REDUCING INCOMPLETENESS OF MEDICAL RECORDS AT OUTPATIENT SERVICE IN BIRYOGO HEALTH CENTER

A dissertation submitted in partial fulfilment of requirements for the Degree of Masters in Hospital and Healthcare Administration (MHA)

by:

MULINDWA Venuste

Supervisor: **Dr SAGAHUTU Jean Baptiste (PhD)**

Co-Supervisor: **RUBEGA Lauben**

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DECLARATION

I, MULINDWA Venuste, hereby declare that this capstone thesis project entitled "Reducing incompleteness of medical records at outpatient service in Biryogo health center" is my original work, and has never been submitted and presented in any University or other High Learning Institution. External contributions to the research are acknowledged.

Signature ………………………………………………

MULINDWA Venuste

DEDICATION

I dedicate this capstone thesis to:

My mother: MBABAJENDE Berancille,

My wife: UWISHEMA Valerie, and

My children: Peace Mulindwa Paladi, Prince Mulindwa Bruce and Parfaite Mulindwa Ella

ACKNOWLEDGEMENT

ABSTRACT

Introduction

The medical record keeps and provides administrative, clinical, legal and financial data of the patient whether admitted to hospital or treated as outpatient. Good medical record keeping is at the forefront of medical practice and what is not written is considered as not done. Patient record completeness is a considered as a quality indicator of patient medical record by accreditation bodies worldwide, as WHO recommended fully (100%) completeness of MR.

Objective

The objective of this research is to decrease the rate of incomplete medical records in outpatient service of Biryogo health center, from 21.9 to 5% per cent from January 2017 to June 2019

Method A pre and post interventional design was employed, and the intervention was to establish medical records' policy regarding completeness of MR.

Result

The intervention reduced significantly the incompleteness of MR, from 22% among 6489 patients' files to 1% among 6923 patients' files in pre and post interventional period respectively, with P-value inferior to 0.001.

Conclusion

The hypothesis that the use of policy regarding completeness of medical records, would improve completeness of MR, was confirmed. The systematic problem-solving approach generates good results in improvement of quality of healthcare service. The problem-solving approach that involves concerned people in the occurrence of the problem produces good results in the improvement of healthcare services.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

BC: Before Christ

CMHS: College of Medicine and Health Sciences

CPDs: Continuous Professional Developments

DH: District Hospital

HC: Health Center

HIV / AIDS: Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome

IRB: Institutional Review Board

ME: Monitoring and Evaluation

MHA: Masters in Hospital and Healthcare Administration

MR: Medical Records

NC: New Case

OC: Old Case

OPD: Out Patient Diseases

PBF: Performance Based Financing

P: P-value

STI: Sexual Transmitted Infection

WHO: World Health Organization

DEFINITION OF KEY TERMS

1. Medical record:

Medical record by definition is a "collection of data on a patient including a history, statement of current problem, diagnosis and the treatment procedures."(1) Thesaurus dictionary add more and states that a medical record is "A chronological written account of patient's examination and treatment that includes thepatient's medical history and complaints, the physician's physical findings, the results ofdiagnostic tests and procedures, and medications and therapeutic procedures".(2)

2. Incomplete Medical Record:

The reference was done to the WHO which states that MR should be completed at 100%,(3) and it was defined, in this project, that the incomplete MR is any file of patient which has at least one of the components of its format which was not filed in within the stay's period of patient at a health facility from which the patient has received treatment care.

CHAPTER I: INTRODUCTION

1.1   BACKGROUND OF THE STUDY AREA

Biryogo health center (Le Centre Medico-social de Biryogo "Kwa Nyiranuma") was established in 1973, and is a property of Catholic Church through Archdiocese of Kigali. The management of this HC was trusted at a non-profit organization called 'Institut seculier Vita et Pax'. The main objective of this center was to increase the integrated development of human progress, social, culture and religious, with promotion of woman and young girl especially, therefore contribute to the promotion and protection of Rwandese society. The convention about collaboration and interdependence has been signed between the owner of the medico-social center and Ministry of Health.(4)

The center is located in administrative Sector of Biryogo, District of Nyarugenge in Kigali city. It operates under supervision of Muhima District Hospital, and serves 33,158 populations under its catchment area.

The center has following services: Reception, Outpatient, Prenatal consultation, IMCI, Anti-retroviral drugs, Wound dressing, Pharmacy store and Pharmacy distribution, Immunization, Secretariat, Accounting, Nutrition, Social service, Tuberculosis, Data management, Voluntary Counselling and Testing, Non communicable diseases, Ophthalmology, Circumcision, Post-natal care and PMTCT.

Table 1: NUMBER OF EMPLOYEES BY CATEGORY

Category of employees	Number
Nurses A0	1
Nurses A1	4
Nurses A2	15
Auxiliary nurses	1
Midwife A1	1
Laboratory technicians A2	4
Nutritionists A2	3
Social workers A2	6
Social workers A3	1
IT technician A1	1
Accountant A2	1
Cashier A2	1
In charge of Community Health workers A1	1
In charge of sawing rooms	2
Driver	1
Other supporting employees	2

Biryogo health center has got a total number of 45 employees, 11 work in outpatient service which is composed of three consultation rooms for adult outpatients.

On average, 76 patients are received daily. The health center operates seven days a week in working hours during the day, as it does not have hospitalization and maternity services.

The management team of the HC, reported that uncompleted medical records have been a problem that this health center faces. For previous years, hospital supervision team reported regularly the problem of uncompleted MR and recommended for improvement. Health center management team revealed that money from PBF allocated to Biryogo Health center was reduced due to incomplete medical records.

1.2 Problem statement

There is a problem of incompleteness of medical records at outpatient service of Biryogo heath center. To select problems, the researcher had a meeting with medico-social center of Biryogo staff together with the management team. The researcher discussed the purpose of the project to the whole team and requested their support to address problem raised, thus asked them the main problems to be solved; they exposed two main problems: low number of employees to serve patients and incompleteness of patients' files.

Brainstorming with health center management team was done to discuss on the problems. Incompleteness of medical records took a priority as it was feasible, cheap and had a big contribution in the overall performance of health center. About reliability and confidence in healthcare services provided by health center; the management team expressed the need to solve this problem at first time.

Problem-prioritizing matrix was used to choose the problem with big impact and which is common. To check whether the problem is a real problem, data regarding the problem was collected and analyzed.

Table 2: PRE-INTERVENTIONAL DATA ON COMPLETENESS OF MR AT BIRYOGO HC

This following table shows the data on magnitude of the problem of incompleteness of MR at adults' outpatients service of Biryogo HC.

Overall completeness of MR in pre-intervention period			
Completeness categories	Incomplete	Count	1423
		% within Study period	21.9%
	Complete	Count	5066
		% within Study period	78.1%
Total		Count	6489
		% within Study period	100%

Table 3: DETAILED PRE-INTERVENTIONAL DATA ON COMPLETENESS OF MR AT BIRYOGO HC

The following table presents data in details on completeness of MR, component by components throughout all elements of a MR format

Number	Element MR form	Complete		Incomplete	
		Frequency	Percentage	Frequency	Percentage
1	Names of patients	6481	99.9	8	0.1
2	Head of family	6483	99.9	6	0.1
3	Address	6474	99.8	15	0.2
4	New or old case	6487	100	2	0
5	Type of patient	6489	100	0	0
6	Age	6483	99.9	6	0.1
7	Sex	6489	100	0	0
8	Weight	6489	100	0	0
9	Signs and Symptoms	6482	99.9	7	0.1
10	Laboratory investigation and Results	6166	95	323	5
11	Pregnancy status	6489	100	0	0
12	Diagnosis	5774	89	715	11
13	Treatment and action	5934	91.4	555	8.6
14	HIV and other STI	6301	97.1	188	2.9
15	Outcome of Treatment	6487	100	2	0
16	Patient file number	6026	92.9	463	7.1
17	Type of insurance	6489	100	3	0

1.3 Objective

The objective of this research is to decrease the rate of incomplete medical records in outpatient service of Biryogo health center, from 21.9 to 5% from January to November 2018.

1.4. Hypothesis

Ho: Establishment of medical records' policy regarding completeness of medical records will not improve completeness of Medical records

H1: Establishment of medical records' policy regarding completeness of medical records, will improve completeness of Medical records

1.5. Justification of the study

When the required information is not available in medical records, the caregiver does not have complete information to make decision,(5) therefore full completion of medical records is an obligation and responsibility of medical personnel involved in their production. World Health Organization recommends full completeness of medical records and states that incompleteness of medical records is among indications of poor quality services.(3) The meaning of completeness is given by the international standard which states that medical records are expected to be completed at 100%.(6) Data on completeness of MR were collected in outpatients' service, from consultation registers of adult outpatients at Biryogo health center from September to November 2017. Among 6489 files of patients received, 1423 were incomplete; incomplete rate was 21.9

The gap of 21.9% identified, is higher enough to impact negatively the quality of health services. The researcher together with the management team of the health center have judged this gap to be a problem with high magnitude and pledged together a united commitment in solving the problem.

To take the target to improve from 21.9% to 5% of gap in completeness of medical records, the researcher has referred to a similar study done in 2016, at Menelik Hospital in Ethiopia where they have improved medical records at 11% within 8 months.(6)

Referring to the root causes analysis, low ME was said to be the cause of not fully completing medical records. On the side of administration of HC, lack of internal monitoring and evaluation regarding completion of MR was the reason behind the production of incomplete MR at Biryogo HC. Therefore, the initiation of the regular system concerned with internal monitoring and evaluation regarding completion of medical records was suggested to improve completion.

1.6 Organization of the dissertation

The capstone is organized into chapters; chapter one describes the health care setting in the background and includes, problem statement, objectives, hypothesis, justification of the study, and organization of the dissertation. Chapter two contains the literature review and discusses usefulness of medical records, recommendation for completeness of MR, and impact of incomplete MR on quality of health care services. Chapter three shows the methodology used in the study including, study design, root cause analysis, sample size, sampling techniques, data collection methods, identification of root causes of the incompleteness of medical records.

It also includes the selected intervention to improve completeness of medical records, measurement of indicators of implemented intervention, data analysis procedure and ethical consideration.

Chapter four presents the results from creation of internal regular system of monitoring and evaluation regarding MR, on completeness of MR in outpatient service at Biryogo HC, before and after the implementation of the intervention.

Chapter five discusses the results obtained and makes comparison with others from similar studies. In addition, this chapter presents the challenges; limitations countered during implementation and applied solutions. Chapter six provides conclusion and recommendations regarding results of the intervention.

CHAPTER II: LITERATURE REVIEW

In this chapter, readers will find a general overview on and advancement achieved in making a developed MR, furthermore they will be informed on usefulness and need of completeness, and the negative impact of incomplete MR on overall quality of healthcare service, this chapter will end with presentation if gaps in completion of MR in different countries.

1.1 General overview on Medical record.

The MR, also known as patient file, or health record is any physical document for classic documentation, or account for electronic documentation. It is a file compiled by physicians and other health professionals which contains and documents about the patient's identity, examinations, medications, actions and other services that have been provided to the patient. It also includes patient's medical history, present illness, findings on examination, details of treatment and progress nots, indicating the evaluation of the patient's condition, drug effects, drug effects, effects of other health care acts and it is a legal record of care.(7,8)

The main purpose of the medical record is to record the fact about a patient's health with the emphasis on events affecting the patient during the current admission or attendance at the healthcare facility, and for the patient when they require healthcare in the future. The medical record keeps and provides administrative, clinical, legal, and financial data of the patient whether admitted to the hospital or treated as an outpatient.(3)

1.2 Historical advancement towards a developed medical record

The history of use of health records date back to 3000 BC by the Egyptians when they started keeping the oldest form of health records. In ancient Greece, doctors recorded symptoms and treatments. With the historical evolution in the 14th to 15th century, doctors' records developed and included advices on Nutrition and effective methods of treatment of the disease and also notes on autopsies. Since 1750, doctors have been keeping health records in hospitals as a record of systematic and objective health practice. The early 20th century saw an expansion of education in hospitals, which increased the need for standardized health records, some countries have improved medical record to health records which contain health information from birth to death.(3,9) Furthermore, the progress in production of medical records has advanced that today health facilities hold records electronically, manually, or a mixture of both.(10)

May changes occurred in health care delivery today, the medical record is often referred to as the health record. Being called a health record, generally refers to a broader view of health care in many countries. A health record actually means a single record of all data on an individual's health status from birth to death, including birth records, immunization records and records of all illnesses and treatments given in any health care facility. However, this type of record is not maintained in many health care facilities today.(3)

1.3 **Usefulness of medical records**

The content of medical record is the essential element which counts more in composition of good medical record, and the usefulness of the medical record such as documentation on the course of the patient's illness and treatment.

Being a communication tools between attending doctors, and other health care professionals providing care to the patient for the continuity of care of the patient. It serves as a data source for research for specific diseases and treatment, a source of data collection of health statistics to justify the target for the full completeness of medical records as it recommended by world health organization.(3,6,10)

Furthermore, patient's record completeness is considered a quality indicator of the of patient medical record by accreditation bodies worldwide; it helps healthcare providers to reduce medical errors and in discipline of forensic medicine quality medical record is the valuable information for policy makers. Documentation is a key form of communication between healthcare providers, and provides evidence to support the quality of the care and decision-making. If the quality or safety of patient care is taken in a legal or disciplinary proceeding or investigation of a complaint, the health records becomes a primary piece of evidence in determining whether appropriate care was provided given clinical circumstance.(10) Considering the usefulness of medical records, and importance of data extracted from those records, WHO has recommended that medical records should be completed at 100% for avoidance of the effect of the incompleteness of the medical record affecting data and report information that ultimately affects the patient, health care services and health system.(6,12)

2.4 Gap in completion of medical records

It is considered that medical records can be fully completed by health professionals involved in providing health care services; either medical doctors, nurses and other allied health professionals. According to the level of healthcare services being hospital clinics or health center.

As regard identifying main causes of record incompleteness including lack of knowledge and attitude of health professionals towards medical records, unavailability of materials such as forms for some health facilities. A study was done on attitude of health professionals regarding completeness of medical records and revealed that mean attitude score was 88.1±17.6 among those who completely fill the records compared to 58.9±25.9 and this difference was statistically significant (p=0.003).(13)

Another study conducted from September 2015 to April 2016 at a governmental hospital found in capital city of Ethiopia, the study showed the incompleteness of overall medical records at 73%, considered as baseline data. A pre-post interventional study was conducted, and an improvement of 11% on completeness of medical records was achieved as improved from 73% to 84% (P value < 0.05).(6)

On measuring the completeness of medical records, a study was conducted at a Family Health Centre at El Shorouk City, Cairo, Egypt and revealed the incompleteness at 51.5% in documentation of general examination. Regarding the extent of compliance with the criteria of recording the patient visits the study revealed that the personal data was filled in 86.5% of reviewed records, while 81.5% of records were signed, 85.5% of records showed the date of visit, complaint and diagnosis, (83.5%) of records had recorded vital signs.(13)

It is important to note that the consulted literature did not help the writer to have more documentation on completeness of medical records and measures taken to improve incompleteness of medical records in Rwanda.

However, the study conducted on completion of medical records in maternity unity of Munini DH showed that the level of completion of MR was at 25%, while another retrospective review of all physiotherapy registers, from five purposively selected hospitals in and around Kigali, showed that missing entries were observed on 55%.(14,15)

CHAPTER III: METHODOLOGY

3.1 Study design

In this study a pre and post interventional design was used.

The baseline data were collected on medical records produced in September, October and November 2017, and post interventional data were collected in September, October and November 2018.

3.2 Root causes

Starting point was a meeting with health center manager, data manager and nurses working in consultation of outpatients and discuss about the issue of incompleteness of medical records, focusing on identification and analysis of root causes of the problem.

Brainstorming was used for listing possible root causes of the problem; thus, the following were enumerated: work overload, low monitoring and evaluation on completion of medical records, stool examination not done beyond 11 am at laboratory of the health center, unavailability of registers used in consultation, and insufficient space of consultation rooms.

To list the enumerated possible root causes of incompleteness of medical records, fishbone diagram was used to classify them into four categories; assessing whether causes originate from people, policies and procedures, environment, or from equipment issues.

3.2.1 Sample size

In this study three samples were used: the first one is composed by eleven nurses working in consultation service, which were considered for interview.

The second is composed by 6489 files produced in outpatients' consultation service of adult, from September to November 2017, used in pre-interventional part, and third sample were composed by 6923 files produced from September to November 2018, used in post intervention part.

3.2.2 Sample technique

All nurses working in consultation room were considered for the interview done for data collection about root causes of incompleteness of MR in outpatient services, while other nurses which do not work in consultation room were excluded.

For data collection on completed and uncompleted MR, a period of 3 months was judged to have enough data to conclude on level of completeness of MR at health center, the period of September to November 2017 was considered as containing fresh data and accessible at the time of data collection for pre-interventional period, while the period of September to November 2018 was considered as the immediate post interventional time to test result of intervention.

Therefore, all 6489 files produced in outpatients' consultation service of adult patients produced in three months; September, October and November 2017, were considered as primary source of data used in pre-interventional part, while 6923 files produced in outpatients' consultation service of adult patients produced in September, October and November 2018 were considered as source of post intervention data.

3.2.3 Data collection method

An interview guide was used as tool of data collection about possible root causes, and selection of real root cause of incompleteness of MR. A designed tally sheet was used to collect data from consultation registers, for measurement of the magnitude of the problem, data were collected and analyzed in order to find out results for the baseline survey.

After collection, data were entered into Microsoft Excel, then imported in SPSS version 21. The SPSS software was used to analyze data and find out the magnitude of the problem in pre intervention study and in measuring the results of intervention using post interventional data. The researcher was checking one after another of all patient files produced in study period and each one of all components were viewed through. A file is considered as complete or incomplete MR if all spaces provided are filled or not fully filled respectively. All incomplete MR were recorded in the tally sheet with highlights indicating all components having gaps for each considered MR.

3.2.4 Presentation and selection of root causes

3.2.4.1 Presentation of root cause

To identify the root cause of incompleteness of MR at outpatients' consultation for adults, at Biryogo HC, possible root causes were enumerated by nurses involved in production of MR, thereafter, classification of those possible root causes was done using fishbone classification in four categories of possible root causes, as presented in the following part. The selection of the real root cause was done by consideration of the more prevalent root cause, selected by nurses, producers of the concerned MR.

Figure 1: FISHBONE REPRESENTATION OF POSSIBLE ROOT CAUSES

Fishbone Diagram

Environment
- Overcrowded consultation rooms

People
- Negligence/Low ME
- Work overload/ Low number of staff

Policy / Procedure
- Some labo exams not done beyond 11 am

Equipment
- insufficient equipment in consultation rooms

Incompleteness of patients' file
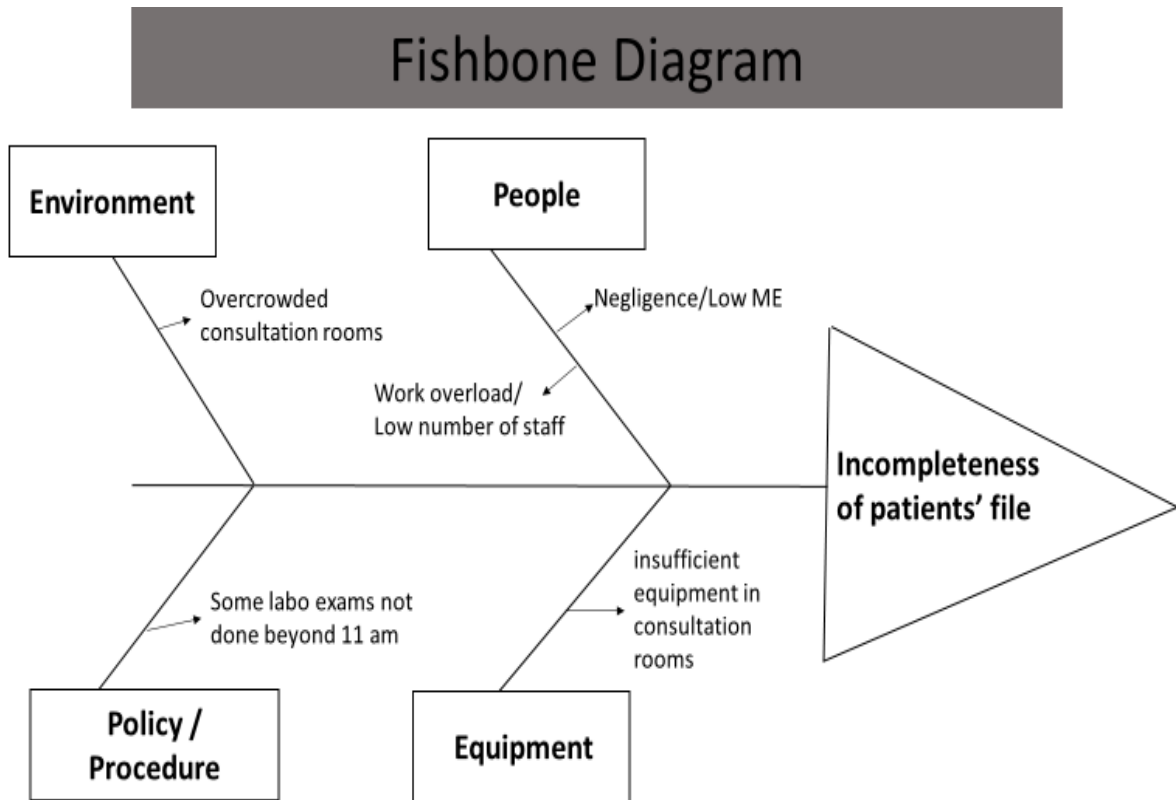
3.2.4.2 Selection of root cause

An interview followed by data entry and analysis in excel sheet was used to rank possible root causes according to their order of importance. Lack of monitoring and evaluation on completion of medical records was considered the root cause as was selected at 54.6% by nurses working involved in production patients' records.

Time at which stool laboratory exams are done, have been enumerated as root causes at the frequency of 27.2%, and incomplete files containing component of laboratory exam cover 11.25% of uncompleted MR.

Observation done on analyzed data from the interview, work overload was selected to be the root cause at 18.2%. Other two suggested causes were; unavailability of equipment used in healthcare provision and related to production of MR, then space and location of consultation rooms. However, none of both were selected to be the root cause of incompleteness of medical records according to the results of the conducted interview.

Furthermore, by observation of the researcher, registers to use could not be an obstacle, as far as no stock out or inaccessibility to registers reported. Consultation rooms are well equipped with 3 chairs, consultation table and bed, light was enough and each room is near the patient's waiting sits line.

Based on results of analyzed data from conducted interview, lack of monitoring and evaluation on completion of medical records was considered to be the root cause of incompleteness of MR at outpatients' service at Biryogo HC, and will be affected by an intervention for the next step in the process of strategic problem solving.

3.3 Intervention

This section presents alternatives solution to address the root cause, and it describes the process used to select the applied intervention among other proposed possible solutions through comparative analysis of possible solutions.

3.3.1 Alternative solutions

3.3.1.1 Establish medical records' policy regarding Completeness of medical records

The system of monitoring and evaluation regarding completeness of MR was proposed to be the best solution. It involved both producers of medical records at one side, and health center management team on the other.

Individual monitoring and evaluation for each nurse working at outpatient service was regularly done and accompanied with regular feedback shared to producers of medical records for good progress. All 11 nurses were given their own registers to use within post intervention period. No nurse was allowed to use the register of another nurse. The individual monitoring and evaluation were done easily by taking one register to evaluate how one nurse using it was performing completeness of MR.

3.3.1.2 Establish individual motivation program based on performance in completion of medical records

Motivation is included among tools used in achievement and maintenance of quality healthcare. It was shown that workers who are motivated and excited about their jobs carry out their responsibilities to the best of their ability.(16)

It was proposed that an individual motivation of producers of MR regarding completion of medical records could be a solution to overcome incompleteness of MR. This performance evaluation was proposed to be done periodically accompanied by rewarding or punishment.

3.3.1.3 Create electronic medical records system

Electronic medical records system is the easiest method of recording medical information of the patient, and the system can be made in order to deny to start recording a new patient's information while the is any remaining information to be completed to the previous. This recording system should solve the problem of incomplete medical records.

3.3.1.4 Create an initiative of ownership among nurses

This initiative can be a solution that works well in delivering good service and improving performance, it is about making employees owing the institution / activity for themselves thus create a self-motivated working spirit which lead to high productivity. This can be linked to "Nk'wikorera" campaign initiated by Government of Rwanda through Ministry of Local Government / Rwanda Government Board.(17)

3.3.2 Comparative analysis of alternative solutions

Four comparative criteria are used: impact, cost, time, feasibility, and each of proposed solution will be analyzed through all of these criteria

Table4: CRITERIA AND COMPARATIVE MATRIX OF CRITERIA

Criteria (5: good; 1: bad) / Strategies	Impact	Cost	Time	Feasibility	Total
Establish medical records' policy regarding completeness of medical records	4 (Big impact)	5 (cheapest)	4 (few time)	4 (easy to apply)	**17**
Establish individual motivation program based on performance in completion of medical records	4 (big impact)	3 (medium cost)	3 (medium time required)	4 (easily applicable)	14
Create electronic medical records system	5 (highest impact)	1 (highest cost)	2 (long time needed)	2 (Aged nurses!)	10
Create an initiative of ownership among nurses working	3 (medium impact)	5 (cheapest)	3 (medium time required)	2 (hard to change behavior)	13

3.3.3. Selection of final solution

To select final solution the research discussed with the management team and nurses working in outpatient consultation service, a brainstorming was employed and 'establishment of medical records' policy regarding completeness of medical records' was chosen as the best solution to apply as it weights over other proposed solutions, considering effectiveness, time frame, financial cost and feasibility as presented in the criteria comparative matrix.

3.3 Measurement of outcome and process indicators.

The following table presents one outcome indicator and two process indicators, which were observed in order to assess the implementation of the selected intervention.

Table 5: PRESENTATION OF OUTCOME AND PROCESS INDICATORS

Indicator	Definition	Who	Where to get info	When
Completeness of medical records (outcome indicator)	=Number of fully completed files / total number of produced files	Data manger	Tally sheet (data from OPD file)	At the beginning of each month, using data of previous month, starting one month after implementation
Availability of policy regarding completeness of MR	The printed policy is available in consultation rooms	Health center manager	Into consultation rooms	At the end of intervention time
Training of OPD nurses (process indicator)	Nurse working in OPD understand the rationale of completeness of MR	Health center manager	Attendance list in training of nurses	At the starting of intervention
Use of book coding system (process indicator)	Each book used in OPD has a code related to the user	Data manager	Round for observation in consultation room	Post intervention (immediate)

3.4 Data analysis procedure

Pre and post intervention data were entered into excel sheet from where they were imported into SPSS statistical analysis software to analyze data. The overall percentage was calculated to show the level of incompleteness of medical records in pre intervention period. Considered as baseline or magnitude of the problem, and the same calculation was done in post intervention period to show the level of incompleteness of MR after the implementation of selected intervention. The advanced analysis was done on each of seventeen components completed by a nurse in a MR, which show the individual contribution of each of the components in the overall incompleteness' percentage for both pre and post interventional data. The chi-square test was done and the P-values to show the level of significance; whether implemented intervention significantly improved completeness of medical records at Biryogo Health Center.

3.5 Ethical consideration

Ethical clearance was offered by CMHS-IRB, for data collection and processing about reducing medical records incompleteness at Biryogo Health Center.

Information about completeness of MR, were obtained from registers of outpatient's consultation. The data collection was done within the Health Center, to respect the confidentiality of patient's information. Furthermore, data analysis, presentation of result and report writing were done without mentioning the identification of patients.

CHAPTER IV: PRESENTATION OF RESULTS

At the beginning of our intervention, a refreshment training was offered to 11 nurses involved in production of MR at Biryogo HC. Each of those nurses was given a number, the same member was labeled to the consultation register, and an instruction was given to all nurses that each one will use her / his own register corresponding the labeled number. Monitoring, evaluation and follow up were made on individual.

Basing on monitoring and evaluation system, the incompleteness of MR at Biryogo Health Center significantly reduced. This was due to establishment of medical records' policy regarding completeness of MR. The results showed reduction of incompleteness of medical records from 22% among 6489 patients' files to 1% among 6923 patients' files in pre and post intervention period respectively, with P-value inferior to 0.001.

Table 6: DETAILED POST INTERVENTION DATA ON COMPLETENESS OF MR AT BIRYOGO HC

The table presents detailed data on completeness of MR, component by components throughout all elements of a MR format

Number	Element MR form	Complete		Incomplete	
		Frequency	Percentage	Frequency	Percentage
1	Names of patients	6920	100	3	0
2	Head of family	6923	100	0	0
3	Address	6474	99.8	15	0.2
4	New or old case	6487	100	2	0
5	Type of patient	6489	100	0	0
6	Age	6483	99.9	6	0.1
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14	HIV and other STI	6301	97.1	188	2.9
15	Outcome of Treatment	6487	100	2	0
16	Patient file number	6026	92.9	463	7.1
17	Type of insurance	6486	100	3	0

Table 7: PRESENTATION OF PRE AND POST INTERVENTIONAL DATA ON INCOMPLETENESS OF MR

| | | | Study period | | Total |
			Pre-intervention	Post-intervention	
Completeness categories	Incomplete	Count	1423	71	1494
		% within Study period	21.90%	1.00%	11.10%
	Complete	Count	5066	6852	11918
		% within Study period	78.10%	99%	88.90%
Total		Count	6489	6923	13412
		% within Study period	100.00%	100.00%	100.00%

Each of the 13412 patient's files was assessed for completeness through 17 elements as titled in the format of consultation registers used at HC. By considering pre-intervention period and checking for incompleteness at component by component. Five components were highly incomplete; these include: Diagnostic in 715 files.(11%) Treatment and action in 555 files,(8.6%) File number was uncompleted in 463 files,(7.1%) Results of laboratory investigation not completed in 232 files (5%) and HIV/AIDS and other STI component was incomplete in 188 files.(2.9%) However, components of Type of patient and one of Pregnancy status where completed at 100% in all 6489 files checked in pre-interventional period.

For the purpose of improvement of completeness of MR, the five components were also looked at in post interventional period.

Table8: SIGNIFICANCE OF INTERVENTION AMONG FIVE MOST INCOMPLETE COMPONENTS

This table shows the significance of intervention by comparing both percentage of MR completeness before and after intervention, among five most uncompleted components considering pre interventional data

Components	% Before	% After	P-Value
Diagnostic	89	99.6	< 0.001
Treatment and action	91.4	99.6	< 0.001
Number of files	92.9	100	< 0.001
Results of laboratory investigation	95	99	< 0.001
HIV/AIDS and other STI	97	100	< 0.001

CHAPTER V: DISCUSSION

The study conducted at outpatient service of adults' consultation of Biryogo HC aimed to improve completeness of MR. A pre interventional assessment helped to have baseline of 78% of completeness of MR, the sample was of 6489 files of patients produced in adults' outpatient service from September to November 2017. Analysis of root cause and examination of possible solutions to address the problem were conducted and "establishment of medical records' policy regarding completeness of MR" was done, and the policy was used to address the problem of incompleteness of MR.

After the intervention, the post-interventional evaluation was done and findings showed a great improvement in completeness of MR from 78% to 99%. ($P < 0.001$)

A similar study was conducted with the purpose of contributing to the quality improvement of healthcare services, in healthcare settings of Rwanda, through a project done to increase completion of medical records rate in Munini DH. The study was a pre and post interventional design, medical records assessment and intervention on completion rate were conducted in the Maternity unit. The intervention included assigning nurses to specific patients, developing guideline, providing training and supervisions and the results show the significant improvement in documentation rate, from 25 per cent in pre-intervention, to 67 per cent in post-intervention, P<0.00.(14)

Another similar study was conducted in Ethiopia, aiming to improve completeness of inpatient medical records in Menelik II referral hospital in 2015 to 201. The implemented intervention was training for inpatient healthcare worker (Physician and Nurse). After the intervention the completeness of medical records was improved from the baseline of 73% to 84% after intervention. (6,18)

5.1. Challenges and ways to overcome faced challenges

The approach of strategic problem solving requires continuous availability of the researcher thus consume much time, the challenge was to use limited time of hospital attachment leading to very hard work to meet deadlines.

The activity of data collection was to be done within health center for respect of confidentiality of patients' information. This was a challenging issue considering a big sample in this study. In addition, some of consultation registers were needed to be used by both data collector and nurse in consultation room. The situation spoiling time on side of this project as priority had to be given to patients' care. Use of weekend time and extra working hours was a way to overcome this challenge.

The implementation of system of monitoring and evaluation regarding completeness of medical records required the increase of consultation registers in use. As a result, the implementation obliged use of 11 registers instead of 4 in addition. Changing working habit was another issue as each nurse had to keep the register after use, while they have been using one register by consultation room, this situation required much mentorship in first days of this change.

The emphasis on monitoring and evaluation from managers to their subordinates. Nurses could create a kind of discomfort and luck of wellness at workplace on side of nurses; therefore, it was the duty and responsibility of the researcher to make clear the purpose of quality improvement project which is looking for quality of healthcare services leading to patient satisfaction and not overloading nurses and managers.

CHAPTER VI: CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Based on the results presented in previous parts, the researcher concluded that the null hypothesis which was stating that the establishment of medical records' policy regarding completeness of medical records, will not improve completeness of MR, was rejected. While the hypothesis one, that was stating that the establishment of medical records' policy regarding completeness of medical records, will improve completeness of MR, was confirmed.

The systematic problem-solving approach generates good results in improvement of quality of healthcare service. It is an inclusive strategy that involves people concerned in the occurrence of the problem and offers open space for full participation in the process of the problem solving, the results from this approach of problem solving could sustain as stakeholders are involved in problem identification as well as in process of problem.

6.2 Recommendations

The MR is among required components of quality of health care services leading to the overall patient's satisfaction; there is a need to complete medical records through regular monitoring, evaluating and auditing of completeness of medical records, therefore, the following recommendations are to be addressed:

- Managers of health care services / departments involved in production of MR are recommended to be responsible of the regular follow up regarding production of good quality of MR.

- Healthcare providers are recommended to produce MR of good quality to patients. Patients 'information should be fully completed in provided format at different levels of healthcare services.

- Medical personnel who are producers of medical records, they should benefit from training and CPDs regarding completion of MR.

- The trained staff should be accountable for uncompleted MR

- Managers of health institutions are recommended for regular supply of required equipment and furniture used by healthcare providers involved in production of MR.

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APPENDICES

Annex I: Tally sheet used in data collection

Names of patient	Head of family	Address	NC / OC	Type of patient	Age / years	Sex	Weight	Signs and symptoms	Lab. investigation	Pregnancy status	Diagnosis	Treatment/ Action taken	HIV/ other STI	Outcome of treatment	Patient file number	Type of insurance

Annex II: Problem prioritizing matrix

	Problem impact is small	Problem impact is moderate	Problem impact is big
Problem is rare			
Problem is common			
Problem is constant			**Problem to take 1st priority**

Annex III: Gantt's chart presentation of implementation plan

Tasks of implementation	Responsible	29 Apr-03 May 19	06-10 May 19	Sept.- Nov. 18	Dec. 18 –Jan. 19
Meeting with Health Center management team and make common understanding on the following step	Researcher, and Head of HC	■			
Explain the activity to OPD nurses (Establish the MR policy regarding completeness of medical records completeness)	Researcher	■			
Avail consultation books and pens that each nurse will have his / hers	Head of HC	■	■		
Assign a code to each nurse working in consultation service	Data manger		■		
Write nurses' codes on consultation books (link books to nurses)	Data manger		■		
Training of staff regarding on use of established policy on completeness of medical records	Researcher		■		
Work for improvement making reference to the established policy	Nurses			■	
Redesign / adapt data collection tool on completeness of medical records	Researcher			■	
Data collection on completeness of medical records in each book as assigned	Researcher and Data manager				■

Data analysis	Researcher and Data manager				
Results communication and recommendations and commitments	Researcher and Data manager				
Plan for second evaluation	Data manager				

Annex IV: Questionnaire

4.1 Questionnaire in Kinyarwanda

Ibibazo bibazwa abaganga basuzuma abarwayi ku kiginferabuzima cya Biryogo. Ibibazo bigamije gushaka amakuru yafasha mu gukemura ikibazo cyo kutuzuza amakuru y'abarwayi mu bitabo byabugenewe. Buri muganaga abazwa ku giti cye mu ibanaga kandi ibisubizo bye nta kindi bikoreshwa uretse gutanga amakuru akenewe n'ukora ubushakashatsi.

4.1.1   Kwibwirana:

Nitwa Mulindwa Venuste, ndi umunyeshuri mu cyiciro cya gatatu cya Kaminuza, niga muri Kaminuza y'u Rwanda, niga ibijyanye n'imiyoborere n'imikorere myiza y'amavuriro, nk'uko nabibabwiye ubushize ndashaka ko dufatanya mu gukemura ikibazo cyo kutuzuza amakuru y'abarwayi yose mu gitabo cyabugenewe, musnzwe mukoresha mu isuzumiro. Nabasabaga   ko   namwe   mwanyibwira,   witwa nde……………………………………………….…….

4.1.2 Ibibazo

➢ Uko wowe ubibona ubona ari izihe mpamvu zituma bagenzi bawe buzuza amakuru y'abarwayi mu gitabo mukoresha mu isuzumiro, ariko hakaira amakuru amwe n'amwe batuzuza, mbese ugasanga hari aho bagiye basiga umwanya utanditsemo? Ubundi mwene ibyo ibibazo tubishyira mu byiciro bine bitewe n'aho bituruka / ikibitera: Policy and procedure (amahame arebana n'uko ibintu bigomba gukorwa) , Environment (imitere y'ibyumba by'isuzumiro muri rusange), People (abantu: abo mukorana, abakoresha, uko abarwayi bangana, abakora mu isuzumiro….), equipment (ibikoresho bikenerwa mu kuzuza amakuru y'abarwayi mu bitabo byabugenewe…) urumva ubisobanukiwe (ukamusubiriramo akabyumva neza) nawe rero urasubiza uganisha muri ibyo byiciro bine……………………………………………………………

....

....

....

➢ Ntabwo mbizi, ariko nawe wasanga hari ubwo waba utuzuza imyanya yose yateganijwe, wambwira impamvu zaba zibigitera / cyangwa imbogamizi? Urasubiz uganisha muri bya byiciro bine..

....

....

....

➤ Muri izo mpamvu zose wambwiye iyo washyira ku mwanya wa mbere yaba iyihe? Cyanga bakubwiye ngo hitamo imwe y'ingenzi wahitamo iyihe? Urasubiz uganisha muri bya byiciro bine...

....

....

....

4.2 Questionnaire in English

Questionnaire (reserved) for consulting nurses at Biryogo Health Center. Questions aiming at collecting information to help solve the issue of not filling patients'/clients' symptoms in diagnostic registers. Each nurse is asked in person, secretly / confidentially and their answers are strictly reserved for the purpose of this research.

4.2.1 Introduction

My name is Mulindwa Venuste, I am doing a Master's Degree in Hospital and Healthcare Administration at University of Rwanda. As mentioned earlier, I need your help in solving the matter of not filling clients' symptoms in diagnostic registers.

I would like to know you: what is your name? …………………………………………...

4.2.2 Questions

According to you, why do you think some nurses do not fill all the patients' symptoms in the registers and leave some blank spaces? These questions are in four (4) categories according to their root causes: Policy and procedure, Environment, People and Equipment

Your answers will relate to those 4 categories…………………………………….........

……………………………………………………………………………………………………

……………………………………………………………………………………………………..

You too may probably not fill all data in set/given spaces. Would you tell me the reasons or

challenges?...

....

....

Within your given answers/reasons, which would you consider the first? Or which would you

choose to be the most important? Still, your answers will relate to those 4 categories

above…………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

Annex V: Medical Records Policy

4.1 Medical Record Policy in Kinyarwanda

Amabwiriza arebana no kuzuza amakuru y'umurwayi wisuzumisha ku kigonderabuzima.

Aya mabwiriza arebana no kuzuza amakuru y'umurwayi hakurikijwe ibisabwa byose nk'uko bigaragara mu gitabo cyuzuzwa mu isuzumiro ryo ku kigonderabuzima.

Ikigamijwe ni ukunoza imikorere ijyanye no kuzuza amakuru y'umurwayi mu bitabo byabugenewe, bigatuma habaho imikorere myiza y'ikigonderabuzima muri rusange, byose biganisha kuri ku gutanga serivise inogeye umurwayi.

1. Umurwayi wese wisuzumishije yandikwa mu gitabo gikoreshwa mu isuzumiro ry'abarwayi bivuza ku kigonderabuzima

2. Umurwayi abazwa amakuru ajyanye n'ubuzima bwe hakurikijwe imitere y'ibitabo byuzuzwa mu isuzumiro ry'abarwayi bivuriza ku kigonderabuzima

3. Amakuru yatanzwe n'umurwayi yandikwa n'umuvuzi umusuzuma, amakuru yandikwa ako kanya.

4. Mbere y'uko umurwayi asohoka mu isuzumuro umuvuzi agenzura ko amakuru yahawe yuzuye kandi yayanditse neza mu mwanya wateganijwe mu gitabo cyo mu isuzumiro

5. Umurwayi usabwe gutanga ikizamini, agomaba gusobanurirwa neza aho aragitangira, n'uko agarura igisubizo mu isuzumiro

6. Igisubizo cyandikwa mu mwanya wabugenewe, hagakurikiraho kwandika imiti.

7. Abarwayi bagaruye ibisubizo mu isuzumiro bagomba kujya mu murongo wabo, bakakirirwa vuba, kuko kurambirwa bishobora gutuma bataha batavuwe kandi n'ibisubizo by'ibizamini batanze ntibyandikwe

8. Umwanya utuzujwe, ushyirwao akamenyetso (-) kagaragara, kerekana ko amakuru agenewe kujya muri uwo mwanya atabonetse cyangwa adakenewe, ibyo bigakorwa mbere y'uko umukzi wakoze u isumiro ataha

9. Umwanya washyizwemo akameyetso (-) ushobora kuzuzwa ku munsi ukurikiyeho igihe amakuru agewe uwo mwanya yaba abonetse (urugero: igisubizo cy'ikizamini cyasabwe, n'imiti ijyanye n'igisubizo cyo muri laboratoire)

10. Mbere yo gutaha umukozi wakoze mu isuzumiro agenzura ko imyanya yose yagenewe kuzuzwa mu gitabo cyo mu isuzumiro yuzujwe neza.

11. Umukozi wese ukora mu isuzumiro agomba kugira igitabo cye akoresha, kugirango isuzuma rirebana no kuzuza ibitabo ryorohe, kandi buri wese afashwe mu mukorere myiza, ijyanye no kuzuza ibitabo byo mu isuzumiro.

12. Buri cyumweru umukozi uyobora abakora mu isuzumiro (in charge of outpatient service) akora isuzuma rijyanye no kuzuza ibitabo,

13. Buri kwezi umukozi naho isuzuma rya buri kwezi rigakorwa n'umukozi ushinzwe imibare (data manager)

14. Buri mukozi asuzumwa ukwe akamenyeshwa ibyavuye mu igenzura ryamukorewe, agafata ingamba z'imikorere mu minsi ikurikiyeho.

4.2 Medical Record policy in English

Medical records' policy regarding completeness of medical records at outpatient service of Health center

This policy is about completing patients' medical records as displayed in the register of outpatient consultation at health center

The objective is improving the quality of health care service by reducing incompleteness of medical record, increase the overall performance of health center

1. Each consulted patient should be recorded in the register of outpatients

2. The patient will be asked information in reference to the format provided at the heading of consultation register.

3. The patient's data are recorded by nurse in consultation room, in due time.

4. Before the patient leaves the consultation room, the nurse will have to check the completeness of patient's data, and ensure better record of the provided information.

5. In case a laboratory exam is requested for, the patient must be guided to laboratory service, and instructed to bring back the result of the requested laboratory exam.

6. The result of laboratory exam will be well recorded in consultation register, as well as related prescription of drugs.

7. Patients coming from laboratory, will take their own queue and will be quickly received in consultation room, to avoid patients going back home untreated and both result of laboratory test and prescription not recorded.

8. For a blank space, put (-) to indicate that information is missing or not applicable, otherwise any blank space will be considered as uncompleted record. This must be done before a nurse closes the consultation day.

9. The blanked space can be filled in the following day as the information become available, the laboratory exam's result and related prescription are examples.

10. The nurse working in consultation room, will check for better and completion patient's data, in the register of outpatient consultation.

11. Each nurse working in consultation room will use his / her own register to which his / her code is indicated.

12. The in charge of outpatient's service will make a weekly assessment of completion of medical record by nurses at individual basis.

13. The data manager will conduct a monthly evaluation of completeness of medical record at individual basis.

14. Each nurse will be communicated of feedback for both weekly and monthly assessment, for better performance of completeness of medical record in following period of activity.

Annex V: Detailed pre interventional data

Names of patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6481	99.9	99.9	99.9
	Incomplete	8	.1	.1	100.0
	Total	6489	100.0	100.0	

Head of family

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6483	99.9	99.9	99.9
	Incomplete	6	.1	.1	100.0
	Total	6489	100.0	100.0	

Address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6474	99.8	99.8	99.8
	Incomplete	15	.2	.2	100.0
	Total	6489	100.0	100.0	

New or old case

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6487	100.0	100.0	100.0
	Incomplete	2	.0	.0	100.0
	Total	6489	100.0	100.0	

Type of patient

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6489	100.0	100.0	100.0

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6483	99.9	99.9	99.9
	Incomplete	6	.1	.1	100.0
	Total	6489	100.0	100.0	

Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6489	100.0	100.0	100.0

Weight

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6489	100.0	100.0	100.0

Signs and symptoms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6482	99.9	99.9	99.9
	Incomplete	7	.1	.1	100.0
	Total	6489	100.0	100.0	

Laboratory investigation and results

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6166	95.0	95.0	95.0
	Incomplete	323	5.0	5.0	100.0
	Total	6489	100.0	100.0	

Pregnancy status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6489	100.0	100.0	100.0

Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	5774	89.0	89.0	89.0
	Incomplete	715	11.0	11.0	100.0
	Total	6489	100.0	100.0	

Treatment and action

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	5934	91.4	91.4	91.4
	Incomplete	555	8.6	8.6	100.0
	Total	6489	100.0	100.0	

HIV/AIDS and other STIs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6301	97.1	97.1	97.1
	Incomplete	188	2.9	2.9	100.0
	Total	6489	100.0	100.0	

Outcome of treatment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6487	100.0	100.0	100.0
	Incomplete	2	.0	.0	100.0
	Total	6489	100.0	100.0	

Patient's file number

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6026	92.9	92.9	92.9
	Incomplete	463	7.1	7.1	100.0
	Total	6489	100.0	100.0	

Type of insurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	6486	100.0	100.0	100.0
	Incomplete	3	.0	.0	100.0
	Total	6489	100.0	100.0	
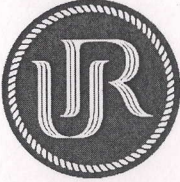
CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 12/06/2019
Ref:CMHS/IRB/**271**/2019

MULINDWA Venuste

Master of Hospital and Healthcare Administration,
School of Health Sciences, CMHS, UR
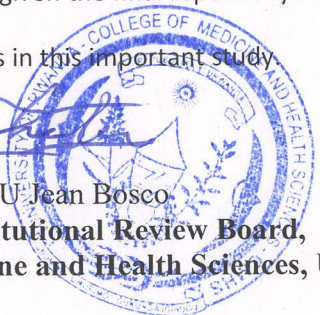
Dear MULINDWA Venuste,

RE: <u>ETHICAL CLEARANCE</u>

Reference is made to your application for ethical clearance for the study entitled *"Reducing Medical Records Incompleteness in Outpatient Service of Biryogo Health Center."*

Having reviewed your application and been satisfied with your protocol, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

Professor GAHUTU Jean Bosco
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

Cc:

- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR