

## **Health workers' perspective on Health Information System Management in Siwai district, Bougainville**

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### **Abstract**

This study explores health workers' perspective on the Health Information System (HIS) and their perceptions on HIS at the health center and district hospital levels in Siwai district, Bougainville. The HIS is a significant component of any health care system. It is a system that is used in the hospitals to protect a patient's health and support the provision of care. However, in Siwai District, many of the health facilities' HIS do not contain essential patient records. Although health workers are aware of HIS's significance in managing patient information, facilities experience deficiency in accurate records. This leads to ineffective information management by health workers. The research presented in this paper reveals several reasons why there is ineffective HIS in some health centers in Bougainville's Siwai district. The research suggests that shortage of staff, inadequate skills, insufficient knowledge on health information, deprived infrastructure, inadequate training and inactive communication flow are contributing factors that lead to the ineffective management of health information. These issues are inhibiting effective management of information.

**Keywords:** health workers, hospital information, health information system, Bougainville

### **Introduction**

A Health Information System (HIS) is a system that is used in health facilities to assist in the overall management of patient care, especially keeping patients' records and information required for decision making (WHO, 2014). HIS plays an important role in health facilities specifically in designing, managing, and storing vital information for administrative purposes (Ahamed, 2007). Effective management of Health Information Systems produces many advantages for health facilities and the population. According to WHO (2002), effective management of HIS is important because it leads to accurate data collection, improved reporting and analyzing data and allocation of scarce resources. Moreover, it stores information in electronic-based or paper-based records which can retrieve information easily. A study by Aladwani (2001) on information technology (IT) planning found that effective management of HIS is paramount in developing countries because of the frequent poor health performances of their health care systems. Effective government policies are needed to help monitor and evaluate health facilities performances (Aladwani, 2001).

According to Farzandipur, Jeddi & Azimi (2016), there are three main factors that affect the successful implementation of HIS namely; human, organizational and managerial. In terms of the human factor, the authors find that many users are not familiar with the use of information systems. Organizational factors lead to provision of inappropriate materials and technologies for the workers to use. Furthermore, managerial factors include managers of health facilities not sending their staff to further develop their knowledge on how to use the system through training or work placements at other institutions. Similarly, Balaraman and Kosalram (2013), argue that time, cost, ineffective internal policies, and reform of the functions of the system being designed are factors affecting the implementation of HIS within health facilities.

The aim of this study is to explore the effectiveness of management of HIS in the health facilities in 4 facilities in Siwai district. The study finds that management of the HIS is ineffective in health facilities in Siwai district. This is primarily due to lack of proper management, storing, and analyzing of the HIS. Thus, the findings of this study illustrate ways to help manage and improve effectiveness of the HIS in Siwai district by reversing these weaknesses. This study provides recommendations on how an effective health information system could be managed with the current protocol of information management practiced in the Siwai district of Bougainville.

### **Methodology**

This study is a purely qualitative study which included structured face-to-face interviews and a focus group discussion. The study was conducted in Siwai district in the Autonomous Region of Bougainville in the Monoitu, Tonu and Hurai health centres and Buka General Hospital. The sample consisted of 10 health personnel in those specific facilities (m=5, f=5). The participants were selected using purposive sampling selecting health personnel who were working for more than 5 years in the district and those that have experienced record keeping in their facilities and who wanted to share their experiences with the researcher. After giving consent, all 10 participants were interviewed of which 5 were involved in an in-depth interview and 5 in a focus group discussion. The researcher collected the data between November 2018 and January 2019. The transcribed texts for individual interviews and focus groups were analyzed using thematic analysis methods to identify the common themes for coding.

The major limitation of this study was the geography of the health facilities especially for focus group discussions. It was very difficult for the researcher to gather the participants from each health facility together as the health facilities are located far apart and road conditions are poor. That is why the researcher conducted the focus group discussion at Buka General Hospital in the Health Information section where it was easier to interview the staff at the medical records section.

## Findings

After analyzing the data collected, two main themes were identified, the first being health system factors and the second, health personnel attitudes towards HIS management. Under these broad themes, sub themes were also identified which include health care personnel, health facility infrastructure, training, health workers' knowledge on HIS, and communication flow.

### Theme 1: Health System Factors

#### (i) *Health care Personnel*

Health workers are central to the daily functioning of health facilities. Any absence of health workers in a health care facility, seriously limits provision of services to the patients. In addition health workers in rural health facilities play an important role in improving health information for the patients and implementing effective HIS management in those rural health facilities. This study found out that there are no qualified staff for HIS in any of the health facilities in the rural areas studied. Similarly, the district administration does not have any HIS officer in place. Health workers with HIS experience are working in urban health facilities in Bougainville but not in rural facilities. Allocation of qualified HIS staff in the four health centers and the hospital in the Siwai district is their concern.

Participant 1 had this to say:

*“There are no qualified HIS staff in our health facility. They must provide us with one staff because we are really in need of one.”*

And participant 2 had this to say:

*“Personally, I suggest that they must create or designate a person to be responsible for Health Information System within the district since we do not have one in our health center as well as the district level. In this case, we the health workers are doing the recordings and reporting at the same time which is too much for us.”*

A few of the medical records' staff expressed the view that inadequate staff in the district hospital is a major hindrance to effective management of HI.

In the focus group it was stated:

*“In the hospital level, we lack HI officers who can help in filing patients' charts, store information into electrical devices especially tablets and desktop, and to do labelling and reporting accurately.”*

These comments indicate that HI officers are needed and there needs to be a qualified recruitment of HI officers for effective management of HIS who would be able to implement effective HIS to all the rural health centers.

#### (ii) *Health facility infrastructure*

Infrastructure is also a key element in any health care system. It is vital in terms of service delivery. Hence, an improved infrastructure results in producing best outcomes in reporting and storage of HI. Participants are

concerned about a HI storage room to be developed in all the health facilities in Siwai District. The study found out that there is no HI room to store patients' information and this is a matter of concern.

Participant 1 also stated:

*"Currently, our health facility has no HI store room or office. We really need to have one up in order to keep the records safe because right now the information is not properly stored. Some information is kept at the outpatient, others at the medical ward and maternity ward which is not safe and also time consuming when getting them together for reporting."*

Participant 4 commented:

*"They should create rooms/shelves to store data information in our health center. Right now, there are no shelves and no store rooms to keep all the information. Due to no HI office, we lose many important documents and records for patients annually."*

### **(iii) HIS Training**

Training is another important component in the health care system. Health personnel must be trained in order to have knowledge on how to manage HI in their health facilities. When staff are trained, there is more chance that effective management of HI will be practiced in rural health facilities in PNG. However, many health care staff lack appropriate training which results in poor information management.

Participant 5 commented

*"They must conduct monthly facility meetings and discuss priority activity outcomes by discussing National Health Information System (NHIS) and monthly reports."*

Participant 1 stressed that:

*"The DHM and other qualified officers must train the staff on managing HIS. This, is because health workers do not have the appropriate knowledge to managed HI."*

A health care system that has adequate health personnel, improved health care facility and trained workers is the one that provides efficient and effective information to its facility. PNG's health care system needs to apply this so as to implement effective HI in all the rural health facilities.

## **Theme 2: Health Personnel attitude towards HIS management**

### **(i) Health workers' knowledge on HIS Management**

HIS management is vital in the health care system and it must be understood by all health personnel. All health workers must know how to keep track of health information available in their facilities. However, this study discovered that the majority of the health workers in the rural health facility lack adequate knowledge on managing HIS.

Participant 5 remarked:

*“From what I see, many of us (staff) do not know how to managed HI because all of us are clinicians and we do not have management backgrounds. Especially, when it comes to electronic storage, only few staff which include HEOs and few Nursing Officers (NO) try to keep track of the information. Otherwise, we just keep them at the outpatient and maternity ward.”*

In the Focus group it was also mentioned that:

*“Staff lack adequate knowledge on HIS management especially, when it comes to filing, storing, and electronic storage. More importantly, these new information data bases that are being introduced such as File Maker Pro makes very difficult for us and create many problems as we lack knowledge on how to operate them.”*

#### **(ii) Communication flow**

Communication is important, especially when reporting and referring information to the district health manager (DHM), and then to the provincial health office (PHO). Conversely, this study found out that there is ineffective communication between the health workers and the DHM when delivering HI reports.

Participant 3 had this to say:

*“The District Health Managers do not conduct inspections on HIS in the health facilities to see if we are doing the right things especially, when we are trying to put all the information together for referral. This is because many of us are not really familiarized with the new system of managing HI.”*

It is very important that staff have adequate knowledge on HIS Management and there is effective communication flow with the management so that services can be provided accordingly and that HIS can be managed effectively.

### **Discussion**

This study has revealed issues affecting HIS management and the challenges that influence effective implementation of HIS in the rural health facilities in Siwai district. The data presented in this study is from a limited number of health workers from the 3 health centers and the district hospital in Siwai district, Bougainville. The data delivers further information on the perspective of health workers on practicing effective HIS management at the rural health facilities.

#### **Theme 1: Health system factors**

##### ***Health care personnel***

The health personnel have identified issues that inhibit effective management of HIS in the rural health centers and hospital within the district. They have

stressed that adequate health personnel are needed to support the health care system to implement effective HIS management in rural health facilities. This is not confined to Bougainville. From as far afield as Iran, Farzandipur, Jeddi and Azimi (2016), claim that many rural health facilities lack qualified staff to manage HIS and thus, it leads to provision of inappropriate materials and technologies for the workers to use. Similarly, from Bosnia and Herzegovina, Slipicevic and Masic (2012), have emphasized how health facilities in the least developed countries are faced with shortage of qualified staff. Thus, many rural health facilities are not operating due to health workers not being available.

The findings to this study showed that the health facilities in Siwai district of Bougainville where the study was conducted, the provincial health administration and the district administrations do not support these facilities to implement HIS. There are policies established like National Health Plan (2011-2020) which can help in implementing HIS in the facilities. However, many health facilities do not have these important documents in place. Therefore, there is a need for awareness on HIS management in the rural health facilities. From this study it is recommended that relevant inspections are needed to be conducted in all the health centers and the hospital in the district by the provincial health administration and the district administration. The district health manager should identify factors that hinder effective HIS management in the health facilities within the district. This, together with the findings of this study could lead to the improvement of effective management of HIS in Bougainville.

#### ***Health care Infrastructure***

Participants expressed that there is a need to improve HI office space and storage at the health centers and the district hospital. These rural health facilities lack infrastructures due to poor strategic planning by the management. Such infrastructure needs should be taken seriously.

#### ***Training***

This research has also revealed that training is needed for health workers in the rural health facilities. The majority of the health workers have never attended any training on HIS and thus, have no idea about HI management and without HIS training workers in the health facilities are less likely to carry out their roles and responsibilities effectively.

### **Theme 2: Health Personnel attitudes toward HIS Management**

#### ***Health workers' knowledge on HIS Management***

This research also reveals that health personnel in the rural health facilities of the Siwai District lack adequate knowledge on HIS management. Inadequate knowledge from staff hinders effective management of HIS in the rural health facilities. Many of the staff in Siwai district are trained as Community Health Workers, Nursing Officers and Health Extension Officers, giving priority to the clinical needs of patients, and they do not have adequate training on managing HIS. Therefore, there is a need for training and further education for the health personnel to expand their knowledge on HIS management.

### ***Communication flow***

Another issue unveiled in this research is communication. Effective communication is a vital element in any workplace environment. The study reveals that in most rural health facilities, communication is poor when delivering raw data and other related information to the District Health Manager (DHM) and Provincial Health Officer (PHO) and as a consequence services are not delivered on time to the facilities.

### **Recommendations**

1. Appropriate inspections on health care personal should be conducted in all the health centers and hospitals by the district administration and the Provincial administration.
2. Moreover, training is vital, particularly for health workers in the rural areas.
3. In terms of infrastructure, all rural health facilities should have separate rooms for Health Information with adequate equipment like computers for proper recording. This is the responsibility of the district administration in collaboration with the provincial administration and the local members of parliament in Bougainville.
4. Each district throughout Bougainville should be funded by the district health management for training of staff who could effectively be able to provide updated information services
5. Preference for the position of health information officers should be given to health management graduates. Otherwise, in absence of Health Management graduates, officers in charge should be sent for further studies specifically on health information management.
6. There is a need for further research on the referral of Health Information from one health facility to another. Additionally, Key Result Area 3 in PNG's National Health Plan (2011-2020) specifically objective 3.4 calling for review, strengthening and integration of the different health sector management systems needs attention for implementation at the district and provincial level.

### **Conclusion**

Investigating factors affecting effective management in the Siwai district of Bougainville is important because, it can help identify areas for improvement in HIS management within the district. The findings provide useful information to the health care providers and health managers at the district and provincial level: specifically improving health information and adequate services to the specific health facilities with knowledge of HIS management, adequate health care infrastructure, active training on HIS, skilled health care personnel and effective communication flow.

## References

- Ahamed, A. R. (2007). An e-health trend plan for the Jordanian health care system: A review. *International Journal of Health Care Quality Assurance*, 20(6), 516-31. doi: <http://dx.doi.org/10.1108/09526860710819459>
- Aladwani, A. M. (2001). IT planning effectiveness in a developing country. *Journal of Global Information Technology Management*, 4(3), 51-65. Retrieved from <https://search.proquest.com/docview/275008193?accountid=191104>
- Balaraman, P., & Kosalram, K. (2013). E -hospital management & hospital information systems - changing trends. *International Journal of Information Engineering and Electronic Business*, 5(1), 50-58. doi: <http://dx.doi.org/10.5815/ijieeb.2013.01.06>
- Farzandipur, M., Jeddi, F. R., & Azimi, E. (2016). Factors affecting successful implementation of hospital information systems. *Acta Informatica Medica*, 24(1), 51-55. doi: <http://dx.doi.org/10.5455/aim.2016.24.51-55>
- Slipicevic, O., & Masic, I. (2012). Management knowledge and skills required in the health care system of the Federation Bosnia and Herzegovina. *Materia socio-medica*, 24(2), 106–111. doi:10.5455/msm.2012.24.106-111.
- World Health Organization. (2014). *Health facility and community data*. Retrieved from, [https://www.who.int/healthinfo/facility\\_information\\_systems/Facility\\_Community\\_Data\\_Toolkit\\_final.pdf?ua=1](https://www.who.int/healthinfo/facility_information_systems/Facility_Community_Data_Toolkit_final.pdf?ua=1)

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