Evaluation of Health Information System Performance in Iraq,2013

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ABSTRACT:

BACKGROUND :
Health information systems in most countries are inadequate in providing the needed management support and the current health information systems are therefore widely seen as management obstacles rather than as tools.

OBJECTIVE:
The current study is an attempt to assess Health information system performance in Iraq.

METHODS:
A cross-sectional study was conducted with a total of seven districts selected from six Iraqi governorates by simple random sampling , and a total of twenty six health centers were selected from the seven districts, also by simple random sampling. The performance Diagnostic tool was used to measure Health information system performance, it is one of the PRISM package tools that are used to assess the Health information system performance.

RESULTS:
The data accuracy at the facilities was 29.03%, while at the districts was 55.35%, the completeness rate at the facility level was 96.38% and at the district level was 98.23%. For that of the timeliness, the results revealed 70.43% timeliness at the district level; the information use for a given feedback at the facility was 50% and at the district was 82.12% and for observed meeting records it was 41.6% for the facility and 50% for the district level.

CONCLUSION:
Health information system has a low data quality in the form of accuracy at the facility and district levels. The timeliness is relatively weak at the district level, while it is good in the form of completeness at both facility and district level; on the other hand information use at the district level was better than that of the facility level.

KEYWORDS: health information system, data quality, information use, performance diagnostic tool.

INTRODUCTION:

Health information system (HIS) is defined as integrated efforts to 'collect, process, report and use health information and knowledge to influence policy making, program action and research [1].

Although it is understood that improvement of the situation requires "accurate information", many developing countries do not have reliable Health Management Information Systems [2], many describe it as highly unreliable and disorganized [3]. In addition to that, health information systems in most countries are inadequate in providing the needed management support [4, 5].

Current health information systems are therefore widely seen as management obstacles rather than as tools. The reasons can be due irrelevance of the

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information gathered [6], poor quality of data [7, 8], duplication and waste among parallel health information systems [9], lack of timely reporting and feedback [10], poor use of information [11, 12], lack of national HIS policy framework and its application to plans [13], relative national HIS weak structure and limited resources [14].

Quality and timely data from HIS   are the foundation of the health system and it is considered as a core building block of the health system as a whole [15, 16], as within the health sector, choices made in the collection and use of information will determine the system effectiveness in detecting health problems, defining priorities, identifying innovative solutions and allocating resources to improve health outcome [17]. The World Health Organization (WHO) has long identified HIS as critical for achieving health for all by the year 2000 [18], as the 1978 Declaration of Alma Ata

provided an opportunity to develop HIS to reflect broader development needs with an emphasis on intersectoral harmonization of the information systems[19].

The decisions for investing in national HIS are justified on a basis of the needs for information to support decision-making and action in the health sector, the feasibility and the cost benefit of the implementation and further maintenance [20].

The primary goal of the HIS is to support evidence based decision and action in the health sector [21].

Essential and practical step here is to know the HIS performance in the form of data quality and information use. This has been done by using practical tool which is the HIS performance diagnostic tool which is one of the PRISM package tools that are used to assess the HIS performance [22].

SUBJECT AND METHOD:

A cross-sectional study was conducted for the assessment process, a total of seven districts were selected by simple random sampling from six Iraqi governorates which were selected by simple random sampling and these governorates were (Baghdad, Diyala, Saladin, Karbala, Sulaimania, and Theqar. The primary health centers were selected with a minimum of 35 percent of health centers per district reaching to 50 percent per district according to a convenient sampling technique taking in consideration security situations, a total of twenty six primary health centers were included in the study.

The performance diagnostic tool was used to measure the HIS performance, it is one of the PRISM package tools produced by Measure Evaluation together with John Snow, Inc. that are used to assess the HIS performance. It is used at the facility and district levels to assess the level of data quality in relation to completeness, timeliness, and accuracy at the district levels and accuracy of data and completeness at the facility level as well for the assessment of the level of information use in relation to discussion,

decision-making, monitoring, and promotion of information use.

The assessment has been done by interviewing with the key stakeholders that are involved in the component of the health information system including managers and representatives of care providers at districts and facility levels accordingly.

Data Quality: Data quality is measured on dimensions of data accuracy and completeness at the facility level while at district level is measured by timeliness, data accuracy and completeness[22].

Data Accuracy: Data accuracy was observed by counting numbers in the registers and matching it with what was reported in the monthly report[22]. The selected data elements at the facility level were: a) number of reported hypertension cases on screening test b) Number of blood sugar tests done in the laboratory c) Number of third visit for maternal care, and d) Number of second dose of (Hib+Hep+DPT). While at the district level the numbers of reported hypertension cases on screening test were replaced by the number of amebiasis, because the data concerning reported hypertension cases was sent to Directorate of Health without processing at the district level.

Data completeness: The completeness of the monthly report is measured by how many data elements were filled against those total data elements that the facility was supposed to fill. The completeness of the report at the district level is assessed by how many facilities who were supposed to report are actually reporting to the district [22].

Timeliness: Another dimension of data quality is timeliness. Timeliness is measured by the district receiving facilities' reports by the deadline set forth by the districts[22].

RESULTS:

Data accuracy: The data accuracy at the facilities was 29.89% for month a, 28.17% for month b and the total accuracy was 29.03%, while the data accuracy at the districts was 57.13% for month a, 53.56% for month b and the total accuracy was 55.35% for the selected two months (Fig 1).
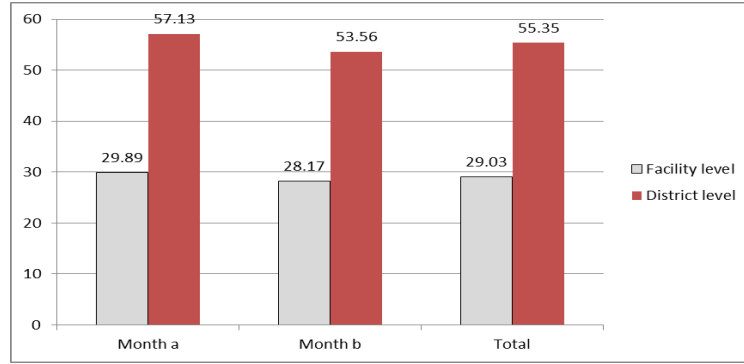
Fig 1: Data accuracy level for the selected two months.

Data completeness: It was observed that all facilities were completely filling the monthly report form but in some facilities, there were some items had not been send within the report as two facilities dismissed the reporting of a two items, one facility dismissed reporting of three items and two facilities dismissed reporting of one item with the resulting completeness rate of 96.38% at the facility level.

Data completeness at the district level were 96.46% for month a and 100% for month b with the overall data completeness was 98.23%.

Timeliness: The results revealed that 70.43% of facilities submit their reports before or on the submission deadline.

Use of Information: The use of information was assessed using two criteria. First, the availability of any kind of report (feedback, quarterly, health services) and reviewing them for use of information. Second, by observing records of facility meetings on discussion of HIS findings and decisions made based on those discussions.

It was found that 46.2% of the facilities described that a strategy was reviewed by examining services and an adjustment in personnel 38.5% was decided. Also 61.5% and 54% of the facilities showed decisions about mobilizing resources and advocacy respectively, indicating an overall 50% use of information for various decisions in the facilities (Fig 2).
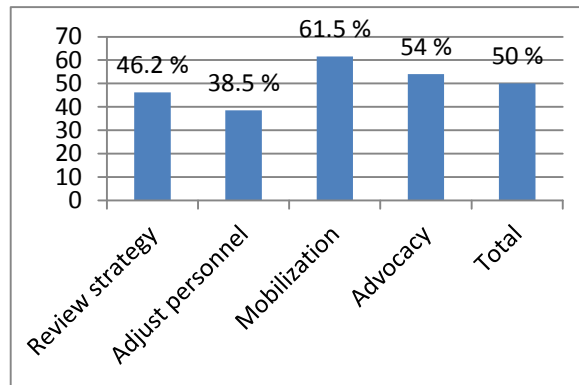

Fig 2: Rate of Use of Information at facility level

Review of the use of information at district level showed that all (100%) of the districts had reports showing appreciation and acknowledgement decisions based on number of facilities showing performance within control limits. Six (85.7%) from seven districts had reports showing mobilization/shifting of resources based on comparison by facilities. Five districts (71.4%) had reports showing advocacy for more resources and five districts (71.4%) had reports showing development or revision of policies (Fig 3),
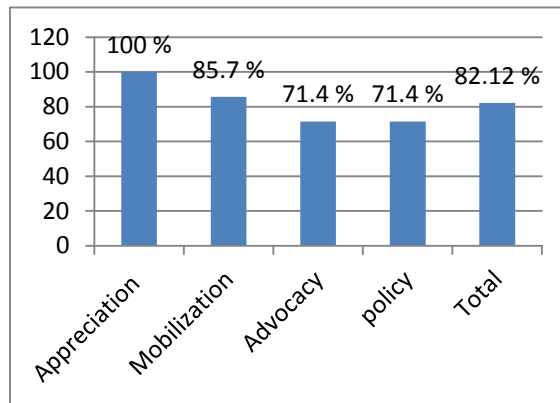
Fig 3: Rate of Use of Information at District level

About 19% of the facilities (five) had documents (meeting records) of the meetings held in the last three months. The records from those facilities showed that 50% of the facilities have discussed HIS findings and 60% made decisions after discussion of the findings. It also showed that 40% (two facilities) referred some select problems to higher levels for assistance (Fig 4).

Four out of seven districts (57%) had meeting records of their meetings held in the last three months. About 62.5% have discussed HIS findings and 62.5% made decisions after discussion of the findings. No referral of a problem was seen at the district level to higher levels for assistance (Fig 4).
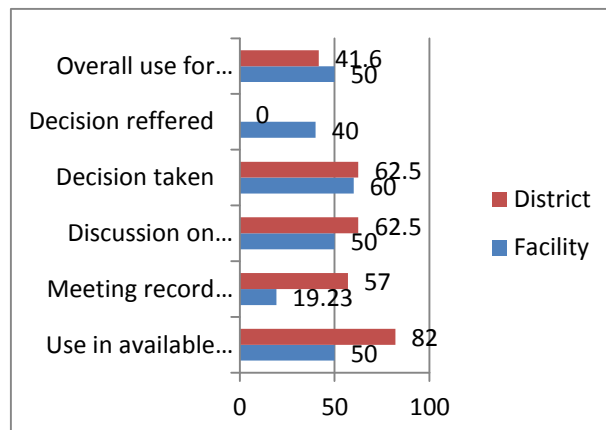

Fig 4: Percentage distribution of use of information in available reports and meeting at facility and district level

DISCUSSION:

Data accuracy at the facility level was 29.03% for all selected service indicating a low level of accuracy while it was 55.35% at the district level, indicating that data entry needs improvement.

Regarding the completeness of the monthly report, the results showed a good rate of completeness with nearly all the facilities were reporting what were supposed to report for.

The timeliness found to be 70% indicating that 70% of the facilities submitted their reports on specified date with the remaining percent submitting an outdated data requiring an improvement in this aspect reaching a more accurate submission date.

Generally the district level showed a better use of information than the facility level, regarding the availability of any kind of report or feedback the information use showed 82.12 % for the district and 50% for the facility level, this could be due to that the routine administrative function is generally directed by the district for the facilities as for example the mobilization of resources or advocacy for more resources is generally done through the district level and it is also related to the authority level that the district has, so what is expected is to see a more frequent administrative decisions at the district than the facility level. On the other hand, a limited authority that the facility

has with limited resources that are provided to the facility participated in the low use of information at the Facility level.

The use of information at the district level meetings was higher than what have been found at the facility level except for problem referral which is higher at the facility level indicating that more information use for decision making occurs at the district level. Also referrals of decisions to the higher level were not present which could indicate that the district does have a much decision power. About 40% of the facilities referred some select problems to higher levels for assistance. This could mean that they are trying to solve most problems at the local level and frequently request assistance for problems for which they have no control.

In comparisons with other countries, the level of HIS performance in our country is nearly similar to the levels of HIS performance in other developing countries as measured by data quality and information use (Fig 5) [23].
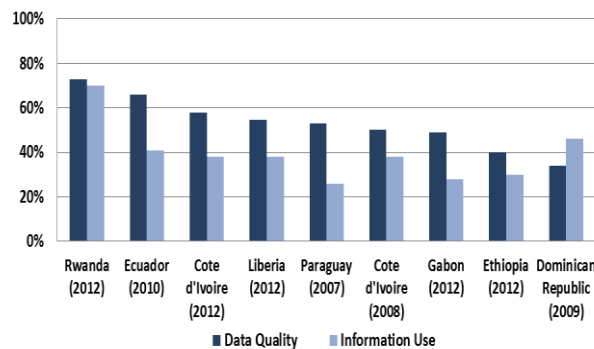

Fig 5: Levels of HIS performance (data quality and information use) in some developing countries[23].

CONCLUSION:

From this study that the HIS in Iraq has a low data quality in the form of accuracy at the facility and district levels and to that of the timeliness it is relatively weak while it is good in the form of completeness at both facility and district level; on the other hand information use at the district level was better than that of the facility level.

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