STRENGTHENING DATA MANAGEMENT OF MEDICAL RECORDS AT KABALE REGIONAL REFERRAL HOSPITAL

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A REPORT SUBMITTED TO MAKSPH MID-TERM M&E FELLOWSHIP

NOVEMBER, 2013
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ABBREVIATIONS / ACRONYMS

CDC Centre for Disease Control
CME Continuous Medical Education
DBS Database System
DBMS Database Management System
H.S.D Health Service Delivery
M&E Monitoring and Evaluation
MOH Ministry of Health
KRRH Kabale Regional Referral Hospital
USAID United States Agency for International Development
WHO World Health Organizations
OBT Output Budgeting Tool
NMS National Medical Store
SUSTAIN Strengthening Uganda systems to Treat Aids Nationally
UMSP Uganda Malaria Surveillance Program
Acknowledgements
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In a special way, we also thank the data management team for the great work done towards strengthening data systems in place.
Declaration

I, Keirembo Perry And Kisubi Joseph do hereby declare that this end of project report entitled *Strengthening Data Management of Medical Records at Kabale Regional Referral Hospital* has been prepared and submitted in fulfillment of the requirements of the Medium term Fellowship Program at Makerere University School of Public Health and has not been submitted for any academic or non academic qualifications.

Signed ………………………………… Date……………………………………
Keirembo Perry, Medium term Fellow

Signed ………………………………… Date……………………………………
Kisubi Joseph, Medium term Fellow

Signed ………………………………… Date……………………………………
Dr. Mihayo Placid
Institution Supervisor

Signed ………………………………… Date……………………………………
Mr. Kizito Bennet
Academic Supervisor
Data Management Committee
1. Hospital Director
2. Head of Medical Records Department
3. Principal Hospital Administrator
4. Incharge Medical Ward
5. Incharge Ward
6. Principal Nursing Officer
7. Incharge Maternal Child Health
8. Incharge Clinical Officers
9. Incharge OPD Department
10. Two active members
**Executive Summary**

Strengthening data management of medical records is important for planning, monitoring and evaluation which lead to improved data use and health service delivery. When hospital managers have access to timely, complete and accurate data, well stored and easy to retrieve they are able to react appropriately to existing issues like planning and allocation of resources. They are also able to plan for the future and focus on preventive and curative actions to help improve on health service delivery.

There is need for Regional Referral Hospitals to have a good data management system in place for capturing accurate, complete, timely data, which is well stored and can easily be retrieved. This necessitates need to have human and structural capacity. Such capacity can be demonstrated in the strengthened data management systems in place that ensure the production of consistent, timely and accurate data.

In Kabale Regional Referral Hospital (KRRH), Strengthening Uganda’s Systems to Treat Aids Nationally (SUSTAIN) spearheads the management of data regarding HIV/AIDS care and treatment and Uganda Malaria Surveillance Program (UMSP) concentrating on malaria prevalence and specifically on data for children under 13 years thus strengthening data management on pediatric ward. It is important to keep track of different implementing partners in data management. This can be key in making decisions about where the need is, what to expect from these implementing partners that have been working with the hospital and would put into contexts the varying outcomes of the project.

In terms of data management, data is manually handled both in storage and analysis which is time consuming and leaves a lot of room for error and inconsistence by medical records staff. There is need to strengthen the existing data management systems to integrate the multiple and bulky tools into harmonized and standardized data collection systems, then build the capacity of the staff to enhance data management skills. This will facilitate
the generation of relevant data in the hospital hence access to timely, accurate and consistency data.

The electronic database system should be designed to enable monitoring, data storage, processing, retrieval and use of data for quality decision making. In the long run, the project will enhance evidence-based decision making for management basing on the availability of quality data.

Strengthening data management has improved the quality of health care provided through increased data adequacy, data accuracy, improved skills, improved storage and retrieval of records.

In achieving the above output, some challenges were encountered like busy schedule of the hospital staff, poor attitude among others.

The project activities are now sustained due to good leadership of the hospital, improved attitude and ownership of the project by hospital staff.
1.0 Introduction & Background
1.1 Introduction to Kabale Regional Referral Hospital
KRRH is a government hospital located in the southwestern part of Uganda. It is a Regional Referral Hospital serving the districts of; Kabale, Kisoro, Kanungu, Rukungiri, Ntungamo, neighboring countries like Rwanda and Democratic Republic of Congo. The hospital lacks a strong data management system and so monitoring and evaluation of Health service delivery is impossible. Besides that, planning and informed decision making without a strong data management system to analyze data is difficult.

There are different implementing partners working in the hospital who have tried to strengthen the system but on a small scale to capture their data and report to their organization but still they capture data in specific departments to enable projects achieve their goals. Uganda Malaria Surveillance Program (UMSP) has a designed database to monitor malaria prevalence rate among children under five years thus capturing data on pediatric ward. SUSTAIN has an open MRS which is a web based Data Base System (DBS) for capturing HIV care services. Efforts have been put in place to have the projects integrate their data into hospital records department but the hospital lacks a strong data management system thus projects always print out required data and submit subjective reports to hospital medical records department.

There is need to strengthen medical records for M&E and for making informed decisions. This will also act as a link between different projects and if successful, it will be replicated in other regional referral hospitals.
Continuity of care is vital for the optimal management of medical records. It fosters trust and understanding between doctor and patient, increases confidence, reduces the chance of adverse events and increases efficiency. However, it is difficult to manage patients without accurate and correct data which can be easily analyzed thus a need to have a Data Base Management System (DBMS) in place to strengthen data management for medical records.

1.2 Background to the problem
There is need for hospitals to have human resource and structural capacity, complemented by the presence of a data management system to ensure the production of consistent, timely and accurate data. This ensures increased availability of well documented quality data which is key in improving data use in policy formulation, Program planning, monitoring and evaluation. This in the long run helps to strengthen organizational systems which then lead to improved project outcomes.

The fact that data are shared promotes consistency of information for decision-making and reduces duplication of data collection. A major benefit of databases in health care is due to the application of the information to the management of services and the allocation of resources needed for those services, but communication through the shared information among health care providers, and the validation of medical care hypotheses from observations on patients is also significant. A database system facilitates the collection, organization, storage, and processing of data. The processing of data from many sources can provide information that would not have been available before the data were combined into a database (Gio Wiederhold 1980).

An assessment conducted, revealed that there is absence of a strong data management system in place. Thus there is inaccurate, incorrect, inconsistent data which is rarely analyzed
and only subjective reports are made hurriedly and submitted to MOH. To improve on this situation, there is need to strengthen the hospital’s data management system.

1.3 Statement of the problem
Although there are other implementing partners supporting data management, they operate in specific departments like HIV care clinic and pediatric ward using specific tools specifically designed to suit their needs. There are efforts to capture data using national HMIS tools in the hospital, but data is captured manually and no analysis is done due to lack of a strong data management system. This has made data analysis difficult and therefore poor quality and incomplete data. This has led to failure to make informed decision. This data is manually handled both in storage and analysis which is time consuming and leaves a lot of room for error and inconsistence.

At hospital level there are bulky, multiple and different data collected but no analysis except making subjective reports. This is because the staffs in Kabale hospital have inadequate knowledge, skills and also negative attitude towards involvement in data management. This affects the quality of data compiled thus a need to strengthen data management system of medical records.

1.4 Justification
There is need to facilitate the generation of relevant data in the hospital. Capacity building of the staff would enhance data management skills thus have access to timely, accurate and consistent data.

Secondly, through electronic management of data storage, processing, and retrieval, use of data will be made easier thereby
effecting accurate, quality and consistent data upon which quality decisions shall be made.

Health services are likely to proactively look for opportunities for improvement. These opportunities become evident when the processes and outcomes are examined more closely. Data therefore helps to ‘push’ improvement by identifying problems, and to ‘pull’ improvement by identifying opportunities. Data helps us to understand and improve our service by giving us the tools to describe what’s going on and to compare our performance, either against known standards or against previous performance (Phiona and Jesse 2008).

1.5 Project objectives
1.5.1 General objective
To strengthen the Data Management of medical records at kabale RRH by September 2013.

1.5.2 Specific objectives
To collect adequate data for medical records by September 2013
To improve on the accuracy of data collected by September 2013
To develop a database management system by September 2013

1.6 Conceptual framework

Intervention
✓ Train staff on data management skills and principles.
Develop an electronic database management system.

Figure 3: Interface of the database developed
Increase skills and knowledge on data management.

**Figure 1: Photo of participants in the data management meeting**

- involvement of staff in project activities.
- Positive attitudes on data management.
- staff on data management.

**Outcome**
- Increased utilization of data for decision making.
- Increased capacity of the hospital staff to collect accurate data
Increased capacity of staff to collect complete data
Increased data accuracy
Increased data adequacy
Improved timeliness, quality and reporting.

2.0 Project Methodology
The project has been implemented in 3 major phases according to each set objective that was supposed to be achieved. Various methods of implementation have been used to ensure that each objective is achieved in accordance to the plan.

2.1 Implementation methods
2.1.1 Tools used
This aimed at achieving the first objective, “To collect adequate data for medical records”. This was to help the project team clearly understand the available tools and what other information needs were missing so as to set up well documented HMIS tools. To ensure that correct data is filled in HMIS tools. Some of the tools used include Face sheets, inpatient treatment forms. Laboratory request forms among others. Medical records staff have been trained on how to extract data from HMIS tools to the electronic database and how to analyze this data and produce reports.

2.1.2 Trainings
This aimed at achieving the second objective, “To improve on the accuracy of data collected”. Appreciation of data management activities is crucial to the success of a strengthened system in place.

Data is the raw material from which information is constructed via processing or interpretation. This information in turn provides
knowledge on which decisions and actions are based (Phiona and Jesse 2008).

This project aimed at using available staff, already existing tools, to improve on the accuracy of data collected. Ward staff, medical records staff and other key people in the hospital have been trained on basic data management which included data capture, data use, and data reporting among others. The process of enhancing data utilization was emphasized to build the capacity of hospital staff to get hands on experience in data management.

Continuous mentorship has been done to emphasize the need for accurate data collection and to follow on the trainings conducted to ensure proper and right use of the available HMIS tools.

Due to the busy schedule of the hospital staff, a date for one day training was set with consultation from the key hospital managers. However the training was attended by some staff on day and evening staff on targeted staff. The training focused on the use of HMIS tools to capture complete and accurate data, and making reports.

2.1.3 Designing electronic data management system
This aimed at achieving the third objective, “To develop a database for capturing medical records”. This involved strengthening data management of medical records. This helped minimize errors and inconsistencies and improve efficiency in terms of time and quality which were brought about by manual data management. The electronic data base designed is unique in that it is able to collect information on Patients bio data and track the duplicated clients served. The control measures have been built in to reduce errors and give access to only authorized users.

It has been designed in a way to increase the centralization of information collected by the different wards. Furthermore, the database also suits the initial aim of MOH by capturing all data elements as required by HMIS forms. It also considers HMIS 108 reports as required MOH.
Data entry is an important step in your data management process and can be a source of considerable error if not undertaken carefully. Appropriate training for the data entry personnel is important, including ensuring a basic understanding of the data they are entering (Phiona and Jesse).

At least all 4 records staff have been trained on how to use this database including entering data, analyzing it, printing out reports and answering or printing search queries. The database has been tested by entering some of the data collected and it is proved beyond doubt that the database captures all the relevant data to produce required reports.

2.1.4 Consultative Meetings
These meetings were necessary because it was a way to give feedback and also get support from the staff as the project was being implemented. This method further ensured everyone was on board with all new ideas and documents developed.

2.1.5 Participatory
The project also included a number of participatory methods which enabled all staff direct involvement in the project. This has been another way of ensuring sustainability because staff are more likely to continue implementing ideas that they themselves have initiated.

2.1.6 Determining a data management team
This team is meant to verify filled HMIS forms and all reports compiled by records department before it is submitted to the MOH, they sit on a monthly basis and go through all indicators reported on to ensure that good quality reports are made and submitted to the ministry of Health.

3.0 Project Results
3.1 Objective 1: To collect adequate data for medical records.
3.1.1 Output level
1. **a) Tool used:**
The tools used for data capture that are accurately and correctly filled by staff. Mistakes like name, age, village, are no longer in existence thus fostering proper planning and informed decision making.

2. **Providing**
HMIS data tools identified to be lacking and most likely affecting data capture and eventual use.

### 3.1.2 Outcome level

**a) Increased utilization of HMIS data**

1. Staffs appreciate data management to make appropriate decisions that improve the efficiency and effectiveness data management system.

2. Quality reports are now produced and this has helped improved management planning process. Management is able to know the disease burden, occupancy rate and quality of care.

3. Improved skills among staff on data analysis and management.

4. Evaluation of patient care given by staff.

### 3.2 Objective 2: To improve on the accuracy of data collected

#### 3.2.1 Output level

**a) Trained staff:** KRRH hospital staff have received knowledge and skills on basics of data management through direct training and involvement in the project. These included the hospital key people/managers, Doctors, Nurses, and Records staff.
3.2.2 Outcome level

a) Increased staff capacity in data management
The project has been able to build capacity of staff so that they can be able to carry out data management as a shared responsibility.

Hospital staffs have been able to gain knowledge and skills through executing different activities in data management, through trainings and meetings conducted.

There has been change of attitude towards data management by staff. It is now a shared responsibility of all staff to ensure that quality data is managed at the hospital. The capture of accurate data has improved diagnosis of patient and general patient care is steadily improving as a result of quality data.

3.3 Objective 3: To design a management database.

3.3.1 Output level

a) A database designed: An electronic data management system has been established to capture, store and retrieve data. No matter how well a spreadsheet or database is designed, it will not be able to serve its purpose if the data it contains are inaccurate or incomplete. Maintaining the quality of data in a spreadsheet or a database requires diligence, planning, and constant monitoring. Clinical managers must be taught to evaluate the quality of data prior to using the data to make decisions. It is always faster and more efficient to prevent inaccuracies or incomplete data during the data entry process than it is to find and fix problems after the damage is done. Several strategies can improve the quality of data in a database (Debbie and Larry 2008).

☑ Improved quality of data
Easy access by all authorized users
Improved storage of data
Back up data
Sharing of information has also become much easier as data is no longer personally owned but put in one accessible location
Increased security due to creation of strong walls to guard against system hackers.
Running different queries is possible on different records

Figure 5: Outlook of a database with data in.
Figure 6: Snapshot of the report made

<table>
<thead>
<tr>
<th></th>
<th>Male(0-4)</th>
<th>Female(0-4)</th>
<th>Male(5yrs and above)</th>
<th>Female(5 yrs and above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>UTI</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tetanus</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sleeping sickness</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other Meningitis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anemia</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asthma</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

OUTCOME LEVEL
This has enabled all data to be centralized in one place and data retrieval is done with ease.

4 Lessons learned
Participatory method works: Where staffs do not feel genuine ownership for the commitment to the project, they may feel threatened by the use of imposed systems or indicators, associating them with sanctions or seeing them as bureaucratic control mechanisms. Using participatory methods help people appreciate more what has been done and will give them a sense of ownership.

Adequate data management system causes efficiency: Working with clear data management systems creates a lot of efficiency especially making decisions with a basis for evidence.

Leadership is Key: It is crucial at senior level management in organizations to get involved. Experience has shown that there may be technical issues in an organization that need fixing but technical solutions can only be effective and sustainable if
undertaken in an environment of change lead by the top. The team of fellows at KRRH was headed by the Hospital Director and this has helped project activities to move on smoothly.

**Figure 4: Meeting with supervision team**

![Meeting with supervision team](image)

### 3.3 Challenges experienced and how they were overcome

**a) Poor attitude of staff:** At the beginning of the project some staff liked the idea while others ignored the idea saying it was a responsibility of data and records officers to be involved in data management activities. During the course of the project, they came to appreciate the idea after realizing that data quality and use starts at a point of data capture. All staff have been able to appreciate their role in the process of data management.

**b) Busy work schedules:** Since the project was targeting all hospital staff who work on different shifts like day, evening and night, gathering all those as the team for meetings has been a challenge. Mentorship has been done during the time they are on duty like day and evening.

### 4.0 SUMMARY, CONCLUSION AND RECOMMENDATION

#### 4.1 Summary and Conclusions
One of the major issues that KRRH had was an inadequate data management system in place. Though this has been tackled by the team, the establishment of a strong data management system has been discovered to be a strategy to improve on reporting. The reporting date was always on the deadline day of 15\textsuperscript{th} next month but has now improved to 10\textsuperscript{th} of next month after strengthening the system.

The project has been able to provide knowledge and skills to staff and also provide them with the necessary resources to enable them get more involved in data management.

At Hospital level, this project has been able to set up a clear guiding data management system of medical records. Through establishing an electronic database, the project has been able to build the organizations capacity to enable it track performance through use of data collected.

Furthermore, capacity has been built by establishing an electronic data system which increased records staffs’ capacity to report on time and produce quality reports.

This shows that with a well-established data management system in place, project implementation can be made effective, efficient and increase the quality in terms of results, decision based planning like evaluating patient care, deployment of staff.

4.2 Recommendations

a) To the institution, we propose that a similar procedure be followed to rollout the data management system put in place to intergrate all services. This will ensure a comprehensive and strengthened system for the whole hospital

b) The hospital need to centralize their data management system by pulling all implementing partners feed into the hospitals central database.
C) Upgrading the system to internetwork it with different departments for easy accessibility to all health care providers. However, need for access rights need to be considered, these stakeholders need to have limited access and no rights to delete, edit or print a record.

4.3 Next Steps
a) First, dissemination of the results and sharing lessons learnt from this project with staff and management as a way of kick starting the organizational process of strengthening data management systems. Since it was a pilot study, there is need to roll it out to other departments.

b) Build on the success of this project to scale up other components of data management systems within KRRH which will eventually lead to strengthened organizational data management system.
REFERENCES
A guide to using data for health care quality improvement
June 2008-The Victorian quality council(Fiona Landgren and Jessie Murray)

The Emerging Field of Informatics Debbie Travers, and RN; Larry Mandelkehr, CPHQ March/April 2008, Volume 69.

Databases in healthcare by Gio Wiederhold march 1980
Computer science department - Stanford University.
Dear Sir/Madam,

RE: STAFF MEETING ON DATA MANAGEMENT

M&E fellows hereby invite you for the above meeting to discuss issues concerned with data management to provide useful information for effective decision making and planning.

The issues to discuss will rotate around data management.

The meeting be on 31st May 2013, it will start at 09.30am to 4.00pm.

Yours sincerely,

Keirembo perry
M&E fellow
5.2 Appendix 2

Kabale Regional Referral Hospital
P.O.Box 7, Kabale
June 20th, 2013

To:

Dear Sir/Madam,

DATA MANAGEMENT TRAINING FOR RECORDS STAFF

This serves to invite all records staff for five days training on data management, understand the key indicators reported on under HMIS 108, the importance of data quality, how to present information about services provided, where data for 108 is collected from.

The start time is 9:00 up to 5:00 throughout the five days.

Yours sincerely,

Keirembo perry
M&E fellow