



## The Impact of Equitable Health Management and Health Information on Raising the Efficiency of Health Workers

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### **Abstract**

#### **1. Introduction**

Increasing the efficiency of health workers is one of the main goals of the health sector. Health workers spend a lot of time and effort monitoring the health status of every individual and the community in general, managing and identifying health data and information, and treating and improving unhealthy conditions for each person. However, statistics show that the health status and general quality of life of people have shortcomings and are not synchronized with the optimistic prospects of staff, despite an increase in the number of professional health workers in the world. This has created an increasing need for health care systems, especially with the ongoing and increasingly complex development of science and technology. To increase the efficiency of health workers, contributing to raising the quality and satisfaction of health workers, is also a solution to the ongoing goals set by the government.

In every period of social development, health workers have made great contributions to show their love and responsibility to people in many communities across countries. At present, they occupy an increasingly important position because the requirements include hard training and qualifications necessary to care for all and upgrade the health status of society, fulfilling the role that science and technology place in front of them. Vietnam and Laos have made great efforts in training, have many health workers with a deep level of expertise, and are always willing to work in difficult conditions to serve people's health. However, these countries still face several problems in managing human resources and using information systems and presenting health data in outdated ways. Moreover, this does not allow all health workers and managers, along with the development of science, to improve their health status and fully serve the support of people.



## **Methods**

The paper was designed with a multidisciplinary research approach: social management and health information. The basic methods used to complete the research project included participatory research, case studies, action research, and rapid appraisal, with designed tools for application. The study methodology describes the project purpose and development of the Health Worker Study Project, contemporary scope of the nursing and midwifery workforce, and their effective management. The description of the applied study methods, research tools, and principal results is brought to attention. The meaning and purpose of the nursing and midwifery professions' virtual monitoring and real-time work management for midwifery and nursing managers by nursing management science are revealed in the second section.

## **Conclusion**

eHealth for Nursing Health Services in a Poor District of the City of Maputo is a pilot project that is part of a larger initiative to introduce Information Computer Technology (ICT) for the improvement of HCM health services. It is taking place at the largest health unit in Mozambique, the Polana Caniço Health Centre (HPC), and is coordinated by the Central Health Unit of HCM, HPC and a computer training centre. The project is innovative in an environment where people are only now starting to experience and accept new technologies. Description and analysis of the results of the project is important, with a focus on its impact in terms of health workforce efficiency, the problems experienced and how they were overcome (Lapão & Dussault, 2017).

The project is intended to meet the needs identified by HCM and HPC health workers, related to a lack of specialists and the poor quality of the waiting lists services offered to the patients. In October 1998, HPC launched a pilot phase of Medi-graf, an eHealth system for teleconsultation. This teleconsultation system is based on the reading of an eco-cardiogram in real-time, and allows the physician to view an image of the eco transmission on his or her computer screen, to write a response and to transmit this data back to a printer in HPC. It is also possible to communicate by telephone with a physician based at HPC. The service is currently available at no charge to patients. The teleconsultation service enables an enormous gain in time because the doctor at a distance can instantly interpret the tests and transmit a reply. In sum, this analysis contributes to the body of knowledge on how new services resulting from eHealth systems affect in a positive and/or negative way the health workforce.

## **2. Equitable Health Management**

A new strategy and process need to be developed that ensure equal health management in regional governments and health institutions and organizations where citizens regularly visit for health care and services, medical treatment, or medical advice and which regulate the health workforce there. Health information is information that is crucial for understanding



and checking on health and health services, and providing and receiving health services. If there were excellent records of health information of health institutions, organizations, and personnel in professional and reliable facilities, or if this information was easily and speedily available, then citizens could also have health information checked on early and quickly, and would receive more appropriate advice and services (Martineau et al., 2018). That is, through the effects for themselves of the direct use, they would take action themselves. As a result, the efficiency of those who are involved in general with the “management of health information” in hospitals, such as health workers, will rise. Moreover, the efficiency of governmental health management and health workers will increase by there being regulation of the foregoing contents in regional regulations, compulsory health information activities, and compulsory provision by health institutions, etc. as a result of the strategy described above.

## **2.1. Definition and Principles**

Since the emergence of the massively radical market at the end of the millennium, the allocation of medical resources has become increasingly just as important as in the past, focusing on how to allocate the effectiveness of people's health resources to achieve the best health results. Through years of productivity monitoring and analysis, it was found that the efficiency of health workers not only affects the quality of life of residents but also the direct and indirect expense saving of the health insurance fund, making it necessary to measure the efficiency of health workers. Medical manpower efficiency management includes the following aspects. One is to measure performance data, increase the performance efficiency; the second is the benchmarking cumulative study result, the finding causes of performance decline, improve appropriately; three link has the superiority resources; fourth, implement multifaceted support, giving awards to stimulate health worker's enthusiasm.

Health management is a discipline based on public health, which is aimed at health management knowledge, methods, tools, and technology. Use comprehensive methods to maintain and improve individual health and community health, is the management of individual and community health. With the development of economics and public health, health management gradually develops health economics as the foundation of health management, health management theory and technique as the object of health management research, the purpose is to optimize the allocation of health service resources system, improve human health, improve the service, behavior, and health results of health service provider's health resource management. Among them, health management theory is the theoretical basis of health management practice. Management is an art and science, is a comprehensive discipline, or is the use of management ideas and methods can be in the pharmaceutical and other health care activities play a function of clinical department of management. Generally speaking, management includes the following aspects: management of basic principles and



methods, management organization, health care, health care, and evaluation and change. With the implementation of the policy of enriching the people and benefiting the people, the increasingly frequent people's visit the medical treatment, the hospitalization equipment online access patient number unceasingly enhancement, causes the nurse's high intense workload - increasing. Unreasonable nurse dept. of patient may make the whole nursing service work improper, thus affects the nursing service efficiency.

## **2.2. Importance in Healthcare Systems**

Equitable health management through equitable health information previews the impact of a person in charge of the hospital, hospital management skills, planning, organizing and controlling facilities and human resources. Moreover, it means transparency of the overall flow of work and mutual understanding between management and workers. In the training used such as continuous education by training, field leaders, online training and self-study. As an evaluation, the level of competency of one worker physician, nurse, and public health worker with evaluations before and after training is planned to correctly balance the capacity of existing workers and provide necessary human resources in a timely manner.

Reliable and accurate public health information is essential for monitoring, evaluating and improving the delivery of healthcare services. Management information systems are increasingly being designed and used in developing countries but for the most part health data is still under processed or not used. The object of this study was to assess the effect of training health care workers on data management practice in health management information systems in a sample of primary health care centers. A controlled study was conducted in four local government areas in a primary health care development project. Training intervention and a control group intervention were carried out with changes in staff at health centers in two sites while two other sites remained unchanged. At midpoint, with staff changes, a percentage in the training LGA and a percentage in the control LGA said they could not use HMIS. At end point, 18 months after initial training, those in the study LGA said practice had improved but those in the control LGA still expressed difficulty in data management.

## **3. Health Information Systems**

This section presents different issues and topics related to health services and management. The first subject addressed is equitable health management and financing for disadvantaged people who often encounter these issues at work. By using the theory of Public Choice and learning from advanced countries, governments and stakeholders need to provide enough funds, invest more in health centers, and distribute the allocation fairly. It can efficiently achieve the goal of improving the health of all and inspire the health communities to explore the health policy and management. It is also found that the major sources of health information lie in the service plan, research output, and administrative report. By measuring



the fluency, the health information of the sampled health workers is poor in terms of fluency and the sources of health information, but the comprehension is good. Further, it is found that the fluency of health information is affected by education, training, health facility, professional title, and major technical post.

The second issue is the development and utilization of health information systems. The health information system in a wide sense provides information support for health policy making, decision making, and health management. Only since the 21st century has the health community noticed the health information management system. It is found that from the point of view of the health workers related to health management, there is a great need and challenge. Concerning the status quo, the development of health information management systems in some developing countries is explored. It is emphasized that cooperation and network are important; they can learn from the experience of advanced countries and the development of others. As one of its practical results, the health services and health management system training course has been implemented successfully in some developing countries.

### **3.1. Types and Functions**

Efforts made in the area of health statistics include health management, health information and so forth. Concerning the aspect of health management, the establishment of a health management method which is suitably respective to the Chinese situation and the conduct of the regulation of health workers in a formal way is taking place. It is similar in the aspect of health information, by people. The combination with traditional Chinese medicine is highly regardable, and some examples are given. Thus, as to the improvement of the efficiency of health workers, a good record system for better understanding and analysis of health status of the people is essential. There is an international concern in the statistics industry with respect to both the health management of the people and the medical services to the people. Statistical reports of different types are produced both in the name health management authorities and on the part of the medical establishments. In terms of medical services, while a great number of people receive Western style medication, another large portion of people are used to traditional style treatments, such as with Chinese herbal medicine (Nwankwo & Nasir Sambo, 2018). The imbalance between the two is not only a local problem.

In view of the health condition of the people, merely the health condition which is easier to observable, such as the age, the morbidity and the average life span, has been analysed. More recent studies place an emphasis on the complexity of health conditions concerning a person. An idea is that accuracy of information should be considered very importantly, because the health records determine the direction and contents of the distribution of medical resources for each person. And it is considered that proximate record keeping and using a statistics



theory are very beneficial to the research of understanding health conditions. Considering from the patient side, it is said that there is no clear rule for the patient to select between the Western and traditional medicine. However, there is a big gap between patients who can afford and those who cannot afford the Western style hospitals, and further the medical insurance is also unevenly arranged.

### **3.2. Role in Improving Healthcare Delivery**

Reliable and accurate public health information is essential for monitoring, evaluating and improving the delivery of healthcare services, programs and overall health status of a community. Health Information (HI) is central to achieving global health goals, notably the Millennium Development Goals (MDGs). Health Information allows for evidence-based decision-making in planning, optimization, allocation of resources as well as monitoring and evaluation of health programs or interventions. Information which is relevant, reliable, timely, and is presented in an appropriate context facilitates decision-making at the different levels of the health system.

Health Information System (HIS) is a system that integrates data collection, processing, reporting, and use of the information necessary to improve patient health services, via better management of patient information. Nigeria HIS is made up of a complex and modular sub-system that segments into many subsystems, like the Health Management Information System. The Health Management Information System was inaugurated in 1994 to revamp the generation, analysis, dissemination, and usage of health data.

As a cyclical process that retroacts on itself, Health Information is useful at every level and impact of health system. At the level of the individual, Health Information ensures proper adherence to treatment, maintenance of health and disease prevention (Nwankwo & Nasir Sambo, 2018). At the family level, benefits include receiving coherent advice and the best choices regarding health services. At the community level, Health Information permits surveillance of diseases. Finally, at the Health Organization level and the Health System level, Health Information allows for the assessment of the efficacy and efficiency of the health system.

### **4. Efficiency of Health Workers**

One of the requirements for promotion of life's level and human's comfort is health. The health department must apply and maintain health management properly and efficiently in order to increase the efficiency and conduct health care equitably. Hospitals are one of the health units which play a crucial role in the health department. The efficiency of health workers in health centers, which is a factor of the sub-branches of the medical science university, directly affects society. Health units, i.e. rural health centers, urban health centers, and more importantly hospitals, have a vital responsibility toward people during their lives.



There are different sections, each with a certain responsibility under the health units. The efficiency of health workers closely affects the working system and their responsibilities. From ancient times, health has been considered important. By the time's progress and developments, many limitations and problems have been determined. Efforts were made and will be made through teaching, instructing, planning, etc., to solve the limitations each time. In order to reach an efficient and equitable health care, it should be planned and controlled within management accordingly.

Hospitals provide a fundamental section in health care systems, and many resources are spent in them. They must manage such resources to provide an appropriate care to the people. Therefore, teaching management skills is recommended to hospital staff. This research was done to prepare the grounds for conducting a cluster-based statistically substantial study. Hospital ob-stetrician staff must control limited sources in the best form of the provision of the maximum availability of health caresses. Hospital obstetrician staff is a working group that has a very direct contact with the patients, as well as a large volume of hospital sources used in different ways due to its job. Obstetrician staff also represent a principal group in relation to all personal groups that is employees of a hospital. So, their views could be an important criterion of the scope that an organization is functioning within it. Managers who work with these groups have to encounter different difficulties due to those extensive relations. As liberal professions, such as doctors or professors are involved with such professions, hence, they had never had any management courses on the one side. The most-studied literature emphasized a talk on hospital managers or the management of hospitals. On this basis, the result of the cluster study on the effect of training management skill to obstetrician's management was that obstetrician's nurse and nurses were made to participate in especial management skills training, it would significantly increase obstetrician's efficiency (Maleki et al., 2015).

#### **4.1. Factors Affecting Efficiency**

Since the establishment of the Health Funds, paying close attention to the factors that could improve the efficiency of health workers is one of the main concerns of managers. Despite the importance of this issue and its increasing emphasis on it in the health systems of different countries, it is not clear whether the health care team is looking for this issue or whether there are any programs to evaluate the efficacy of their staff in this area. Efficiency is expressed as the indicative ratio of the size of the achieved transaction to the amount of the resources consumed. If a particular group achieves higher quality with the same expense or achieves the same quality with lower cost, it is considered more efficient. Consideration of the factors influencing the increase of efficiency in the health workers' workforce could make a positive change in the implementation of the health system and a more strategic and targeted approach used to attract resources to the health sector (Maleki et al., 2015). Since the



establishment of the Health Reform Plan (RJP), much attention has been paid by the officials of the health system to understand the equitable health management and health information on the Health System, but the opinions of the health team on the concept and subject of these issues are not sufficiently uniform. The principle of justice in a health management system can be described as the design and implementation of the decisions made in all stages of management, including with the involvement of all faculties, and the information obtained from the process of making the decision is obtained in a manner that increases the participation and cooperation of the stewards (Zhou et al., 2020).

#### **4.2. Importance of Efficiency in Healthcare**

Efficiency is an essential point that should be noticed. The importance of efficiency and improvement of health service for resolving people's health requirement and meeting their expectation is increasing. Manager's control on the management principle and the proper use of their management skill are tools that provide a good condition for achieving the organization's goals. The instruction of these managerial skill to the nurses and obstetrician's managers caused the efficiency's promotion. Hence, the instruction of the management skills is suggested as a suitable method of increasing efficiency in hospitals (Maleki et al., 2015). Moreover, efficiency is an essential fact for the promotion of life's level and human's comfort. Therefore, it is the important aim of all countries which causes them to be aware of the efficiency's importance in administration and applying it. In today's competitive world, efficiency is one of the primary goals of each organization, which forces them to advance it in all fields especially in health service. Efficiency in health services is a challengeable goal, because it is a consequence of the many variables of management, personal's aspects, organizing structure, and reflecting the health system. One of the management goals in health department is to bring overall efficiency in hospitals, health or therapeutic network, primary health care, pharmacy, and clinics. In other word, efficiency in hospitals could be defined as properly and effective use of recourses that could improve the quality of care and services to the patients. Health unit has a vital responsibility toward people from their birth to the end of life. Therefore, for providing total health services, efficiency has its own importance and require special acrobats from health workers, technicians, nurses, obstetricians, and surgeons (Zhou et al., 2020).

#### **5. Impact of Equitable Health Management and Health Information on Health Worker Efficiency**

Training health workers in equitable health management and health information can raise the efficiency of the health workers, as well as the coverage, availability and quality of health services. Impaired health worker performance remains one of the wicked problems in health care delivery. There are preconditions to impart knowledge and skills to health workers before they have an impact on the management of patient care. From a managerial



perspective, equitable management of healthcare is abiding by fair rules and regulations in providing healthcare irrespective of wealth and status. It is also known that good governance and management have a significant impact on the coordinated use of resources and equitableness. That means it has a direct relationship to accessibility, affordability and quality of health care services. In Ethiopia, although there are governmental policy frames to ensure health care for all, accessing quality health service is a great challenge for the majority of the population (Nwankwo & Nasir Sambo, 2018). Furthermore, this country has one of the lowest doctor densities in the world, being 0.2 per 10,000 populations, while they are only confined to serving the urban populations. On the other hand, the available health workers work in the relatively serving health institutions and neglect the majority of health centers and the community, especially in rural areas. This aggravates the affecting the quality of care and leaving the majority and remote residents out of effective care. In the developed world, the introduction of health management information systems has transformed the efficiency of health workers in health care and considered a fundamental part of patient care. Health management information systems enable health care workers to access relevant information and enhance clinical decision-making. The absence of health management information systems coupled with lack of training could be one of the reasons for the inability of healthcare workers to provide quality services by considering the speciality of the patients. However, there is no assessment of the impact of substantial training for equitable health management on the efficiency of health workers, health information, and quality of care in a resource-limited setting and thus warrants further study. Therefore, this study seeks to produce evidence on the impact of substantial training for equitable health management and health information on health worker efficiency.

### **5.1. Evidence from Research Studies**

**Introduction:** Evidence from Research Studies: Several studies have indicated that training health workers in health information and effective management has potential to raise the efficiency of health workers as well as to improve the timely care of patients in Primary Health Care services. Good data quality is important to make effective assessments regarding health status, desirable practices, functioning of health system, services and research. The information generated, if sound and utilized, can lead to intervention which will enhance health. Published studies from different geographical locations on the broader issue of the type of training to health workers that most effectively supports the collection and utilization of health information as well as the improvement of the health management system were reviewed. The Governments in different countries of the world have recognized the importance and made efforts to put in place the HIMS; however, these efforts have mostly been focused on improving the collection of health information (Nwankwo & Nasir Sambo, 2018). Reform recommendations for health management and for health information were set



out in the same document. However, these two proposals often seem to develop quite separately, in different realms of policy and management.

## **5.2. Case Studies in Different Healthcare Settings**

Strengths and tendencies discussed in the management literature are compared to real-world experience and responses of healthcare managers in four established research and service programs. Management case study pairs is devoted to each of the four programs: a research program in rural Honduras, a service program across five states in Eastern India, a research program in rural southeastern Haiti, and a research program in urban and peri-urban Bangladesh. Despite their various settings, the experiences of these programs reflect common challenges and opportunities faced by healthcare managers working in low and middle-income country settings (L. Linnander et al., 1970).

The Health, Equity, and Rational Use of e-Government Systems (HEARTS) in the Americas initiative represents an extension of the Joint Inter-American Statement initiative and proposes a number of strategies to improve the management of the health services. The strategies consist of the promotion of high-quality, evidence-based, clinical guidelines that include a maximum version of six therapeutic recommendations for top-priority acute and chronic conditions. It emphasizes the importance of taking into consideration health system aspects to increase the adoption of therapeutic recommendations.

It proposes the CDE approach to improve the ability to capture medicines' use data and hence better plan pharmaceutical care and promote other related strategies to improve control and management of prevalent diseases in primary care. The HEARTS initiative was presented to top-managers and deliver-relevant technical sessions on the implementation of good practice in policy, regulation, programs, and implementation aspects. It is expected that this initiative will be adopted or inspired further actions in the American countries to enhance the management of public health services.

## **6. Conclusion and Future Directions**

In this review of the benefits of eHealth with particular focus on their contribution to equitable health management and the effects of health information provided to, or used by, health workers it was noted that the great majority of studies reviewed are reports of pilots, and caution should be exercised in extrapolating their results. Most may lack the crucial criterion to access effect estimated according to a rigorous research protocol, estimates of uncertainty of the effect or of the reasons for success or failure. The lack of such a research protocol is fully justified for interventions that seem promising, but whose actual effects are not known. Nonetheless, the results provided some insights. A useful classification of eHealth was in interventions targeted at patients and those targeted at health workers, since they may have different advantages and face different barriers. There does not appear to be



such a comparative review in the literature, and hence the attempt to address that gap. Broadly speaking, the former may have a greater impact on health outcomes, while the latter may be more likely to raise the efficiency of health workers.

The systematic review was supplemented with considerations on the insights for future research, and hence the paper was split into two interrelated parts, the report on the review per se and the report on that review. With a rather stringent inclusion criteria was found only four rigorous assessed studies, two of interventions targeted at patients and the other two of interventions targeted at health workers. Given the volume of eHealth research, this number must be an underestimate, but it is an indication of the scarceness of the empirical literature that would provide more generalizable results on the impact of eHealth. Regarding that, the review did not confirm the expectation that complementarities with other interventions would be important determinant of the impact of eHealth on health outcomes, although other hypotheses were more strongly supported. Concerning the review, the provided results could only be judged indicative, since many potentially relevant papers did not report results that could be assessed according to the summary table. Because this research and the discussion concerned abstracts that do not sufficiently account for program characteristics and the context, and because most models considered were not described in the abstracts, the focus was more on the general insights and their implications.

## **References:**

1. Lapão, L. & Dussault, G. (2017). a review. [\[PDF\]](#)
2. Martineau, T., Raven, J., Aikins, M., Alonso-Garbayo, A., Baine, S., Huss, R., Maluka, S., & Wyss, K. (2018). Strengthening health district management competencies in Ghana, Tanzania and Uganda: lessons from using action research to improve health workforce performance. [\[PDF\]](#)
3. Nwankwo, B. & Nasir Sambo, M. (2018). Can training of health care workers improve data management practice in health management information systems: a case study of primary health care facilities in Kaduna State, Nigeria. [ncbi.nlm.nih.gov](https://ncbi.nlm.nih.gov)
4. Maleki, B., Rahimikian, F., Salehi, T., & Mehran, A. (2015). The impact of instructing management skill to managers on the obstetrician's efficiency. [ncbi.nlm.nih.gov](https://ncbi.nlm.nih.gov)
5. Zhou, L., Ampon-Wireko, S., Dauda, L., Xu, X., Opuni Antwi, M., & Larnyo, E. (2020). Empirical Analysis of Factors Influencing Healthcare Efficiency among Emerging Countries. [ncbi.nlm.nih.gov](https://ncbi.nlm.nih.gov)
6. L. Linnander, E., M. Mantopoulos, J., Allen, N., M. Nembhard, I., & H. Bradley, E. (1970). Professionalizing Healthcare Management: A Descriptive Case Study. [\[PDF\]](#)