functions between health teams and automatic back-end synchronization of information stored, the main importance of this work lies in the proposed principles, which can be transferred to a variety of clinical settings, in which shared medical information can be temporarily accessed. Importance of making decisions and saving lives.

For their part, Mercedes & Ghiglia (2019), state that the promulgation of the health system analyzed in this article differs by more than 20 years, but the implementation of the EHR is not far behind. In Uruguay, through the HCEN project, each provider

advanced in the development of electronic medical records at the national level, integrating information from different levels of care, which helps the continuity of the care process. However, to achieve this objective, in addition to the implementation of the EHR, it is necessary to make cultural changes in an organization where users are the axis of all the activities of the organization, to the extent that these aspects are deepened, the necessary synergy to achieve the task of continuity of care. Soto (2019) also concludes that due to insufficient resources in the national MINSA reference hospitals, they constitute problems that require immediate treatment, supplies, the lack of equipment and medicines endangers user care, Peruvian doctors practice medicine with tools of the last century and the ability to treat serious diseases, especially those that require urgent attention, has produced enormous inequalities, poverty, lack or inequality of health care opportunities and bureaucratic obstacles should not be a reason for death in a country of medium and high resources like Peru in the 21st century. On the other hand, (Alarconloayza et al. 2019) analyze that the interoperability model approach only reveals ways to access the patient's medical record from anywhere and it must be understood that for the full implementation of the electronic medical record, address other types of aspects of digitalization of medical procedures in the country's health posts. However, (Curioso et al., 2018) argue that it is essential to establish an e-health government with a departmental information system, where it allows the interconnection of medical and health facilities from the primary level of care with more complex institutions, being necessary to strengthen primary care and continue training basic health professionals, including distance training tools, In this regard, (Kharrazi et al. 2018), examined when US hospitals will adopt more advanced features of EHRs, using HIMSS EMRAM data and Bass diffusion models, based on the adoption of the capabilities of EHRs from a paper-based environment (Stage 0) to an environment in which only electronic information is used to document and direct care delivery (Stage 7), they concluded that in 2006, the first year of observation, they showed peaks of stages 0 and 1, since the adoption of electronic health records predates the HIMSS EMRAM, in 2007 it reached stage 2, in 2011 it reached stage 3, in 2014 it reached its peak of the stage 4, this forecast indicated that stage 5 should peak by 2019 and stage 6 by 2026 and extended until the year 2035, US hospitals, are decades away from fully implementing sophisticated applications of decision support and interoperability functionalities in electronic medical records, as defined in Stage 7 of EMRAM however, a significant number of hospitals will not reach EHR Stage 7 maturity by 2035, given no major policy changes. Likewise, (Yen et al. 2017), they proposed a new method for adaptability in health information technology (HIT), this method refers to the adoption and acceptance approach, in which it consists of modifying the existing conditions for achieving consistency, which involves redesigning workflows, training users, and maintaining technology, this method clarifies the factors that promote or hinder the use of HIT and improve quality of care. On the other hand, (Herrera 2020), concludes that the health workers of the Madre Berenice Hospital have demonstrated an excellent level in the organization and management process, demonstrating the ability to coordinate the resources established for the different departments, as an independent tool. to analyze and prevent problems, and comply with the process with the leader, inspire the team and increase productivity, and earnestly implement the set strategy to achieve the goal by finding smart ways to optimize resources.

Objectives. Manage a model for the implementation of the electronic medical records registry in an integrated information system, in order to improve decision-making in MINSA hospitals, Department of Lam-bayeque, 2021.

Design a methodological proposal for the management of EHR in public hospitals in the Department of Lambayeque, 2021.

2 Method

The present investigation called Management of electronic clinical history: tool for decision-making of the Minsa hospitals in the Department of Lambayeque, 2021, is an investigation, which was framed within the qualitative method, (Guba and Lincón 2015), the same that has a vision in the participants to achieve sustainable development through technological innovation. This position underlies the relevance assumed from the hermeneutic paradigm (Taylor and Bogdan 1990, chap.1) which allows explaining and understanding implicit fundamental aspects in decision making (Hernández et al. 2018).

The collaborators of the Sub Management of Information Technology and Computer Processes formed the population that were 4 servers that participate in the electronic government of this commune; also the workers of the associated areas that were a total of 46 people, the population of 46 workers was equal to the sample, therefore there were no sampling techniques. The inclusion criteria considered were: belonging to the municipal entity and working during the research period. The exclusion criteria were: Not working during the research period, and not belonging to areas related to Electronic Government (Fig. 1).

3 Results

Proposal Design

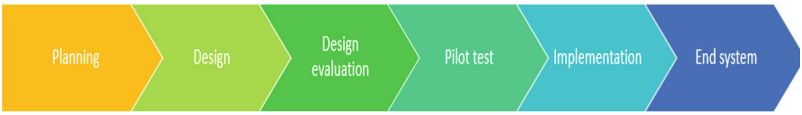

Fig. 1. Phases of the proposal

First Phase: Planning. In this phase, the guidelines for the application of the EHR are established, it is agreed and plans the general structure of its model and the SI requirements. In this phase, the participation of an interdisciplinary group that includes doctors, nurses and professionals of information and documentation systems and engineers of computer systems and programmers. It is important at this stage to establish clear objectives regarding the design and development of the IS, based on relevant requirements to medical care.

Second Stage: Design. Identify the information needs related to the management of the HC, determine guidelines for the organization of clinical information, assess whether the system meets the needs of the entity, develop a risk analysis, development of standards and system applications, determination of guidelines, development of a training plan.

Third Phase: Design Evaluation. Once the prototype of the system has been elaborated, it is implemented. Here are detected problems and are solved to find the final design of the system, likewise, review of the design, detect shortcomings in the system, establish proposals for improvement.

Fourth Phase: Pilot Test. Determine according to the requirements defined in the planning phase the design of the system.

Fifth Phase: Implementation. Implementation of the system is adopted throughout the institution and training is carried out corresponding to all personnel for subsequent handling.

Sixth Phase: Final Design. Present the final design of the system that will allow managing medical records in hospitals in Peru, also, determine the administration of the system, establish which people manage the system, determine the rules and procedures, develop system tools such as controlled languages or thesauri.

4 Conclusions

The present investigation, evidence that it is relevant the adoption of archival processes in the conservation and preservation and management of electronic medical records, in order to regulate the proper use of the information contained therein, since it is verifiedthat the lack of standards that ensure the correct management of the content of clinical records, allows that inconveniences continue to occur, such as information errors in the diagnoses, delays in analyzing information about a patient's care, loss of information, the lack of chronology of the records, the lack of security in the access to confidential information.

The electronic medical record presents problems and it is not fully implemented in all health-providing institutions. The Physicians state that there are some key points to improve in the electronic medical record, among these are finds technical problems as the main ones, such as system crashes, slowness that the system sometimes presents, the redundancy of orders requested by the system, the amount of forms to fill out and the lack of equipment to enter the system.

The implemented proposal has allowed to reduce the waiting time of patients, unify personal information, diagnosis, treatment, medicine and evolution of the disease and the patient.

References

Alarcon-loayza, L., Rubio-ortiz, C., Chumán-soto, M.: Interoperabilidad de Historias Clínicas Electrónicas en el Perú Electronic Health Records interoperability in Peru. **2**(1), 3–14 (2019)

Curious, W., Henriquez-Suarez, M., Espinoza-Portilla, E.: From Alma-Ata to the digital citizen: towards digitized primary health care in Peru. Peruvian Journal of Experimental Medicine and Public Health, **35**(4), 678–683 (2018). https://doi.org/10.17843/rpmesp.2018.354.3710

Gavilanez, N.. *Master's degree in health services management topic: standardization of health clinical records in the city of Guayaquil - 2020.* [Master's Thesis Catholic University of Santiago de Guayaquil] UN Institutional Repository (2020). http://repositorio.ucsg.edu.ec/handle/3317/14221

Guba, E., Lincoln, Y.: Competing paradigms in qualitative research. In: Derman, C., Haro, J., Through the Corners. Anthology of Qualitative Methods in Social Research, pp.113–145 (2015). The Sonora: The Sonora College

Hernández, R., Fernández, C., Baptista, M.: *Metodología de la investigación* (8a ed). México D.F: McGraw-Hill (2018)

Herrera, V., *Administrative management and the quality of medical records in the outpatient clinic of the Madre Berenice Hospital in Guayaquil, 2020* (Master's thesis, César Vallejo University). E-File (2020).https://repositorio.ucv.edu.pe/handle/20.500.12692/7525

Kharrazi, H., Gonzalez, C.P., Lowe, K.B., Huerta, T.R., Ford, E.W.: Forecasting the maturation of electronic health record functions among US hospitals: retrospective analysis and predictive model. J. Med. Internet Res. **20**(8), 1–11 (2018). https://doi.org/10.2196/10458

Mercedes, M., Ghiglia, C.: Electronic clinical history tool for continuity of care. Med. J. Uruguay, 35(3), 212–217 (2019). https://doi.org/10.29193/rmu.35.3.6

Rojas, L.; Cedamanos, C., Vargas, J.: National registry of electronic health records in Peru | National registry of electronic medical records in Peru. Peruvian J. Exp. Med. Public Health, 32(2), 395–396 (2015). https://doi.org/10.17843/rpmesp.2015.322.1639

Smaradottir, B., Berntsen, G., Fensli, W.: How to enhance digital support for cross-organisational health care teams? a user-based explorative study. J. Healthc. Eng. 2020 (2020) https://doi.org/10.1155/2020/8824882

Soto, A.: Barriers to effective care in the referral hospitals of Peru's ministry of health: serving patients in the 21st century with 20th century resources. Peruvian J. Exp. Med. Public Health, **36**(2), 304–311 (2019). https://doi.org/10.17843/rpmesp.2019.362.4425

Taylor S. Bogdan, R.: Introduction to qualitative research methods. The Search for Meanings, Mexico: Paidós, 1990, chap. 1 (1990). http://mastor.cl/blog/wp-content/uploads/2011/12/Introduccion-a-metodos-qualitativos-de-investigaci%C3%B3n-Taylor-y-Bogdan.-344-pags-pdf.pdf

Yen, P., McAlearney, S., Sieck, J., Hefner, L., Huerta, R.: Health information technology (HIT) adaptation: refocusing on the journey to successful HIT implementation. JMIR Med. Inform. **5**(3), e28 (2017). https://doi.org/10.2196/medinform.7476