SWOT ANALYSIS OF DISTRICT HEALTH INFORMATION SYSTEM IN KHYBER PAKHTUNKHWA

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ABSTRACT

Background: Health information is necessary for effective and efficient health service delivery, management and planning of health programs. Objective of this study was to evaluate and highlight within a framework of a SWOT analysis, the strengths, weaknesses, challenges and opportunities of District Health Information System.

Material & Methods: Provincial office and two districts Nowshera and Swabi were assessed for DHIS by conducting SWOT analysis. Literature was searched and health managers were interviewed for detailed information regarding DHIS in Khyber Pakhtunkhwa province.

Results: SWOT analysis included strengths of DHIS as infrastructural design of the system at provincial level, computerized system at district and provincial levels. Weaknesses identified in the system included invalid data, non-integration of the system with DHIS program, non motivated and untrained staff, improper implementation with any supervision mechanisms and non-usage of information for any decision making process. Opportunities included integration with other sources of information, making coverage of services vast, potential contribution in health system research, and use of quality and valid data for decision making in planning and management. Threats the program may face are non-political commitment, lack of funds for stationery, social threats and implications for professional malpractices.

Conclusion: After 18th amendment, DHIS in Khyber Pakhtunkhwa needs redesigning. Health information system can be improved at the district level by developing capacity of district health managers and health care providers. There should be a strong political support and commitment in formulating health policy regarding DHIS. Good governance, monitoring and supervision and accountability are essential factors to be addressed.

KEY WORDS: Health information systems; Policy making; Organisational efficiency; Management information systems.

INTRODUCTION

Health information is core component in the process of measuring performance of health systems.[1] One cannot deny the role of Health Information Systems (HIS) in providing sound information to support health planning & management[2,3] by process of collection, storage, analysis of information. Health Information systems comprise of health workforce and computers and their interplay.[4] Health information deals about people's health and what the governments are doing about it. It helps in measure-

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ment of morbidity and mortality from major diseases, as well as planning and management of health care services.[5]

Health Information System of public sector coordinates the monthly from health facilities into a compiled database as District Health Information Systems (DHIS) is the appropriate tool for planning and management of health sector[6] Lack of resources is often considered as reason for existing problems in HIS of the developing countries and this is indicated by fragmented and un-coordinated efforts due to presence of un-integrated vertical health programs.[7] Therefore, it is widely believed that integration of HIS is critically demanded for proper functioning of the system. Integration of HIS into a unified system can provide means for information and resources sharing. Consequently, unnecessary resources expenditure is cut off and an environment for cooperation is

created.[8] This could have positive impact on overall health sector performance. However, failure of implementing integrated HIS, in developing countries in particular, has been associated with narrow minded approach towards merely integrating health data.[9] Therefore, there is need to develop wider perspective to consider organizational factors for better information system integration.

Since initiation of Health Management Information System (HMIS) and the DHIS in Pakistan there are various challenges in use of data generated for the purpose of decision making.[10] For proper data generation and analysis there is a need of web-based health management information systems in order to improve health reporting for the purpose of accuracy and usability of health data.[11-13] After implementation of HMIS, little information would be collected from the both public and private sectors which provided a minimum set of information regarding priority health problems and service delivery needs. The HMIS approach seemed more data driven rather than action oriented and there was duplication and lack of coordination among various vertical public health programs. Therefore DHIS has been developed and is currently being implemented in 14 districts in Khyber Pakhtunkhwa in 2006.

DHIS is the most critical area in the health care system. Khyber Pakhtunkhwa is facing tremendous problems in meeting the health care needs of its people being a low resource province of Pakistan. Information needed to run the health system lacks due to poor data management.[14]

After the 18th amendment in constitution of Pakistan 1973, health system has been devolved to provinces in 2011. As the provinces are strategizing for their respective health sector programs,[15] it is an opportunity to do a stock-taking of the DHIS program. Therefore, in this paper, the District Health Information System is assessed through SWOT technique in two districts Nowshera and Swabi. District Nowshera was declared as an independent district in 1998 of Khyber Pakhtunkhwa. It is spread over an area of 1,748 sq. kilometers. District Swabi is located at the north-eastern part of Khyber Pakhtunkhwa bordering Punjab and has an area of 1543 sq km. It is the fourth most populous District of the province.

The objective of this study was to evaluate and highlight within a framework of a SWOT analysis, the strengths, weaknesses, challenges and opportunities of District Health Information System.

MATERIAL AND METHODS

This cross sectional study was conducted in department of Community Medicine, Pak-International Medical College, Peshawar, Khyber Pakhtunkhwa from September 2014 to December 2014. SWOT analysis was done based on interviewing 30 health workers related to DHIS from two districts of Khyber Pakhtunkhwa. Data collection tool were a structured questionnaire with checklists, in-depth interviews with selected staff. A total of 30 interviews in four hospitals were conducted. Besides this literature review of 22 peers reviewed papers was conducted. Research papers were searched via Pub Med and Google Scholar. Search words used were "Health Information System", "Health Management Information System", "District Health Information System", "Health Information System in developing countries". This analysis helped in making recourse DHIS dynamics.

SWOT is one of the common analytical tools used by evaluation analysts. This method can be used to analyze either organizations or individuals and for strategic planning in public health sector. It also specifies the system objectives and tries to identify both internal and external favorable and unfavorable factors to achieve its objectives. The letters of SWOT include:[16,17]

- Strengths are the internal characteristics of a system and compared with other systems to see the relative strength.

- Weaknesses are internal characteristics of a system that need to be addressed.

- Opportunities are the external chances to make greater inputs to a system

- Threats are external elements in the environment that could cause troubles for the system

This technique was adopted to assess the strengths, weaknesses, opportunities and threats of the health information system and the health

Table 1: Analysis of strengths, weaknesses, opportunities, and threats (SWOT).

Environment	Supportive / Beneficial	Disadvantageous / Detrimental
Internal	Strengths are the attributes associated with the system to achieve desired outcome i.e. a good reporting system in the province	Weaknesses are the attributes associated with the system that are detrimental or may prevent achieving the desired state
External	Opportunities are political, economic, social, technical or legal conditions that assist in achieving the desired goal	Threats are the political, economic, social, technical or legal conditions that might be detrimental on the way he/she carries out to achieve the desired state

Strength	Weakness
• Health staff has good understanding of the data collection	• Lack of good governance regarding DHIS
• Standard data collection tools are available in health facilities & district health office	• Senior management in district health office not serious and tasks are often delegated to junior clerical staff to whom the reports mean nothing
• Stationary are well supplied to health facilities in time	• Shortage of dedicated HIS staff at all levels
• Data collected at health facilities are compiled in the form of monthly reports	• Non-qualified and inexperienced staff for DHIS
• Monthly reports from 70 % of health facilities are sent to district health office in time	• Little knowledge on analysis, interpretation or utilization of data and inadequate skills in understanding and processing of information
• Reports received at district health office are compiled by health staff	• In the 10 facilities 25% of data values were missing
• DHIS software is in place at district health office as a suitable warehouse	• Health facilities are not using data collation tools as intended
• Computers are available at district office	• Reports at local level are seen as burdensome obligations required by higher levels
• Data from monthly reports are stored in computers at district health office	• Unclear reporting structure
• Post of District DHIS coordinator is of management cadre	• Fragmentation of health information, (i.e. health care providers such as doctors, pathologists and radiologist have their own HIS, that operate independently from other sub-systems
Opportunies	• Lack of communication between facilities
• Political will for improving quality and sustainability of this program	• No accountability or transparency
• Funding opportunities from donors for research and strengthening DHIS	• Poor work ethics
• Integration of public and private health sector need to be defined in order to develop unified health information system.	• No political commitment to the system DHIS
• New purpose building structures for DHIS	• Shortage of staff residences in district and facilities
• Public awareness for community support to DHIS	• There is limited access to e-mail and internet at district offices
• Sufficient allocation of resources to address the information communication technology	• Health staff is mostly de-motivated (not rewarded, discomfort, no place to stay, frustration)
• Scaling up of computer technology to all health facilities in the province	• There is lack of maintenance of hard wares
• To develop a policy document on human resource requirements for an effective HIS workforce	• There is lack of critical Health information staff
• Sufficient funds from government	• There is usually staff conflicts (senior management and staff) senior level do not want lower staff to benefit in any way
• Foreign interest in interventions	• There is centralized planning in the province due to non existing local governments
	• Prevailing security issues in the province hindering the employees to perform services in remote districts of the province
	• Several NGOs working in various health facilities having its own chain of reporting without data sharing

staff working in this system in Swabi and Nowshera districts of Khyber Pakhtunkhwa Pakistan. District Swabi was the pilot district during implementation of DHIS in Pakistan in 2006 while Nowshera is the neighboring district of District Swabi. This report is divided into two parts i.e. SWOT analysis of DHIS by interviewing the health staff and literature reviewing of 22 scientific published papers.

RESULTS

Overview of Strengths and Weaknesses:

Strengths: Findings of interviewing the health staff: DHIS coordinators from both the districts informed about the timely submission of monthly reports to district health office from over two third of the heath facilities of the district. Data is entered into computer at the DHO office and then sent to provincial health directorate for further processing.

Strengths: Findings of reviewing literature: Any health system's sustainability is difficult after winding up of the financial support by the donors. Health information system in Khyber Pakhtunkhwa remained working even after the suspension of funds from USAID. There remained vast coverage of all primary health facilities in public sector of the province. Previously health management information system used to collect data on more than hundred health problems while currently district health information system collects data of 18 priority health problems. DHIS has been implemented uniformly throughout the country. This system is flexible and has the capacity to integrate with any public health program.[18]

Weaknesses: Findings of interviewing the health staff: Several of the respondents admitted that there has been a lack of good governance regarding DHIS program. This results in issues of strategic planning, coordination, regulation and resource allocation. They added that effective leadership and stewardship were also missing among the health managers. After the devolution of 2011, the program has further suffered from lack of coherence and coordination due to instability of political scenario in the provinces. Unfortunately, provincial governments have shown a lack of commitment towards this program. According to a Government official, allocation of funds has been as meager, as has always been the case; the situation has become even worse" All the respondents agreed on the role of government in providing funds. Resource flow has been minimal. The only source of funding has been government whereas the donors and NGOs have never approached for support of this program. All respondents were focused on the issue of the gaps in capacity building, and the lack of technical guidance. Several respondents were of the view that the information system is not standardized. The records are either incomplete or filled with wrong and incomplete

data. Therefore information generated is not used for decision-making. One of the respondent said "seniors don't show any intention and concern for any information that could be used for decision-making. This system is never followed and data record is not properly completed. Every public health program has its own reporting system without any integration at any level" He added "Although LHW program has an established functional reporting system starting from BHUs & RHCs to DHO office in the district, and then to provincial office but has not been integrated into one system" Another health manager continued that donors and NGOs consider this system as completely within the government's domain.

Weaknesses: Findings of reviewing literature: Great hurdles to the integration of HMIS with vertical programs are perceived even in the developed world where donor-driven "vertically structured empires" with separate systems, separate manpower, and separate management hierarchy are set apart from line management.[19,20]

Improper and inadequate information hinders managerial process at all levels. Following findings were sought on reviewing the published papers: No clear DHIS policy guidelines and responsibilities of health workers at every level. No programs integration or any sharing of data. No feedback at all from provincial office to district office to BHUs & RHCs. Inadequate capacity building in data management resulting in scarce health information scientists. Lack of standard operating guidelines at all levels. Inadequate infrastructure at all levels i.e. email, computer services and databases. Inadequate use of HIS for planning and allocation of resources. Inadequate allocation of resources to support HIS activities. Lack of integration in implementing some activities in various Health Facility Assessments. Lack of data warehouse at national and sub-national levels. Incomplete data for various indicators and Lack of integrated standardized data collection and reporting tools.

Overview of threats (challenges) and opportunities:

Threats (challenges): Findings of interviewing the health staff: All the health staff including the senior managers was of the opinion that there has been a high staff turnover rate due to political instability and involvement in transfers & postings. In charges of five health facilities reacted that some NGOs were operating in their health facilities on DHO's permission having their own reporting needs and systems. One health staff stated that government brings changes in health sector without taking health staff on board.

Threats: Findings of reviewing literature: It was reviewed in literature that manpower shortage

and challenges of recruiting and training with the mix of skill and knowledge of the system are the main threats to DHIS. As there is no separate cadre and service structure for this system, leading to critical lack of health information staff. Health staff is mostly de-motivated (not rewarded, discomfort, no place to stay, frustration). DHIS is lacking of integration of various public health programs especially EPI and National program for FP & PHC after the devolution of health to the provinces after 18th amendment in constitution 1973. The private health sector plays an important role in the delivery of health services in our province covering about 70% of the population. The private health system comprises of the private health practitioners, non for profit organizations and traditional medicine practitioners. There is deprivation of a major part of the disease burden due to no reporting from private sector. There is no quality assurance system in place. There is lack of maintenance of hard wares. There is usually staff conflicts (senior management and staff) senior level does not want lower staff to benefit in any way. Fiscal Challenges: Long term sustainability and low allocation of budget due to neglected area. There is centralized planning in the province due to non implementation of local bodies and decentralization

Opportunities: Findings of interviewing the health staff: One of the senior managers stressed on revitalizing the DHIS integration with other vertical public health programs for quality data and its use. He further added for development of capacity building of health managers, epidemiologists and statisticians through short courses. Furthermore inclusion of the information officer cadre in the service structure and new medical and institutions reforms act 2015 will bring much more benefits. District Nowshera DHIS coordinator stated that improved ICT infrastructure and maintenance support at district level will be helpful in development of a web based data warehouse at health facilities. Public private partnerships will bring effective use of donor financial resources to improve client record management and reporting.

Opportunities: Findings of reviewing literature: The literature has mentioned that much attention is paid to financial and structural reform measures through decentralization.[20]

DISCUSSION

No one can deny the importance of health information as it is crucial at the system level, at the health unit level, as well as at the patient/client level. This means that not only policy-maker and managers need to make use of information in decision-making, but also care providers including doctors, health technicians, as well as community health workers will need it. This program has the potential to improve

the quality and use of health related data, thereby will improve health system.[21]

Effective management of Health information system is one of advanced and valuable outcomes of health system management and its important decisions infrastructure. Therefore, one of the greatest challenges for health system managers is commitment and deep belief of implementation and utilization of modern management in health information management area.[22,23]

CONCLUSION

The present DHIS is in need of redesigning in context of 18th amendment of Constitution of Pakistan. Reforms are needed to improve information systems at the district level by building capacity of the district health managers. Political commitment must be there in making sound health policies. Good governance, change and sustaining the health management and administration culture, introduction of punishment and performance incentives, workers' motivation and accountability are all essential.

There should be a provincial health policy formulation addressing all building blocks of health system including DHIS. Training workshops for workers, continuous research, monitoring and supervision of DHIS throughout the province are the other recommendations.

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