FIELD MEDICINE

HEALTH MANAGEMENT INFORMATION SYSTEM IN DISTRICT HEALTH CARE

Talat Mehmood, Tariq Ashraf (Late)*, Syed Fawad Mashhadi, Rukhsna Roshan**

136 (I) Field d Ambulance, *Army Medical College Rawalpindi, **Armed Forces Institute of Post Graduate Medical Institute Rawalpindi

ABSTRACT

Objectives: To study the existing Health Management Information System being practiced in Basic Health Unit and recommend measures to improve.

Study Design: Descriptive cross sectional study.

Settings: Basic health unit.

Place and duration of Study: This study was conducted in Basic Health Units of Tehsil Taxilla from January to December 2008 in district Rawalpindi.

Patients and Methods: Subjects were the staff working at basic health units dealing with data entry. Structured questionnaire was developed and data was collected by interview.

Results: The findings of the study revealed that although timeliness of reporting was 100% but only 70% were accurate. It was found out that 84% of the information was being analysed and 64% of the reporting facilities were getting feedback. There was no use of the information for decision making.

Conclusion: The results of the study demonstrated that the timeliness of reporting is up to the mark but the processing of the information conveyed by the basic health unit on health management information system indicators is not being carried out at the executive district officer health office Rawalpindi. Thus not making any use of the information available for planning health activities and decision making.

Keywords: Basic health unit, Health care, Health management information system, Planning.

INTRODUCTION

To understand health information management system the basic concepts that should be clear are:

1. Health Information System. A system that integrates data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services.

2. Health Management Information System. An information system specially designed to assist in the management and planning of health programmes, as opposed to delivery of care[1].

There is large amount of evidence to support the belief that recording of medical facts and other information was practiced long before civilization[2]. The nomenclature that relates to health information systems indicated in the literature includes names such as health surveillance systems[3] and health management information systems[4].

The organization of district health care system services are based on primary health care[5]. This organization varies from country to country although the essential characteristics are constant that are: full and universal accessibility, emphasis on promotion of health, prevention of disease and disability, intersectoral coordination, community involvement, decentralization and coordination of all health services.

A district is an organized unit of local government, and a district health subsystem is a more or less self contained segment of the national health system. It comprises, first and foremost, a well defined population living with in a clearly differentiated administrative and geographic area, either urban or rural. It includes all individuals, institutions and sectors whose activities contribute to the improvement of health. It also includes staff in facilities up to

Correspondence: Major Talat Mehmood, MO IC MI Room, C/O HQ Arty 12 Div, gharial Camp, Murree

Received: 23 Dec 2010; Accepted: 25 Jul 2011

hospital from first referral level and logistic support services[6].

A functioning management information system is an essential tool for strengthening planning and management systems. A country wide facility based Health Management Information System was developed in Pakistan in the early 1990. This effort was initiated by Basic Health Services cell, now named as National Health Management System Cell of Ministry of Health. Provincial Health Department also fully shared this participatory development process. International agencies like USAID, UNICEF and WHO extended both technical and financial assistance for the development of Health Management Information System in Pakistan[7].

The improvement of existing HMIS was therefore made part of the national strategy for the development of primary health care delivery system in Pakistan and extension of HMIS to institutions like teaching hospitals, district headquarter hospitals, tehsil headquarter hospitals, rural health centre and basic health centre.

Currently BHUs and RHCs consolidate reports and send it to District HMIS cell headed by the Executive District Officer Health (EDO Health). This report is then forwarded to provincial HMIS cell for onward submission to National HMIS Cell in the Ministry of Health.

MATERIAL AND METHODS

This descriptive cross sectional study was conducted in Basic Health Units of Tehsil Taxila, district Rawalpindi. This was study completed in one year from January 2008 to December 2008.

Probability sampling (cluster sampling) technique was adopted. District Rawalpindi was divided into clusters as per the six tehsils it comprises of, considering geographic contiguity and Tehsil Taxilla was selected at random. Inclusion criteria was staff that is dealing with the HMIS data entry and Staff that has some kind of training for HMIS. While exclusion criteria was staff which is not involved in HMIS data entry and has no training for the same.

Data collected to analyze the variables like timeliness of reporting, accuracy of reporting, resources, decision making and training. Questionnaires/Interviews and on ground check was used for data collection.

The incharge of each Basic Health Unit was taken into confidence and after obtaining informed, fully understood and voluntary consents data was collected. The respondents were assured of confidentiality of the data.

A structured questionnaire was administered to all participants. The questionnaire was pre-tested on one Basic Health Unit and discrepancies resolved by consensus among the investigators and the supervisor.

The data had been analyzed using the Statistical Package for Social Sciences (SPSS) 13.0 software. Frequencies and percentages were calculated for accuracy, timeliness, resources, training and decision making variables.

RESULTS

The study was conducted to analyze the existing health management information system being practiced in basic health units of Tehsil Taxila. The following results were obtained during study.

1. HMIS Forms and Registers

In 68% of the cases medical officer in charge fills the OPD registers while in 32% of the cases other paramedical staff like medical technician, dispenser, LHW or LHV is responsible for filling the OPD registers.

In 48% cases dispenser issues the OPD tickets and in 52% of health facilities other staff is responsible for this. Other staff includes the medical as well administrative persons like chowkidar, aya, medical technician and LHW.

In 84% cases LHS is responsible for family planning, maternal health and antenatal card while in 16% facilities LHV does the job. In 76% cases dispenser is responsible for the daily medicine and stock register and medical technician maintains medicine and stock register and in 24% of health facilities other staff like medical technician is responsible.

In 64% of the cases medical officer is responsible for the preparation of monthly facility report while in 36% of facilities dispenser and medical technician are preparing the monthly facility reports (Figure).

2. Report Format

In inquiry regarding satisfaction about monthly report format 96% of the cases were satisfied with the format while only 4 % were not comfortable with the report format.

3. Timeliness

Regarding timeliness 100% of the cases were sending the monthly facility report according to the schedule every month. In 100% of cases all the facilities were getting the HMIS forms and registers timely.

4. Feedback

In 64% of the cases they were getting some kind of feedback from the higher level after they have sent the monthly reports. While 36% of the cases don't get any kind of the feedback.

5. Training

Regarding training 76% of the cases got training in HMIS while 24% never had any kind of formal training. It was noted that 80% of the cases had on job training while 20% had never been involved in training activities. In 68% of cases they did not find any difficulty in filling up the HMIS instruments and 32% cases had some difficulties in filling up forms. Difficulties most commonly reported were inability to understand the forms due to low education level and inability to understand the health indicators.

6. Resources

In 48% of the cases the authorized staff is posted while 52 % of facilities do not have sanctioned staff related to HMIS filling among which dispenser/medical technicians are absent for 72% of the cases while LHV/LHW for 20% of the cases.

There are no funds available at the BHU level for 60% of the cases while 40% are getting some kind of funds.

7. Data Analysis

There are 84% of the facilities which are doing self assessment / analysis at local level also and similar percentage of the people do use this data in decision making. It was observed that 16% of the facilities do not use this data for analysis or decision making. Data was not being used at EDO office at all as the information received at the office was not being analyzed properly.

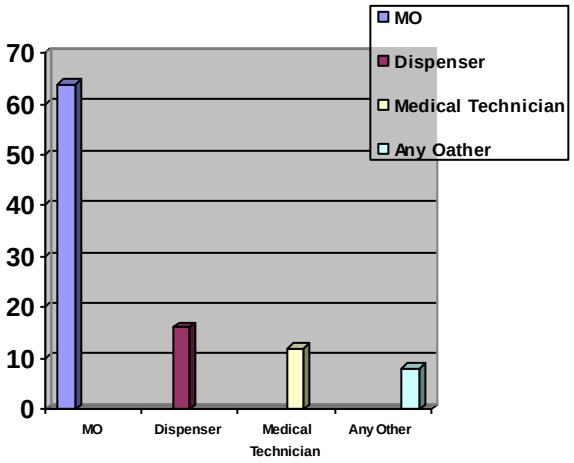

Figure: Description of preparation of monthly facility report.

DISCUSSION

In this study it was indicated that 100% of reporting facilities met the monthly deadlines for submission of monthly reports. Studies carried out in most developing countries particularly in Asia and Africa seem to suggest that generally timeliness of reporting is poor for instance a study that evaluated district health information management system in Kenya found that only 26% of HMIS monthly reports were submitted on time[8]. Studies from Kenya[9] and most of the WHO Africa Region (AFRO) countries have found very low levels of timeliness of reporting.

In this study it was indicated that all the reports that reached Executive District Officer Health office, no analysis for completeness of the reports were carried out. The reason given by the incharge of the HMIS section at the office was that software for carrying out analysis is not working properly since its installation. Studies carried out in most developing countries particularly in Asia and Africa seem to suggest that generally completeness of reporting is poor. Studies from Kenya and most of the WHO Africa Region (AFRO) countries have found very low levels of completeness of

reporting. Reporting of health information was so incomplete that it was not adequate for use in the running of the health system[10].

Completeness of notification of health events is critical particularly in public health incidence or prevalence of disease on account of the need for strategies and planning for the future.

In this study it was indicated that approximately 70% of all reporting facilities met the accuracy of monthly reports. This means that some 30% of the reporting facilities do not send their monthly reports accurately. A similar study carried out in Tanzania found that reports received from the reporting health facilities were inaccurate[11].

Accuracy of notification of health events is critical particularly in public health emergencies or epidemics and incidence or prevalence of a disease on account of the need for timely intervention efforts. The current study has shown that in Tehsil Taxila of Rawalpindi district only 70% of reporting facilities accurately send their reports, which sounds for the fairly good quality of data collection.

In this study it was indicated that in almost 84% of reporting facilities analysis was carried out at the facility level while in 16% of the facilities analysis is not being carried out. This study also revealed that at the district health office no analysis of information was being carried out for the last 7 months and that is an alarming situation. Studies carried out in most developing countries particularly in Asia and Africa seem to suggest that generally analysis of reporting has been never carried out[12].

It is difficult without analysis of the information to know about the progress of emergencies in the district/area. Therefore in cases of public health emergencies it would not be possible for health authorities to formulate appropriate actions and or strategies to control the same. The consequences could be disastrous. For effective and or meaningful control of public health events in Rawalpindi district there would therefore be need to improve the analysis of information. A study carried out in Kenya found that the tools/equipment for processing is not available so analysis is not done[13].

The current study has shown that in Rawalpindi district there is no feedback mechanism developed, it is only the monthly meeting of the deputy district officer health with all the medical officers of the basic health units that feedback is given verbally. Study also revealed that the analysis of the information is not being analysed due to the software problem at the district office. This will not allow the staff of the reporting health facility to improve or rectify. The consequences could be poor delivery of health services

In this study it was indicated that the information obtained has been used for the management and technical decision making for 84% of facilities. Studies from Kenya and most of the WHO Africa Region (AFRO) countries have found that there is no use of HMIS generated information for decision making or planning[14].

The above discussion makes it further clear that without reliable, relevant health information, health care managers and providers cannot take decisions to allocate resources effectively, improve the quality of health services, or address epidemics such as HIV/AIDS. Extensive Primary Health Care, a basic hospital structure and a decentralized district health system are the core global WHO strategies addressing the main health problems, equity in health care delivery and "health for all".

This study also highlighted that 76% of the persons were trained for data entry in the HMIS forms and registers. It also revealed that 80% of the individuals concerned were involved in on job training activities. Whereas 24% of the individuals were never involved in training. It means that there is still a lot of training activities needed to be carried out at the facility level to achieve the accuracy and timeliness of data. It was further found that there is no schedule for the training of the staff that is involved in HMIS data entry. According to EDO office there are no funds available to

conduct training of the staff regularly. So to get accurate reports dedicated funds have to be made available for training of the staff[17].

CONCLUSION

The results of the study demonstrated clearly that the timeliness of reporting is up to the mark but the processing of the information conveyed by the basic health unit on health management information system indicators is not being carried out at EDO health office Rawalpindi. This system needs to be upgraded in the Rawalpindi district so that true picture of prevailing diseases and other health related events can be seen.

REFERENCES

1. Bodavala, R. Evaluation of Health Management Information System in India Need for computerized Databases in HMIS. Available from: http:// www.hsph.harvard.edu/takemi/rp176.PDF(accessed on 19/4/08 at 1259)
2. Ahmed M Shad. Health Management Information System[MSc Thesis]: Rawalpindi: AFM College;1994.
3. Douglas N. Klaucke, James W. Buehler, Stephen B. Thacker, R. Gibson Parrish, Frederick L. Trowbridge, Ruth L. Berkelman. Guidelines for evaluating surveillance systems.[Online].Available from : http:// wonder.cdc.gov/wonder/prevguid/p0000112/p0000112.asp [Accessed on 16.5.08]
4. NHMIS.Pakistan an overview. [Online] 2002.Available at http:// unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN018847.pdf [Accessed on 16.5.2008 At 1600]
5. M Rosemary, B Elizabeth, P Maurice. On Being In charge.Delhi: AITBS Publisher; 2007. p. 2-3
6. Wilson. South Africa's district health information systems: case study from Eastern Cape province.2001
7. Govt. of Pakistan Ministry of Health. Situational analysis of the existing MIS at secondary and tertiary level.
8. Odhiambo-Otieno, W.G. & Odero, O.W.W. Evaluation criteria for the district health management information systems: lessons from the Ministry of Health, Kenya [Online] 2005.Available at http:// www.atyponlink.com/MMS/doi/pdf/10.5555/afhs.2005.5.1.59?cookieSet=1 [Accessed on 16.5.2008 at 1626]
9. Odhiambo-otieno, W.G. & Odero, O.W.W (2005) Evaluation criteria for the district health management information systems: lessons from the Ministry of Health, Kenya [Online] Available at http://www.atyponlink. com/MMS/doi/pdf/10.5555/afhs.2005.5.1.59?cookieSet=1 [Accessed on 2.08.2008]
10. Year Book. Government of Pakistan Ministry of Health; 2005-2006.
11. LUNGO, H. J. Data flows in health information systems [Online] 2003. Available at http://www.ub.uib.no/elpub/NORAD/2003/uio/thesis01.pdf [Accessed on 16.5.2008 at 1652]
12. Klaucke ND, Buehler WJ,Thacker BS, Parrish GR, Trowbridge LF, Berkelman LR et al. Guidelines for evaluating surveillance systems[Internet] Available at. http://wonder.cdc.gov/wonder/prevguid/p0000112/p0000112.asp [Accessed on 23.01.2007]
13. Odhiambo-Otieno, W.G. & Odero, O.W.W. Evaluation criteria for the district health management information systems: lessons from the Ministry of Health, Kenya [Online] 2005.Available at http:// www.atyponlink.com/MMS/doi/pdf/10.5555/afhs.2005.5.1.59?cookieSet=1 [Accessed on 16.5.2008 at 1626]
14. WHO. Developing HMIS: A guide for developing countries [online] 2004. Available from:http://www.wpro.who.int/publications/pub_9290611650.htm [Accessed on 19.5.08]
15. Memon, MI. Limitations, Constraints & their implications on HMIS Med Channel.2005 Mar;11(1):62-4.
16. Qazi MS, Ali M. Pakistan's health management information system : health managers' perspectives. Pak Med Assoc 2009 Jan; 59(1):10-4.
17. Ali,M. Horikoshi, Y. Situation analysis of health management information system in Pakistan. Pak J Med Res2002 Apr ;41(2):64-9.