

# Data Dissemination and Use and Provision of Curative and Preventive Tuberculosis Health Care Services in Public Health Institutions in Kisumu County, Kenya

John Odhiambo Oluoch, Charles M. Rambo, Ganesh P. Pokhariyal

**Abstract**—The study sought to determine how data dissemination and use influence provision of curative and preventive tuberculosis healthcare in institutions of public health in Kisumu County, Kenya. The study focused on public health institutions that practices M&E system on provision of curative and preventive tuberculosis healthcare services. The study employed the use of pragmatism paradigm and a descriptive research design to collect both quantitative and qualitative data. A correlational design was used to test the hypothesis. A sample of 221 respondents was selected from a population of 517 using stratified random sampling. Data was collected using a structured questionnaire with both open and close ended with Likert type on 1-5 five point scale and interview schedule. Correlational design was used to test the hypothesis. Quantitative data was analyzed using descriptive and inferential statistics and data presented in frequency tables using means and standard deviations while qualitative data was presented in in narrative statements. Hypothesis was tested using linear regression at 0.05 level of significance to determine the degree and direction of relationships among the thematic area of the study. The reliability of the instruments was obtained using Cronbach Alpha coefficient of 0.735 for all items meaning that the instruments were reliable. The results showed that data dissemination and use and provision of curative and preventive tuberculosis health care services in public health institutions had [ $r^2=0.186$ ,  $p<0.05$ ]. The results for quantitative data based on composite mean score of 3.91 and 0.466 standard deviation for this variable respectively. Therefore, data dissemination and use influence provision of curative and preventive tuberculosis healthcare services in public health institutions.

**Index Terms**—Monitoring and Evaluation System; Data Dissemination and Use; Organizational Structure and Provision of Curative and Preventive Tuberculosis Health Care Services

## I. INTRODUCTION

Health care services delivery is basically significant that it is an entitlement of every individual globally [17]. The diversity of health care services is greater that it remains the responsibility of the government [2]. However, the broader health care service delivery has been faced with challenges that has negatively affected public health institutions not achieve its objectives. The global tuberculosis report is an

annual event in which data is collected from all the 194 member state countries and territories. The World Health Organization is concerned with the tuberculosis global data that is controlled by tuberculosis monitoring and evaluation section [18]. In the year 2006 report indicated the largest number of the population affected were 45% rate in Asia and 25% in Africa [21]. In the same year, 87% reported as the new cases in the already countries with the highest infections consisted of China, India, Indonesia, Philippines, Nigeria, South Africa and Pakistan. However, the world advancement through the process of curative and prevention tuberculosis in the most affected countries with an aim of eradicating the diseases.

In Kenya, tuberculosis survey report 2017 the survey focused on the assessment of the planning, objective in regard to the health behavior of TB patients, reported TB symptoms that informed strategy and policy formulation to curb the menace. The survey was conducted in the 45 out of 47 counties with 63,050 people screened for TB and were interviewed to ascertain the knowledge of any TB symptoms, chest x-ray were carried out and thereafter submission of species in laboratory scrutiny, GeneXpert machine [10]. The TB findings indicated that, the TB cases were higher than previous expected with the revelation of 558 affected in the midst of 100,000 in contrast to the World Health Organization [WHO] report in 2015, indicated those affected out of 100,00 to be 233.

Provision of curative and preventive tuberculosis health care services in public health institutions can be referred to the health services provided for patients and populace that increases the probability achieving results that are in accordance alongside the health professional standards as acknowledged by [13]. The [21] suggests that healthcare system consists of interrelated building blocks, service delivery, adequate field performing work force, and maintained functioning health information system, adequate provision of finances, vaccines, technologies, effective leadership and financing. The objectives by millennium development goals to eradicate disease through effective health care programs focused on infectious diseases which significantly rely the capability of the health care system that

---

Published on February 3, 2020.

J. O. , School of Education and Distance Learning, University of Nairobi, Kenya. (e-mail: johnoch75@gmail.com)

C. R. , School of Education and Distance Learning, University of Nairobi, Kenya. (e-mail: rambocharls@gmail.com)

G. P. , Mathematics Department, University of Nairobi, Nairobi, Kenya. (e-mail: gppokhariyal@gmail.com)

can effectively deliver the needed essential tuberculosis health care services [21]. Public health institutional objectives therefore are tasked to make sure that the quality of health care activities is geared towards effective provision of curative and preventive tuberculosis that meets the expectation of the patients.

#### *A. Statement Of The Problem*

Data dissemination and use is significant in developing health care planned programs that are certain of the effective on provision of health care services. Data sourced from the medical records is significant since it assesses the patients indicating the strengths and weakness that needs to be maintained or improved that the curative and preventive health care service delivery for the tuberculosis as planned. The data disseminated for use provides a requisite that is vital for provision of curative and preventive tuberculosis state care activities that can be improved to certain the desired results. However, lack of access to data that are deemed essential in developing beneficial in health program initiative leads to ineffective planning of health care activities that contribute to failure in achieving of the desired results on provision of essential curative and preventive tuberculosis healthcare services.

#### *A. Objective Of The Study*

The study objective was to determine how data dissemination and use influence provision of curative and preventive tuberculosis healthcare practices in institutions of public health in Kisumu County, Kenya

#### *B. Hypothesis Of The study*

**H<sub>0</sub>** Data dissemination and use has no significant influence the provision of curative and preventive tuberculosis healthcare services in institutions of public health in Kisumu County.

## II. LITERATURE REVIEW

In the 20<sup>th</sup> century, the world health organization [20] championed for the provision of health care in each country that is provided by the public health institutions funded by the government. Health care has been defined differently but the study therefore, referred health care as the prevention, treatment and managing of illness and preserving mental and physical wellness in offered medical services in alignment to health care professionals [12]. Good health care delivery is significant for the health care system that will ensure effective provision of health care services to the public. Previous studies indicated that the populace does not have much trust in the services offered by the public health institutions since they don't guarantee the expected results to the beneficiaries [5]. The [20], assertion that the globalization has an influence on the world health systems and that the other health providers are not in a position to manage the health system and this therefore, leads to the search and mobilization and funding that can be consolidated to manage the health systems Researchers acknowledged that it is appropriate that health care can hugely impact the

country's health care systems that can be relied upon health care service provision [15].

Geographically, health care services have different barriers that hinders access for the less fortunate people especially in remote areas where there is neither near health service provider nor lack of health care institution [7]. The TB Bacillus Calmette-Guerin [BCG] vaccine is the most preferred approximated with about 80% of new born babies and infants in the national immunization programme suggested by the [19]. The [19]. Despite of the massive use of the vaccine, the BCG vaccine has been proved to be effective in the prevention of the widespread of all forms of TB. The pulmonary TB is varied in adults and various TB vaccines are at disposal to control the disease with the BCG vaccine usually used to prevent TB in children. The treatment of the disease is focused on the adherence to the treatment schedule that involves the follow up to ensure that the patients complied with the treatment to its completion. The U.S. Food and Drug Administration [FDA] in the recent past has approved ten different types of vaccines that can be used to treat tuberculosis with the TB anti-vaccines forming the center of curing vaccines the treatment duration depending on the by times of doses ingested over a specific duration of time [9].

Data dissemination and use is significant in generating and informing planning and decision making that will ensure effective provision of curative and preventive tuberculosis health care services that will satisfy the clients. In public health observation can be termed as the continuous, procedural gathering, decomposition, explanation and dissemination of the information which is significant in reducing morbidity and mortality to improve health care services is significant [16]. Data dissemination in public health facilities are very significant since the dependency for the sound public health care in program planning, monitoring, evaluation and formulating the research hypothesis so that the necessary action can be addressed.

The study conducted by [8] on support structure assessment of data use in valuing and improving health services formulation in Europe countries namely; [Germany, Australia, Canada and New Zealand]. The study results indicated that the focus was to develop and validate a fundamental conceptual structure for evaluating that improve and enhance health care planning. The study further found that the data presented based on different countries since the countries are not the same however, the study focused on both public and private with the focus on the operations and management of healthcare planning in comparison and significant due to the large number that are associated with the wider administrative internal and external framework for health system, natural environment and depth that probably have different characteristics across the countries.

Study conducted [14] on evaluating laboratory execution with excellence indicators of transmitted diseases in Kano Hospital, Nigeria. The evaluation of performance of the laboratory data results was to establish the standard of performance that contributes to the expected sustainable

improvement. The study findings indicted that a sum of 7920 was a computation of results namely, 2194, 2715 and 3011 between 2011, 2012 and 2013 respectively. Despite of the study findings computed, the result rate of [22/7920] 0.28% and a reversal time of [81/7920] were rejected. The outcome rate of 1.02% which was higher and valued of acceptable range during the time of study. The six sigma scale used in analysis, rejected samples amounted to 2778 was faulted at the levels of 4.27, TAT rate of 10,227 and 3.82 sigma per million respectively. The rejected sample was as a result of clots of 50% and the period of time before encountering with TAT caused by the failure of the equipment. Within the same period, the result of PTP for CD4 counted was [67%] and hematology film [79%] was sub-standard sort of the required 80% in comparison to different fields of activity. In the last two years, the outcome of the entire PTP has been sufficient with the consistent record of 100% HIV serology.

The study indicated lack of statistical significance between PTP [CD4 count, hematology, chemistry and HIV serology] in a period of two years 2011 to 2013 [ $P > 0.05$ ]. However, CSS indicated positive development of about 59% and 78% in 2012 and 2013 respectively of the general performance which was not up to the mark. Despite of hygiene at the rate of 62% and 86% in the years 2012 and 2013 consequently. The application knowledge on operation at [60% in 2012 and 82% in 2013] and the processes at the rate of 49% and 71% both in 2012 and 2013. Consequently, it was regarded as the most enhanced and expected at 64% and 73% both in 2012 and 2013 to the minimal improvement that there was no statistical significance difference of [ $P > 0.05$ ] in performance experienced. The results showed that the entire SSR 0.28% lower than a 0.57%, 1.46% and 4.19% that were experimented under the same conditions in the laboratory in Porto Alegre, Brazil, as acknowledged by [11]. In Delhi, India [1], respectively. The findings indicated that, the study was scientific that was concerned with experiments in a laboratory settings that the researcher acknowledged that it was appropriate to the study contrary in depicting the descriptive approach of the research phenomena with the aspects of generalization.

A study conducted [3] on monitoring referral system of data in benchmarking between health centers in a district hospital in rural Niger. The study used a benchmark to interpret to different values in rural and urban health centers in the two regions of the country. Results indicated that lower referral cases at the rural health centers lower than 2.5% as compared to the urban health centers. The results indicated that the referral rates were due to inadequate capacity to provide needed healthcare services at either the health center or at district hospital level.

The outcome indicated that out of the total 3, 905, [36%] patients were below 5 years and [49.6%] female patients. The exact rules in particular in adherence to the medical standards yielded 47 emergent situations and 49 low temperature referrals of 2.5% [C.I.  $\pm 0.5\%$ ] of the total 3,905 patients attended. However, out of the 47 patients with emergency cases 85% were suggested for referral with consent and means availed for the transfer and 55% were removed from the district hospital. However, almost the

entire removal of emergency cases which were below 5 years of age was not transferred. Unfortunately, due to the persistent illness, 8 loss their lives few days before the transfer was effected. Despite of the transfer decision made, it was a challenge to fuel the ambulance to facilitate the process [3].

Based on the referral regulation of therapeutic regulations, it was easier to monitor district accomplishment of the study. Therefore, the knowledgeable on adherence in assessing the development reinforce transfer logistics. The utilization of data by the health institution was not replaced due to location and financial barriers and also evading channels that cause delay. The study focused on the provision of HIV preventive health measures more related to this study being the health care services delivery to curative and preventive tuberculosis which significance to any given population.

#### *A. Theoretical Framework*

The paper adopted communication theory with the view that since data gathered from a subset population, processed, analyzed and is used in the implementation of curative and preventive tuberculosis health care programs. This theory was developed by [4]. Data was disseminated and utilized in implementing of the health care programs that are planned to accomplish the intended specific goal [6]. Therefore, the theory was based on fact that the information gathered, analyzed and interpreted was significant to provide evidence on the subject matter as it reflects facts that are essential in implementation as well as mitigation on provision of curative and preventive tuberculosis healthcare practices in institutions of public health as expected.

#### *B. Conceptual Framework*

The study focused on assessing how monitoring and evaluation work plan influence provision of curative and preventive tuberculosis healthcare practices in institutions of public health in Kisumu County, Kenya. The four key indicators of M&E work plan were used include the following, finances for facilitation and implementation, time frame to achieve the results, program sequences as planned, plan reviewed and work schedule. The relationship among the study variables are presented in figure 1.

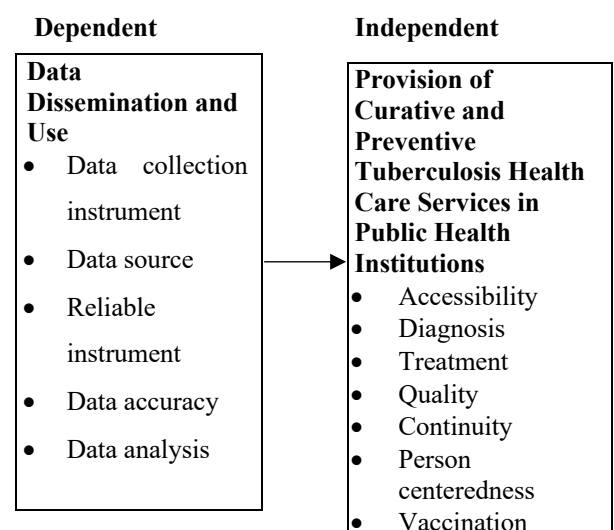


Fig. 1: Conceptual framework for M&E work plan influence on provision of curative and preventive tuberculosis healthcare practices in institutions of public health in Kisumu County, Kenya

### III. RESEARCH METHODOLOGY

The study was guided by pragmatism paradigm where descriptive survey and correlational research design was used. The design chosen were appropriate as they enabled collecting both quantitative and qualitative data at the same time testing hypothesis. The target population was 517 where an independent sample of 221 was drawn using proportionate method. Structured questionnaires and interview schedule were used to collect the data. The study used Cronbach Alpha of coefficient of 0.735 for all items implying that the instrument was reliable. For analysis of quantitative data, inferential and descriptive statistics were used simultaneously while tables showing means and standard deviations used to present results. Presentation of qualitative data was done in narrative form. Hypothesis was tested using linear regression at 0.05 level of significance.

### IV. FINDINGS AND DISCUSSIONS

The study sample size was drawn from the target population of 221 who were given questionnaires out of which 187 were duly filled and returned for data analysis. The results are presented in Table I.

TABLE I: QUESTIONNAIRES RETURN RATE

#### A. General Information about Respondents

In this section, the study covered the following areas; gender, highest level of education, age of the respondents and category of respondents are presented Table II.

TABLE II: RESPONDENTS GENDER

Gender	%	Frequency	CF
Male	42.2	79	42.2
Female	57.8	108	100
<b>Total</b>	<b>100</b>	<b>187</b>	

The results on gender indicated that 108 [57.8%] of the respondents were male while 79% [42.2%] of the respondents were female. These findings show that the number of females were higher than male. This implies that issue of gender equality still a challenge. However, the 1/3 rule is at least adhered to.

TABLE III: BASED ON LEVEL OF EDUCATION

Level	frequency	%	CF
Certificate	33	17.6	17.6

Diploma	53	28.3	46.0
Degree	72	38.5	84.5
Masters	26	13.9	98.4
PhD	3	1.6	100.0
<b>Total</b>	<b>187</b>	<b>100.0</b>	

On the highest level of education, out of 187 respondents who participated in the study, 3 [1.6%] of the respondents had PhD degree, 26 [13.9%] had Master's degree, 72 [38.5%] had Bachelor's degree, 53 [28.3%] had Diploma and 33 [17.6%] had Certificate level of education. These findings showed that the number of respondents reduces as the level of education increases and hence adequately qualified. This implies that there were adequate academic qualifications that qualify the respondents suitable in their line of duties respectively that contribute to effective provision of curative and preventive tuberculosis health care services to the public.

TABLE IV: BASED ON AGE OF RESPONDENTS

Age	frequency	%	CF
Below 25 years	20	10.7	10.7
25 - 30 years	43	23.0	33.7
31 - 35 years	35	18.7	52.4
36 - 40 years	45	24.1	76.5
41 - 45 years	17	9.1	85.6
46 - 50 years	16	8.6	94.1
Above 50 years	11	5.9	100.0
<b>Total</b>	<b>187</b>	<b>100</b>	

The age bracket of the respondents below 25 years were 20 [10.7%], between 26 – 30 years 43 [23%], between 31-35 years were 35 [18.7%], between 36 – 40 years were 45 [24.1%], between 41 – 45 years were 17 [9.1%], 46 – 50 years were 16 [8.6] and above 51 years were 11 [5.9] %. These finding indicate that the public health institution attracted the respondents of diverse age categories hence,

Responses	Frequency	Percentage
Responses	187	84.6
Non-responses	34	15.4
<b>Total</b>	<b>221</b>	<b>100</b>

cordial interaction leading to mutual understanding improving on provision of curative and preventive tuberculosis health care services.

TABLE V: BASED CATEGORY OF RESPONDENTS

Category	frequency	%	CF
Medical Doctors	32	17.1	17.1
M & E Officers	13	7.0	24.1
Clinical Officers	17	9.1	33.2
Nurses	21	11.2	44.4
Patients	104	55.6	100.0



<b>Total</b>	<b>187</b>	<b>100.0</b>
--------------	------------	--------------

The study results showed that, 32 [17.1%] of the respondents were Medical Doctors, 13 [7.0%] were M&E officers, 17 [9.1%] were Clinical officers, 21 [11.2%] were Nurses and 104 [55.6%] were patients. These findings indicate that the respondents in the job category were normally distributed with the highest number of patient respondents seeking the health care services higher as expected. This means that the number of patients under this study seeking the curative and preventive tuberculosis health care services were many compared to the public health officers offering the health care services.

#### A. Provision of Curative and Preventive Tuberculosis Health Care Services in Public Health Institutions

The study indicators measured were, accessibility, diagnosis, treatment quality, continuity, person centeredness and vaccination of health care services. The results are presented in table 6.

TABLE VI: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS ACCESSIBILITY OF HEALTH CARE SERVICES

<b>Statements</b>	<b>Mean</b>	<b>SDV</b>
The TB health care services offered by the institution are directly accessible without a barrier of cost	4.22	0.415
TB patients face economic constraints for the health care services to access the treatment	3.36	1.339
The referred TB patients has direct access to TB healthcare services	2.70	1.424
The public awareness on how to access TB health care services at the public health institution	3.80	1.141
The TB patients are assured to access to the drugs during and after the initial treatment	4.23	0.592
<b>Composite mean and Std. Deviation</b>	<b>3.66</b>	<b>0.631</b>

The study results show that [M= 4.22, SDV=0.415] majority of the respondents agreed that the TB health care services offered are directly accessible without a barrier of cost. The respondents also [M= 3.36, SDV=1.339] agreed that the TB patients face economic constraints for the health care services to access the treatment. Majority of the respondents [M= 2.70, SDV=1.424] disagreed that any referred TB patients has direct access to TB health care services. The majority of the respondents [M= 3.80, SDV=1.141] agreed that the public awareness on how to access TB health care services at the public health institution. Majority of the respondents agreed [M= 4.23, SDV=0.592] that TB patients are assured to access the drugs during and

after the initial treatment. The study results show that the aspect of accessibility influences provision of curative and preventive tuberculosis healthcare practices in institutions of public health.

TABLE VII: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS DIAGNOSIS OF HEALTH CARE SERVICES

<b>Statements</b>	<b>Mean</b>	<b>SDV</b>
The TB delay and untimely diagnosis contribute to ineffective treatment for the patients	2.64	1.45
The TB patients seeking health care services must be diagnosed before treatment	4.23	0.79
The institution encourages mandatory diagnosis for the referred patients before treatment	4.43	0.528
Diagnosed TB patients on treatment is enlightened on the measures to observe during the treatment	4.31	0.486
Upon the diagnosis, the patients are immediately put under treatment and surveillance	4.21	0.445
<b>Composite mean and Std. Dev.</b>	<b>3.96</b>	<b>0.374</b>

The study results show that the majority of the respondents [M= 2.64, SDV=1.450] disagreed that the tuberculosis delay and untimely diagnosis contribute to ineffective treatment of the patients does not influence provision of curative and preventive tuberculosis health care services. Therefore, the public health care providers should devise ways in which the disease could be diagnosed earlier and timely that leads to curb the diseases in its early stages to avoid further infections. Majority of the respondents [M= 4.23, SDV=0.793] agreed that the TB patients seeking health care services must be diagnosed before treatment. The respondents also [M= 4.43, SDV=0.528] agreed that the institution encourages mandatory diagnosis for the referred patients before treatment. Diagnosed TB patients on treatment are enlightened on the measures to observe during treatment. The majority of the respondents [M= 4.31, SDV=0.486] also agreed that the diagnosed TB patients on treatment are enlightened on the measures to observe during treatment. The study results showed that most of the respondents [M= 4.21, SDV=0.445] agreed that upon the diagnosis, the patients are immediately put under treatment and surveillance. On the aspect of diagnosis, it was noticed that it influences provision of curative and preventive tuberculosis health care services.

TABLE VIII: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS TREATMENT OF HEALTH CARE SERVICES

Statements	Mean	SDV
Tuberculosis treatment is effectively offered in the institution that meets the patient's needs	4.36	0.504
The majority of TB patients delay to seek treatment due to limited knowledge of the disease	3.44	1.324
The suspected TB patients are subjected to immediate treatment to avoid the spread of the disease	3.95	1.046
There are positive results recorded in the treatment of the disease	4.24	0.576
TB treatment is advised to any suspected individual as an effort towards wipe out the disease	4.28	0.662
<b>Composite mean and Std. Dev.</b>	<b>4.05</b>	<b>0.459</b>

The study results indicated that majority of the respondents [M= 4.36, SDV=0.504] agreed that the tuberculosis treatment is effectively offered in the institution that meet the patient's needs. Most of the respondents [M= 3.44, SDV=1.324] agreed that the majority of TB patients delay to seek treatment due to limited knowledge of the disease. The respondents also [M= 3.95, SDV=1.046] agreed that the suspected tuberculosis patients are subjected to immediate treatment to avoid the spread of the disease was in place. Most of the respondents [M= 4.24, SDV=0.662] acknowledged that there was positive results recorded in the treatment of the disease. Results indicated that the majority of the respondents [M= 4.28, SDV=1.141] agreed that tuberculosis treatment is advised to any suspected individual as an effort towards wipe out the disease. The results imply that treatment influence provision of curative and preventive tuberculosis health care services.

TABLE IX: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS QUALITY OF HEALTH CARE SERVICES

Statements	Mean	SDV
The curative and preventive tuberculosis healthcare services quality satisfy the patients	4.14	0.562
The TB infection is due to lack of proper health care service towards the disease	2.59	1.298
In adequacy for curative health care services offered makes the TB persistent	2.22	1.173
The TB health care services vary from one institution to another	3.48	1.202

hence influences the patient's choice to seek services

<b>Composite mean and Std. Dev.</b>	<b>3.11</b>	<b>0.650</b>
-------------------------------------	-------------	--------------

The results of the study show that the majority of the respondents [M= 4.14, SDV=0.562] concurred that the curative and preventive tuberculosis health care services qualities satisfy the patients. The majority of the respondents [M= 2.59, SDV=1.298] disagreed that the TB infection is due to lack of proper health care service towards the disease. This imply that there is need for the sensitization of the tuberculosis disease so that the public could be able to immediately report the infection to the health facilities to be treated and to curb the diseases in its early stages to avoid further infections. The majority of the respondents also [M= 2.22, SDV=1.173] disagreed that in adequacy for curative health care services offered make the tuberculosis persistent. Therefore, the public health institutions are in a position to provide curative and preventive tuberculosis health care services that meet the needs of the clients. Most of the respondents [M= 3.48, SDV=1.202] acknowledged that TB health care services vary from one institution to another hence influences the patient's choice to seek services.

TABLE X: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS CONTINUITY OF HEALTH CARE SERVICES

Statements	Mean	SDV
The institution offers after treatment care to check on the progress of the patients	4.13	0.425
The TB patients are put under Surveillance while on drugs to ensure compliance	4.20	0.506
There are positive results of TB patient's recovery under observation	4.33	0.516
<b>Composite mean and Std. Dev.</b>	<b>4.22</b>	<b>0.328</b>

The study results show that most of the respondents [M= 4.13, SDV=0.425] agreed that the institution offers after treatment care to check on the progress of the patients. Majority of the respondents [M= 4.20, SDV=0.506] disagreed that the tuberculosis patients are put under surveillance while on drugs to ensure compliance. Most of the respondents [M= 4.33, SDV=0.516] agreed that there are positive results of TB patient's recovery under observation meaning that it influences provision of curative and preventive tuberculosis health care services.

TABLE XI: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS PERSON CENTEREDNESS OF HEALTH CARE SERVICES

Statements	Mean	SDV
------------	------	-----

The health care services offered to users are perceived to be responsive and acceptable to them	4.32	0.541
The treatment for TB is focused on disease treatment rather than the patient	4.25	0.683
The TB patients are hopeful to get well once on treatment	4.34	0.631
Health care services provided guarantees positive responsiveness that hastens quick recovery	4.12	0.665
<b>Composite mean and Std. Dev.</b>	<b>4.26</b>	<b>0.385</b>

The study results indicated that the majority of the respondents [M= 4.32, SDV=0.541] agreed that the health care services offered to users are perceived to be responsive and acceptable to them. Majority of the respondents [M= 4.25, SDV=0.683] acknowledged that the treatment for TB is focused on the disease rather than the patient. Most of the respondents agreed [M= 4.34, SDV=0.631] that the TB patients are hopeful to get well once on treatment. The respondents also [M= 4.12, SDV=0.665] agreed that the health care services provided guarantees positive responsiveness that hastens quick recovery. The statement mean score imply that person centeredness influence provision of curative and preventive tuberculosis health care services.

TABLE XII: PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS VACCINATION OF HEALTH CARE SERVICES

Statements	Mean	SDV
The health care services offers vaccine to those who are perceived to be affected	3.02	1.476
The vaccines are provided annually to curb the spread of the disease	3.86	1.118
The TB free individual has a high probability not to be affected	2.82	1.356
The administering of vaccine has significantly leads decrease of TB patients	4.23	0.737
<b>Composite mean and Std. Dev.</b>	<b>3.48</b>	<b>0.804</b>

The study results show that majority of the respondents strongly agreed [M= 3.02, SDV=1.476] that the health care services offers vaccine to those who are perceived to be affected. They also agreed [M= 3.86, SDV=1.118] that the vaccines are provided annually to curb the spread of the

disease. The majority of the respondents disagreed [M= 2.82, SDV=1.356] that TB free individual has a high probability not to be affected with a little majority holds contrary opinion. Respondents agreed [M= 4.23, SDV=0.737] that the administering of vaccine has significantly leads decrease of TB patients. The results imply that vaccination of tuberculosis influence provision of curative and preventive tuberculosis health care services.

#### A. M&E Work Plan and Provision of Curative and Preventive Tuberculosis Health Care Services

The study assessed how M&E work plan influence provision of curative and preventive tuberculosis healthcare practices in institutions of public health. The results are presented in Table 8.

TABLE XIII: DATA DISSEMINATION AND USE ON PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS HEALTH CARE SERVICES

Statements	Mean	SDV
The institution has developed data collection system for curative and preventive tuberculosis health care activities	3.57	0.695
The Data source for are defined by the institutions objectives of the program concerned	3.97	0.617
The institution is concerned with the reliability of data collection instruments	4.07	0.684
Data accuracy is significant to the institutions decision making	4.01	0.605
The analyzed data are utilized for planning on provision of curative and preventive tuberculosis health care program activities	3.94	0.689
<b>Composite mean and Std. Dev.</b>	<b>3.91</b>	<b>0.466</b>

The study results indicated that majority of the respondents agreed [M= 3.57, SDV=0.695] that the institution has developed data collection system for curative and preventive tuberculosis health care activities. The majority of the respondents agreed [M= 3.97, SDV=0.617] that the data source for are defined by the institutions objectives of the program concerned. Most of the respondents agreed [M= 4.07, SDV=0.684] the institution is concerned with the reliability of data collection instruments. The majority of respondents were in agreement [M= 4.01, SDV=0.605] that data accuracy is significant to the institutions decision making. Most of the residents agreed [M=3.94; SDV=0.689] the analyzed data are utilized for planning on provision of curative and preventive tuberculosis health care program activities. The study results basically showed that data dissemination and work plan

significantly influences provision of curative and preventive tuberculosis health care program activities.

TABLE XIV: CORRELATION OF DATA DISSEMINATION AND USE AND PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS HEALTH CARE SERVICES

Model	Unstandardized Coefficients	Standard Error	Beta	t	Sig.
[Constant]	29.934	1.251		23.937	.000
Data dissemination and use	.163	.063	.186	2.56	.011

Predictors: [Constant], Data dissemination and use

Dependent Variable: Provision of curative and preventive Tuberculosis health care services

R = 0.186; R. Square = 0.034 = at a level of significant P = 0.00 < 0.05

$$Y_4 = 29.934 + 0.163X_4$$

The results indicated that there moderate positive influence of data dissemination and use on provision of curative and preventive tuberculosis health care services therefore; this means that there is a statistically significant influence of data dissemination and use on provision of curative and preventive tuberculosis health care services.

TABLE XV: REGRESSION ANALYSIS OF DATA DISSEMINATION AND USE AND PROVISION OF CURATIVE AND PREVENTIVE TUBERCULOSIS HEALTH CARE SERVICES

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.827	1	26.827	6.600	0.11
Residual	751.996	186	4.065		
Total	778.822	187			

a. Predictor: [Constant], Data dissemination and use

b. Dependent Variable: Provision for curative and preventive tuberculosis health care services

#### A. Test of Hypothesis

H<sub>0</sub>: Data Dissemination and Use significantly influence the provision of curative and preventive tuberculosis healthcare practices in institutions of public health in Kisumu County

Using the composite mean of provision of curative and preventive tuberculosis health care services, the regression

analysis of data dissemination and use was done. These indicators were; data collection instrument, data source, reliable instrument, data accuracy and data analysis. The study composite of was employed as the predictor variable to test the hypothesis using a linear regression model was used;

$$y_4 = a_4 + \beta_4 + X_4 + e_4 \quad \text{Where;}$$

y<sub>4</sub> = Provision of curative and preventive tuberculosis health care services

a<sub>4</sub> = Constant

β<sub>4</sub> = Beta coefficient

X<sub>4</sub> = Data dissemination and use

e<sub>4</sub> = error term

The resulted indicated that the P-value 0.000 < 0.005 at a level of significance of 0.05 therefore, the study accept the alternative hypothesis and reject null hypothesis.

#### CONCLUSION AND RECOMMENDATION

Data dissemination and use is fundamental in planning on the health care programs to be undertaken according to the institutional objectives. Data results contribute in presenting program results to health management team on how to address the emanating issues in the areas of concerned. It is significant to indicate that health care programs implemented based on the data results is geared to achieve the set objectives to a greater extent. The study results indicated that data dissemination and use played a significant role and technological aspect that is fast becoming integral part in health care activities. The study revealed that data dissemination and use assist in the early identification of health issues, and provide alerts in situations requiring responses. Therefore, there was a strong correlation between data dissemination and use and provision of curative and preventive tuberculosis health care services. More importantly, dissemination of data provides added value to research projects, as the impact of research can be potentially wider than the initial focus. Dissemination of data promotes the profile of not only the researchers but also the organizations strength capacity in research.

#### REFERENCES

- [1] Agarwal, R., Chaturvedi, S., Chhillar, N., Goyal, R., Pant, I. and Tripathi, C.B. (2012). Role of Intervention on Laboratory Performance: *Evaluation of Quality Indicators in a Tertiary Care Hospital*. Indian Journal of Clinical Biochemistry, 27, 61-68.
- [2] Aggarwal, A. K. & Zairi, M. [1997]. The Role of Total Quality Management in Enabling. A Primary Health-Care Orientation. Quality Management, Vol.80
- [3] Bossyns, P., Ranaou, A., Mahaman, S. A., Hamidou, M., Anne-Marie, D. and Wim Van Lerberghe, (2006), Monitoring the Referral System of Data Benchmarking in Rural Niger: An Evaluation of the Functional Relation between Health Centres and the District Hospital. *BMC Health Services Research* 2006, 6:51.
- [4] Claude Shannon (1948), "A Mathematical Theory of Communication". Bell System Technical Journal. 27: 379-423, 623-656.
- [5] David, D. [1999]. Impact of Formal Continuing Medical Education:



- MD, University of Toronto, 150 College St, Toronto, Ontario, Canada.
- [6] Durham J. P. (2005), *Communications as dissemination*. University of Michigan.
  - [7] European Commission. [2008]. Joint Report on Social Protection and Social Inclusion. Brussels.
  - [8] Fazekas. M., Stefanie. E., Jennifer. N., Ellen. N. (2010). *Framework for Assessing, Improving and Enhancing Health Service planning*. RAND's Publications.
  - [9] FDA. [2018]. Department of Health and Human Services. US.
  - [10] Global Health Education, (2017), *A Health Innovation*. Article: 1408359
  - [11] Guimaraes, A.C., Wolfart, M., Brisolara, M.L.L. and Dani, C. (2012), Causes of Rejection of Blood Samples Handled in the Clinical Laboratory of a University Hospital in Porto Alegre. *Clinical Biochemistry*, 45, 123-126.
  - [12] Houghton Mifflin, (2004), Medical Dictionary. Houghton Mifflin Company. The American Heritage.
  - [13] Institute of Medicine (2001), *Crossing the Quality Chasm: A New Health System for the 21st Century*. The National Academies Press, Washington, DC
  - [14] Jegede, F.E., Mbah, H.A., Aminu, M., Yakubu, T.N. and Torpey, K. (2015), Evaluation of Laboratory Performance with Quality Indicators in Infectious Disease Hospital, Kano, Nigeria. *Open Journal of Clinical Diagnostics*, 5, 1-9.
  - [15] Starfield, B., L. Shi & Mancinko. [2005]. Contribution of Primary Care to Health Systems and Health. *Milbank Quarterly* 83
  - [16] Teutsch and Churchill, (2000). *Principle and Practices of Public Health Surveillance*. Oxford University Press.
  - [17] United Nations, (2000), *United millennium declaration*, Resolution UN HQ New York.
  - [18] World Health Organization, (2017), *Global Tuberculosis Control: Surveillance, Planning and Financing: WHO Report Geneva, Switzerland*
  - [19] World Health Organization, (2011), *Global Tuberculosis Report*. Geneva.
  - [20] World Health Organization, (2008). *Global Tuberculosis Control: Surveillance, Planning, Financing*. Geneva.
  - [21] World Health Organization (2007), *Everybody's Business: Strengthening Health Systems To Improve Health Outcomes*. WHO's Framework For Action. Geneva.

## AUTHORS'S PROFILE



John Odhiambo Oluoch is from Siaya County, Kenya 25<sup>th</sup> May, 1975. PhD in Project Planning and Management (Monitoring and Evaluation), Master's degree in Project Planning and Management and Bachelor's degree in political science and public administration and a diploma in human resource management all from the University of Nairobi. He is a researcher and involved in implementation and monitoring of upgrading projects in informal settlement in Kenya with a NGO's and faith-based organization for the last seven years. Currently, he is a lecturer at the ODEL Campus, University of Nairobi.



Professor Charles M. Rambo is a professor in the School of Continuing and Distance Education at the University of Nairobi. He holds a PhD Degree in Financing Distance Education from the University of Nairobi Kenya, MBA Degree in Finance of Newport University, California, USA with Courses in Finance [major], research and other management courses and a BBA Degree with a major in finance and a minor in accounting of Newport University- California USA. Degree status 3.72 GPA. He contributes immensely to the body of knowledge research, continuous teaching, examining and research. He has thorough supervision of postgraduate students. He also teaches postgraduate students at the School of Business, University of Nairobi. He has several publications on various researched articles including international referred journals and published text books namely, Social Science Research: Principles, Methods, Principles of Market, Fund Raising for Project Development, Financial Management for Small Business Enterprises: Theory and Practice, Financing in Distancing Learning in Kenya: A Focus on Bachelor of Education Arts Program of The University of Nairobi, Fundamentals of Financial Management: A Strategic

Approach, Disaster's , Their Impacts, Insurance, Risk Financing and Management, Principles and Procedures In Project Planning and Management, Project Financing, Material Production and Control Strategies, Developing and Implementing Strategic Marketing Plans and Small Enterprises Development and Management. He developed modules Entrepreneurship and Small Business Management and Fundamentals of Management by distance learning of the University of Nairobi. He also participated in development for the University of Nairobi postgraduate programs namely; Doctor of Philosophy [PhD] in Project Planning and Management, master's Programmes in Project Monitoring and Evaluation, Master of Project Financing, Master Degree in Project Planning and Management and a Bachelor Degree in Project Planning and Management. Master's Degree in Project Planning and Management He is an External Examiner at the University of Eastern Africa, Baraton and Jaramogi Odinga University of Science and Technology, University of Daressalaam from 2010 to date. He has presented the listed paper in conferences; the linkage between Business Strategy And Human Resource Strategy On The Performance Of An Organization, At A Regional Conference of the Institute of Human Resource Management Professionals in Kisumu county, Kenya, Aspects of Revenue Generation that Influence Financial Sustainability of Public- Private Water Utilities: The Case of Lake Victoria South Region, Kenya, The Role of The Institute of Human Resource Management Professionalism Achieving Kenyan Vision 2030 In A Regional Conference held In Kisumu County, Kenya Just to mention but a Few. His Membership with Professional Association are; Kenya Institute of Management [KIM], Number: 44234 and Certified financial analyst [CFA], [UK] Membership ID: 68359054. He holds the following Special Assignments and Appointments; Chairman, Departmental Postgraduate Committee -Department of Open Learning, University of Nairobi, Chief Editor of the International Journal of Project Management, University of Nairobi. Ad-Hoc Reviewer by institute for business and finance research-USA.



Prof. Ganesh Pokhariyal is a professor in applied mathematics in School of Mathematics at the University of Nairobi. He has actively taught, research and supervise in higher learning institutions for over thirty years. He has contributed immensely in research with interests in, General theory of relativity Differential Geometry and Mathematical Modelling. He has over 120 publications in various fields including Medicine, Governance and Agriculture. Also held various administrative offices in the University of Nairobi.D.Sc. [Mathematics] - General Relativity and Differential Geometry. Mathematics, Ph.D. [Mathematics] - General Theory of Relativity, M.Sc. [Mathematics] - Mathematical Statistics I and II, Relatively and Quantum Mechanics, M.Sc [Physics] – Spectroscopy. His research interest General Theory of Relativity, Differential Geometry and Mathematical Modeling. He has trained many Postgraduate students in Applied Mathematics, Pure Mathematics, Information Systems, Physics and Engineering. Ph.D. Supervision in Differential Geometry, Relativity Theory, Functional Analysis, Statistical analysis and Mathematical Modeling. Ph.D. teaching and supervision at School of Commerce, Nairobi University. Trained MBA students at Moi University and United States International University [Nairobi]. He developed curriculum for B.Sc. and M.Sc. Applied Mathematics for the University of Nairobi and Statistics and Quantitative Methods for the Kenya Institute of Management. Postgraduate Information Systems, Physics and Engineering. Ph.D. Supervision in Differential Geometry, Relativity Theory, Functional Analysis, Statistical analysis and Mathematical Modeling. Ph.D. teaching and supervision at School of Commerce, Nairobi University. Trained MBA students at Moi University and United States International University [Nairobi]. He developed curriculum for B.Sc. and M.Sc. Applied Mathematics for the University of Nairobi, Statistics and Quantitative Methods for the Kenya Institute of Management, Secondary School Subject for the Kenya Institute of Education and Mathematics and statistics units for United States International University [Nairobi].