

An Evaluation of the Observance Rate of Component Information Management in the Health System of Chahar Mahal Bakhtiari Province Based on World Health Organization Standards

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Abstract: Introduction: Given the essential role of data collection and management in the health system, this study intended to evaluation of the observance rate of component information management in the health system of Chahar Mahal Bakhtiari province based on World Health Organization standards. **Materials and Method:** This study descriptive-analytical nature tried to expelore the urban and rural health centers as well as rural health houses. Data were collected through a self-designed checklist produced based on the World Health Organization's standards stipulated by World Health Organization composed of 6 data needs analysis components, 25 data collection components and 29 data processing components for the urban and rural centers on the contrary, for the questionnaire used for rural health houses, the number of components on needs analysis, data collection and processing were 55 and 5, respectively. Then the data were put into Spss16 and analyzed using Anova and t-tests. **Findings:** The difference between the rate of observing the information management in the information management in the 3 areas in question i.e. need assessment, data gathering and data processing in the urban and rural health centers and rural health houses was not statistically significant ($P>0/05$). As for needs analysis, the highest mean score belonged to data collection and data processing with the three components enjoying mean Scores higher than medium. **Conclusion:** The findings of the study provided some evidence on the close matching and conformity between information management and world health organization standards especially for needs analysis component consideration to using this information in managerial decision making processes.

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1. Introduction

Polymers Health information system is like a mirror that reveals interactive image for managers and policy makers at local and national levels. The more efficient is this mirror, by utilizing appropriate technology, and the more transparent is the integration of its components, the more accurate and clearer will be the image of the organization, units and delivery of services for managers and policy makers reflects (1). World Health Organization, has considered health information systems to be essential for everyone in order to achieve the goal of health by the year 2000 (2). Health information systems are mostly needed in health environmental levels (3). Creating an effective information system to support decision-making by city health personnel is a vital element in the city's health services (4). Information can lead to improved health through influencing decisions regarding investment, efficiency, effectiveness and quality of the health

system. Yet in many countries, there are factors that limit the effectiveness of health information systems on management of health services (3). Because the data are not exchanged between different parts correctly, health providers or moderators, spent lots of time collecting data redundant and repetitive (5). Furthermore, because the data transfer, do not go through the hierarchy of communication, the reports often do not reach the desired destination (6). Lack of timely reporting and feedback, insufficient use of information (7), and the data flow problems have made efforts to reform the health information system essential more than ever before (8). According to the needs of each center, city health information system can add data and measures to the complex (9). Changes in the method of collection, processing and use of data indicates a change in an organization's performance (10). The first and most fundamental step in any system planning, is determination and

identification of requirements. Despite the importance of assessment, this process is less taken into consideration in the planning of health systems (11). Data collection is based on what the organization wants to achieve. In this case, apart from management data, health data can be collected as well. When data is collected based on clear objectives and indicators, the data collection is much easier (12). The purpose of data processing is also to provide information in a manner that will help the decision-making at all levels of the health system. Data correction, modifies crude data in such a way that leads to correct analysis with only a minimal degree of error. The aim is to ensure that the errors are so small that they do not impact on decision-making (13). Bernom states that American physicians clearly record false patient data in order to avoid complaints (14). In a study conducted in 2006 in Malawi on health information systems, lack of human resources in the health sector and lack of human resources to collect, analyze and distribute data due to the high mobility of staff from the health system's crises were reported (15). Thus, Due to the necessity of collecting, documenting and processing the required and repetitive information in health system in order to advance the goals of improving the quality of services, the health system and existing currently in use data components are needed to be continuously evaluated based on global reliability index. Therefore, this study was performed in Chaharmahal and Bakhtiary province according to World Health Organization criteria in order to assess the level of compliance on health system management components.

2. Materials and methods

In this descriptive - analytical study, the environment of research included Health Networks (health system) in Chahar Mahal and Bakhtiari province and units being studied were city health centers, urban and rural health centers. Due to the wide extent of the research community, one city in the province was selected randomly all rural and urban health centers, and rural health houses under the supervision of that center were included in the study. In the city selected, there were 25,862 urban households and 820 rural households that based on sample volume formula, randomly, a total of 820 urban and 180 rural households were enrolled. It includes nine urban health centers, 5 rural health centers and 23 rural health houses. Data collection tool, was a researcher made list based on World Health Organization criteria that was similar in rural and urban centers and had six Need Assessment components, 25 components related to data collection

(criteria for warning-diseases data collection 4 items, administrative data collected 3 items, the infrastructure data collection 4 items, and other measures to collect data 14 items) and 29 components related to data processing (data error correction criteria 2 items, measures to prevent future errors 17 items and other data processing benchmarks 10 items). Rural health houses list was a little different and included five Need Assessment components, 55 components of the data collection (Collecting client management data of 9 items, general index of 30 items, health indicators for mothers of 3 items, collecting data of feeding children charts 3 items, gathering monthly written feedback data 3 items, collecting software reports data 7 items) and 5 components related to data processing. Validity of data collection tools was confirmed by guidance from health information management professors. Data needed to complete the list was collected from households' health records by observation and list completion method and then was entered in the Spss16 software, and were analyzed using independent t-test and ANOVA.

3. Results

A total of 37 centers were enrolled that included nine urban health centers, five rural health centers and 23 rural health houses. Findings showed that Observance rate of the information management components in the health information system do not have statistically significant differences ($0.05 < p$) in the 3 area of assessment, data collection and data processing in urban and rural health centers, and rural health houses. Also in the area of assessment, the average score in research centers was higher than areas of data collecting and processing. And in all three areas the mean score was of moderate to high (Table 1). Findings of the degree of compliance with standards for data collection showed that observance rate of measures of collecting administrative data in urban health centers includes a higher percentage. Also in section of data processing standards, preventing future errors in urban centers is significantly higher than in rural centers and in the other components, the rural and urban health centers were not statistically significantly different from each other (Table 2). Evaluation of the results in section of items related to collection of the rural health houses data showed that the highest scale measures was in collecting data on maternal health charts with a mean and SD of $58/11 \pm 83/93$ and the lowest compliance was in collecting data on nutrition charts with a mean and SD of $39/43 \pm 65/45$. (Table 3)

Table 1: Comparison of compliance with information management components in urban and rural centers, and health houses.

Data processing	Data Collection	Needs assessment	components
Mean \pm SD	Mean \pm SD	Mean \pm SD	centers
87.35 \pm 13.11	73.33 \pm 12.63	92.25 \pm 6.03	Town Health
72.46 \pm 9.15	83.80 \pm 10.63	90.00 \pm 8.63	Rural Health
78.91 \pm 15.22	79.02 \pm 13.13	95.65 \pm 8.16	health houses
P=0.38	P=0.31	P=0.25	Significance level of ANOVA.

Table 2: Comparison of compliance of data collection and processing component parts in urban centers together with rural centers

Significant independent T	Rural Health	Urban Health	centers	
	Mean \pm SD	Mean \pm SD	components	
P=0.7870	78.75 \pm 17.45	75.0 \pm 16.53	Collecting data of noticeable diseases	data collection
P=0.71	80.0 \pm 28.05	83.33 \pm 14.43	Collecting administrative data	
P=0.88	75.0 \pm 13.25	73.61 \pm 22.91	Infrastructure data collection	
P<0.05	88.55 \pm 13.19	70.63 \pm 14.12	Collecting other data	
P=0.42	70.00 \pm 20.91	79.16 \pm 16.53	Correcting the errors of data	data processing
P<0.05	65.90 \pm 9.7	81.69 \pm 14.06	Preventing future errors	
P=0.78	76.45 \pm 18.358	78.05 \pm 16.85	Other data processing	

Table 3: Level of compliance with data collection component of in rural health houses

Standards for data collection in rural health houses	Mean \pm SD
Data collection for the management of patients	87.09 \pm 15.47
Index data collection	70.31 \pm 20.77
Collecting data on maternal health charts	92.82 \pm 11.58
Collecting data of nutrition charts	45.65 \pm 43.39
Collecting data on monthly written feedback	92.67 \pm 14.70
Collecting data on software reports	84.05 \pm 24.69

4. Discussion

Results showed that the compliance with components of information management in health systems being studied, according to World Health Organization criteria in urban and rural health centers, and rural health houses on assessment data, has been 25.92%, 90% and 65.96% respectively, and the highest compliance with information requirements for performance management of a health center is 46.63%. In urban health centers compliance with indicators related to data processing is equal to 33.73% and in rural health centers, 80.83% and in rural health houses, 09.87% respectively. Since the report should be set based on key issues such as the scope of policy, performance and financial support and time constraints of decision makers, information infrastructure such as composing information teams consisting of intelligence personnel and managers, provision of hardware and software infrastructures containing dynamic reports in rural and urban centers, identifying important information needs for health care management, health management, the adequacy and consistency of the data, timely access to information at all levels and ultimately self-evaluation in health centers by use of information should be

taken under consideration. Information flow in health information system follows certain principles, but, typically, data collection begins at Health Center or the community level; then the data must be sent to the center of the city. Then from the city they may be sent to the provincial level and finally to the national level and at the national level the international requirements may be assessed (8). Findings of the information needs measures of management and their collecting and processing reflect the importance of observing the six stages of information system development. This process begins at a health center by forming information groups to ensure that all employees are aware of the importance of information and collect them in the right way, collecting data from all the staff to prepare monthly reports for the health center, entering data into the computer and printing out the feedback report, referring feedback report to the center and exchange ideas about them with other group members, ensuring graph drawing and displaying them for all group members (16). In the second phase, i.e. conducting the audit data, the first strategic task of the audit data group is to find out exactly what information are collected and for what purpose. To perform this process, all employees should pay

attention to things like who will collect the data and to who they will be provided? What data are collected? In what format? Is it useful at the local level? Data were collected at what time? What is the time limit to report and act upon it? From where the data are sent? Will they be analyzed in the conclusion center in the city before being sent it to a higher level? Why are the data collected? Will they given to the person who does this job or they will be sent to the heads of the higher levels? How are the data collected? How are they concluded and converted to efficient information for local actions? (17). However, the infrastructure data collection criteria in the city's health system is observed 84.38%. Of course, city's health information system can add data and indicators to this collection according to the needs of each center (9). Although the structure and routine collection process, analysis, reporting and use of data should be modified to turn into health center orientations (16). Data analysis should indicate that city's Health management team, employees of each city sector purposefully participate in what way to improve service delivery, and how do they offer their perspectives to solve problems on a daily or weekly basis (18). A study conducted in 2006 in Malawi on health information systems showed that in health centers there are not enough computers for data entry and computers are also worn out (19). A study in 1383 titled health information system from the perspective of program managers and health experts of Tabriz University of Medical Sciences determined that regarding the status of the information system in every organization and its fundamental role in adopting the right policies, the creation of integrated systems and enabling experts in the field of information and proper use of the data is essential priorities (20). In another study entitled knowledge and attitudes of health-care managers in the application of information systems, they reached the conclusion that Managers of medical centers related to Gorgan University of Medical Sciences had average knowledge about the applications of information system, and science classes and training courses are necessary to raise their awareness (21). In a study on the localization of city health information system, other duties such as providing service to clients, data entry, and reporting it to area center was also studied (22). In a study assessing the registration status of data in health bases of Isfahan city, they found out that forms of prenatal care in 60% of cases, 42% of the forms of family planning, care for children under 6 years old in 36% of cases recorded are defective (23). While these components in general are in a higher level of compliance. So strengthening and improving health information system have been used as a starting point for improving management capabilities of health systems. Evaluation of health information systems has

demonstrated several doubts. Largest number of doubts is related to the fact that multiple sources of data are not integrated with each other. Moreover, different tools may produce diverse data about a person or event (24). Finally, adaptation of the information needs into the current health care system are tightly related to the indicators of health global organization. But what is felt as a gap in the current system is that despite observing the needs assessment and collection of information in accordance with the criteria, use of information in government policy makers and managers' decision making is yet to receive much attention.

5. Conclusions

Considering the information infrastructure, such as forming information teams consisting of intelligence personnel and managers, identifying the major information requirements for managing health centers clients, collecting data on noticeable diseases, data infrastructures of centers, medical history and family records of clients, providing a definition of data and its distribution in centers, accuracy control, adequacy and consistency of data and the ability of timely access to them at all levels to promote health information system is essential.

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