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ACCESSIBILITY OF ESSENTIAL MEDICINES FOR NON-COMMUNICABLE DISEASES IN A DEVOLVED GOVERNMENT IN KENYA – THE CASE FOR TRANS NZOIA COUNTY OF WESTERN KENYA

Dr. Lucy Lasoi Saiyoki, B Pharm (Nairobi), Department of Pharmacy, Kitale County Referral Hospital, P O Box 98 -30200 Kitale, Kenya and Department of Public Health, Masinde Muliro University of Science and Technology, P O Box 190 – 50100 Kakamega, Kenya, Dr. Rose Olayo, Bsc, MSc CHD, PhD (Public Health), Department of Public Health, Masinde Muliro University of Science and Technology, P O Box 190 – 50100 Kakamega, Kenya, Prof. James Aggrey Oloo, MBChB, M Med (Internal Medicine), DTMH, FCP (ECSA), Department of Medicine, Masinde Muliro University of Science and Technology, P O Box 190– 50100 Kakamega, Kenya.

Corresponding author: Lucy Lasoi Saiyoki, Department of Pharmacy, Kitale County Referral Hospital, Kitale, Kenya and Department of Public Health, Masinde Muliro University of Science and Technology, Kakamega, P O Box 98 -30200 Kitale, Email: [lasoi433@gmail.com](mailto:lasoi433@gmail.com)

**ACCESSIBILITY OF ESSENTIAL MEDICINES FOR NON-COMMUNICABLE DISEASES IN A DEVOLVED GOVERNMENT IN KENYA – THE CASE FOR TRANS NZOIA COUNTY OF WESTERN KENYA**

L. L. Saiyoki, R. Olayo and J. A. Oloo

**ABSTRACT**

**Objective:** The study sought to determine the accessibility (affordability and physical access) to essential medicines for the four major non communicable in Trans-Nzoia County.

**Design:** The design was a descriptive cross-sectional study carried out for three months among outpatients with non-communicable diseases.

**Setting:** The study was conducted in five hospitals within Trans Nzoia County western Kenya using qualitative and quantitative methods.

**Participants and interventions:** Patients and key informant personnel were interviewed. Secondary documents from the health facility were reviewed. The sample size used was 320 participants attending the medical outpatient clinics.

Data obtained was analyzed using descriptive and inferential statistics. The level of significance was  $p = 0.05$ .

**Results:** The study found the essential medicines for non-communicable diseases to be affordable on the basis of minimum daily wage calculation at 0.309 days' wages, in contrast with the majority participant (78%) reported the medicines not affordable. Medicines for management of chronic obstructive pulmonary disease were found to be most costly with affordability rating of 0.449 days' wages. Health facilities where participants received essential medicines for non-communicable diseases were geographically accessible with most participants at

92% using 1 hour or less to get to the facility. Cost of transport means was found to be 0.52 days' wages constituting an impediment to accessibility.

**Conclusion:** With an epidemiological change in Kenya from communicable diseases to non-communicable diseases, there is need for renewed focus on access to essential medicines for these conditions as reflected by the formation of division of non-communicable disease in the ministry of Health. Based on the study findings, there is need to increase healthcare funding by the county governments for purchase of essential medicines for non-communicable diseases to improve accessibility and affordability by the general population.

## INTRODUCTION

Access to medicines may be affected by many factors such as poor availability, unaffordable prices, limited health financing and inadequate supply chain practices [1].

The non-communicable diseases burden reduction is highly dependent on equitable access to and appropriate use of essential medicines [2]. This concurs with the principle of universal access to healthcare being dependent on availability of quality assured medicines and health products [3].

In most developing countries a significant proportion of the household health related expenditure is on the purchase of essential medicines. This largely out of pocket expenditure leaves the households exposed to poverty effects with acute phase of management of NCDs being costlier. This slowly pushes the families below the poverty level very early into the disease and this has led to popularization of the generic brands of essential medicines for the non-communicable diseases in most low and medium income countries [1].

Like other developing countries Kenya is facing a double burden of communicable and non-communicable diseases and the latter now account for more than 50% of total hospital admissions and 55% of hospital deaths [4]. The World Health Organization strategy of "best buys" provides policy

directions and recommended interventions to achieving sustainable development goals (SDG 3) on good health and well-being. Top on the list of WHO health system best buys for non-communicable diseases is the use of multi drug therapy for diabetic patients, aspirin treatment for acute myocardial infarction and treatment of asthma with inhaled corticosteroids and B<sub>2</sub> agonists [2]. The prevalence of non-communicable diseases in Trans Nzoia County stands at 30% [4].

Devolution of health care systems is not unique to Kenya and other developing countries such as Ghana, Zambia, Philippines and Guatemala have functions and activities getting decentralized over time [5]. This study sets to evaluate the baseline as well as any improvements in accessibility of services and equity in meeting expectations of accountability and transparency due to increased decision space [6].

## MATERIALS AND METHODS

A descriptive cross-sectional design was adopted, employing quantitative and qualitative techniques for data collection. The study was conducted in Trans Nzoia County located in Western Kenya over a period of three months from June to August 2019. The study population being out-patients with any or all of the following: cancer, diabetes,

cardiovascular disease and chronic obstructive pulmonary disease, in the outpatient clinics, in any of the 5 sub county hospitals and the County Hospital, in Trans Nzoia County.

Cluster sampling and simple random sampling were used and a sample of 322 was obtained. The key informants were purposively selected in each hospital. They included: a hospital pharmacist, nursing officer in charge, procurement officer, medical superintendent as well as stores person. A total of 62 essential medicines from Kenya Essential Medicines (2016) were listed. Patient participants and key informants were interviewed. Descriptive and inferential

statistics were used in data analysis and level of significance was <0.05. Qualitative data was transcribed and coded for themes and categories.

## RESULTS

*Affordability of essential medicines for non-communicable diseases:* The study showed that from the self-report majority of respondents 79% (241/ 305) perceived the cost of their routine NCD essential medicines to be unaffordable. Results from facilities visited showed the mean affordability of metformin tablets was 0.464 ( $\pm$ .059).

**Table 4.1**

*Mean affordability of selected non-communicable diseases essential medicines*

Medicine	Mean	Max	Min	SD
Metformin tablets	.464	.510	.400	.059
Glibeclamide tablets	.256	.610	.130	.199
Insulin 70/30	.604	.840	.170	.254
Soluble Insulin	.068	.340	.000	.152
Amiloride tablets	.000	.000	.000	.000
Furosemide tablets	.136	.170	.070	.048
Hydrochlorothiazide 40mg Tablets	.156	.170	.100	.031
Spirolactone tablets	.410	.510	.200	.137
Digoxin tablets	.156	.170	.100	.031
Carvedilol tablets	.748	1.020	.300	.365
Amlodipine tablets	.452	.540	.200	.142
Enalapril tablets	.372	.510	.000	.220
Hydralazine tablets	.330	.810	.170	.320
Losartan tablets	.384	.510	.050	.201
Methyldopa tablets	.238	.340	.000	.152
Glyceryl trinitrate	.000	.000	.000	.000
Isosorbide dinitrate	.067	.200	.000	.115
Lidocaine injection	.014	.070	.000	.031
Verapamil tablets	.067	.200	.000	.115
Aspirin 75mg tablets	.474	1.010	.340	.300
Atorvastatin 20mg tablets	.672	1.010	.340	.237
Beclomethasone inhaler	.570	.670	.170	.224
Epinephrine injection	.242	.670	.030	.247
Salbutamol inhaler	.536	.670	.000	.300

**Affordability of essential medicines for non-communicable diseases:** The results found that medicines for management of chronic obstructive pulmonary disease had the highest affordability ratio of 0.449 days' wages, diabetes at 0.348 days' wages and the

least was cardiovascular diseases at 0.275 days' wages. The affordability of the essential medicines for cancer was not calculated as there were no records of any prices due to their unavailability in the facilities.

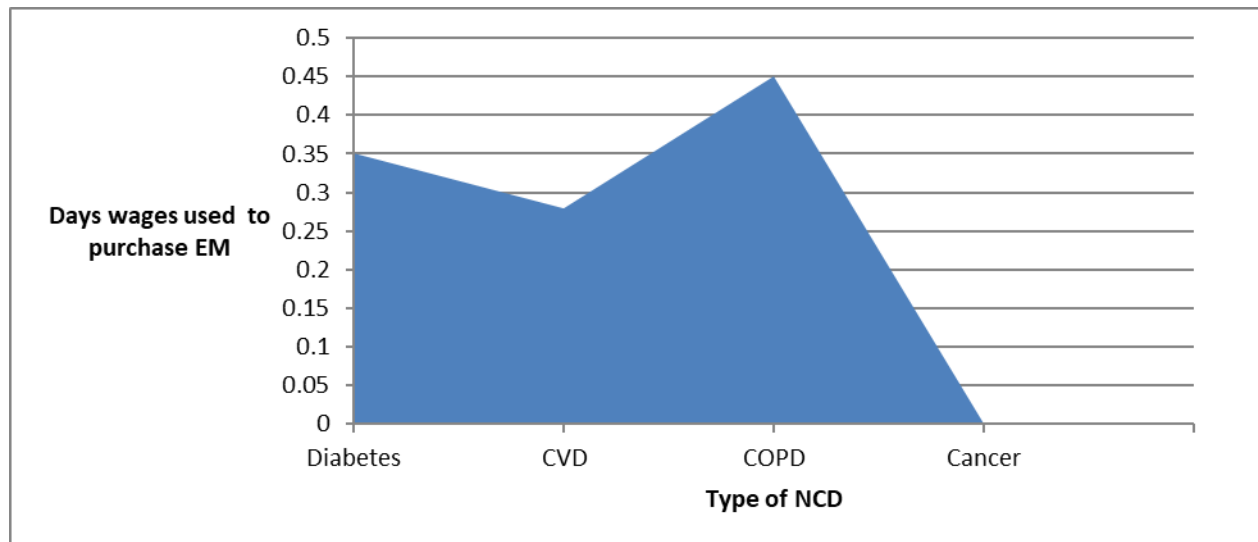


Figure 4.1 Affordability of essential medicine by disease treated

The study also showed that only 33% (102/305) had any form of insurance. Another 32% the respondents said that there was need for the government to allocate more resources towards purchase of medicines. Most key informants 81% (n=17) agreed that essential medicines sold to patients were subsidized by

the county government and majority 76% (n=16) agreed essential medicines for NCDs were affordable.

**Physical accessibility of essential medicines for non-communicable diseases:**

Table 4.2

Time to reach facility for medicines for NCDs

Questions asked and responses		N (number of participants)	% (percentage of participants)
Amount of time used to arrive to the health facility	< 30 Minutes	83	27.2%
	30 Minutes	115	37.7%
	1 Hour	82	26.9%
	>1 Hour	25	8.2%
Cost to arrive to the facility (KES)	≤50	64	21%
	51-100	85	28%
	> 100	155	51%

**Travel costs to health facility:** The affordability of the transport means was determined by using the daily wage of the lowest paid government worker which was KES 270 (Kenya National Bureau of Statistics 2015) and the average expenditure on the transport means was found to be 0.52 days' wages. Majority of the respondents 51% (n=155) had used 0.75 days' wages to travel to the health facility, 28% (n=85) had used 0.37

days' wages and 21% (n=64) had used 0.16 days' wages to arrive to the facility (figure 4.2). Majority 52% (n=159) of the participants said that the road networks in their locality was very poor while 48 % felt that the road network was good although 47% (n=143) arrived at the facilities by walking with use of motor vehicle being the least popular means of transport at 8% (n=24).



Figure 4.2 Affordability of travel cost to the health facility

## DISCUSSION

**Affordability of essential medicines for non-communicable diseases:** The study found that the medicines for non-communicable diseases were affordable in reference to the minimum daily wage of the lowest paid unskilled government employee. The mean affordability was 0.309 days' wages which is affordable according to the World Health Organization which defines the use of one day's wages on purchase of medicines as being affordable [7]. This is in agreement to a health facility survey done by the ministry of Health Kenya in 2009 which found the

essential medicines in health facilities to be affordable at 0.4 days' wages [8]. None the less, although a single medicine may appear affordable the combined cost of the drugs used may not be affordable as reported in this study. The World Health Organization does not give a specific figure as cut off mark for affordability based on minimum wage. However, it describes use of several days' wages on medicines as being unaffordable [9]. Affordability of cancer drugs could not be calculated due to the fact that the medicines were completely unavailable and therefore availability of 0.309 days' wages obtained was not inclusive of the cancer drugs. The two

cancer drugs that were available were given out to the patients for free and a donation of the Kenya Hospice Society.

The results further found that the medicines used for management of chronic obstructive pulmonary disease had the highest affordability ratio of 0.449 days' wages. This is because these

medicines have fewer range of generics in the market compared to the medicines for management of diabetes and cardio-vascular diseases [4] and COPD prevalence is less than 2%.

The study established that 33% of the participants had medical insurance mainly from state owned National Hospital Insurance Fund (NHIF). The lack of insurance therefore pushes the patients to spend out of the pocket, making the situation unacceptable for a very high rate of unemployment at 9.3% [4].

In this study metformin and glibenclamide for Diabetes Mellitus was found to have an affordability of 0.464- and 0.256-days' wages respectively which are less than a one day's wage and insulin 70/30 found to be the second least affordable essential medicine after carvedilol tablets. However, our study showed that one still required less than a day's wage to purchase the medicine which implies that the cost is still not beyond reach. None the less, monthly multiple medications for best care cost may be equivalent to several days' wages [2].

***Physical accessibility of essential medicines for non-communicable diseases:*** The designated health facilities for the participants were geographically reachable for 92% of the people. The World Health Organization recommends physically accessible health facility be reachable utmost within an hour [9]. However, 48% of the participants complained of poor road network especially

on rainy seasons. This negatively impacts on their adherence to their medicines as they are forced to do without medicines for some days. Alternatively, they were forced to purchase the medicines at the nearby private drug stores that are more expensive. The poor road network is a known impediment to healthcare access in low and medium income countries [8].

An average of 0.52 days' wages of lowest paid unskilled government worker was used to access the health facilities. Ministry of Health [8] concluded that 0.41 daily wage for travel to access healthcare was high posing a question of how geographically accessible healthcare services is.

***Consequences of introduction of devolved governance:*** The study shows no significant change in the findings four years after the complete devolution of the health services. We have identified issues related to affordability and physical access of essential medicines for non-communicable diseases in the devolved system. The study highlights priority areas for attention by the county governments and the ministry of health. A dialogue is needed to identify the best way possible to improve access to affordable essential medicines for non-communicable diseases. There is need for further subsidization of the prices of these essential medicines for NCDs under the auspices of universal health coverage and health insurance for all. Existing policies and procedures should be strengthened to ensure steady and uninterrupted supply of essential medicines for NCDs to the public health facilities and this would minimize loss of economic gains associated with NCDs [10,11].

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