

# FACTORS INFLUENCING ACCESS TO OPIOIDS FOR PAIN MANAGEMENT IN PALLIATIVE CARE: A CASE OF NYERI COUNTY, KENYA

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## Abstract

**Background:** Access to essential medicines is fundamental to good performance of the healthcare system. Palliative care is a priority in many developing countries with the rising burden of non-communicable and chronic illnesses. However, access to opioids in palliative care has not been prioritized in Kenya. The study sought to establish factors that influence access to opioids for pain management in palliative care in Nyeri County in Kenya.

**Method:** A cross sectional study design with qualitative and quantitative approaches to data collection and data analyzed using Statistical Package for Social Scientists.

**Results:** Factors that were found to influence access to opioids positively and significantly were commodity management practices ( $r = .450^{**}$ ,  $P = .006$ ), rational use of opioids ( $r = .409^*$ ,  $P = .013$ ) and human resource practices ( $r = .620^{**}$ ,  $P < .001$ ). There was no significant statistical evidence on the relationship between palliative care policy practices and access to opioids ( $r = .083$ ,  $P = .632$ ).

**Conclusion:** Human resource practice has the highest influence on access to opioids, followed by commodity management practices and rational use of opioids respectively. Hence the need to build both capacity and competencies of human resources to ensure access to opioids.

**Key Words:** Access, Palliative care, Opioids

## INTRODUCTION

Palliative care includes ensuring good pain and symptom control which helps people live meaningfully until the end of life and support their families' afterwards (WHO, 2004). Chronic and high-intensity persistent pain can lead to poor nutrition, decreased appetite, abnormal sleep patterns, fatigue and impairment of daily living activities. Pain, which is a hallmark of many chronic conditions, can cause psychological impairment and decrease healing and recovery from injuries and illness (Deepak et al, 2014).

The World Health Organization (WHO) estimates that 5.5 billion people (83% of the world's population) live in countries with low to non-existent access to controlled medicines and have inadequate access to treatment for moderate to severe pain. In these countries, each year tens of millions of patients are suffering without adequate treatment (WHO, 2012).

In developing countries, people are more likely to seek treatment late in the disease course, presenting with severe pain or other distressing conditions. Despite the high disease burden, pain is largely under-diagnosed and under-treated in developing countries. Insufficient pain relief has devastating consequences on quality of life, particularly when the pain is severe or debilitating (Pain and Policy Group, 2013).

Access to many medicines controlled under international drug control treaties is lacking around the world, with the exception of a few industrialized countries. Even in some highly industrialized countries access is limited. The realization of the Millennium Development Goal 8e,

"Provide access to affordable essential drugs in developing countries", is likely to be further away for opioids than for any other class of medicines.

Palliative care should be provided from the time of diagnosis of the life limiting illness. With the increasing incidence of non-communicable diseases in Kenya, most of which require palliative care, there is need to ensure increased access of pain medicines by patients for use in pain management. The findings of the study will help to identify gaps in the Kenya health system that may require policy development and/or review, as well as a change in clinical practice that are required to be put in place to benefit palliative patients in Kenya and specifically in pain management.

## METHOD

### Study Design

A cross sectional study with qualitative and quantitative approaches to data collection.

### Participants

The healthcare providers interviewed in the hospital were 36 and included Pharmacists, Dentists and Nurses. Nurses were selected using stratified sampling and were from the palliative clinic, medical and surgical wards. There was purposive sampling to select three key informants working at the Pharmacy and Poisons Board working in the Department of Trade Affairs. The purpose was to get their input on the link between trade matters on opioid analgesics and how the processes therein may affect access of these medicines by patients. Quantitative data focused on the independent and dependent variables and the questionnaire for the healthcare providers was developed using a 5-point Likert scale ranging

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from 5 representing 'Strongly Agree' in descending order to 1 representing 'Strongly Disagree'.

**Study Size**

The study sample was selected using the formula (Mugenda and Mugenda, 2003) where the sample size for a population of 10,000 or more is computed using the formula below:

$$n = \frac{pqz^2}{e^2}$$

where n = Minimum sample size

p = Population proportion with given characteristic  
 z = Standard normal deviation at the required confidence interval  
 e = Error margin

Since p and q are unknown, the recommendation is that both are set at 50%. At a confidence level of 95% that was used for this study, z = 1.96 and a sampling error of e = +5%. Thus, sample size n, becomes:

$$n = 50 \cdot 50 \cdot (1.96/5)^2 = 384$$

The population size of the healthcare workers in the hospital was 9 pharmacists, 10 dentists and 55 nurses, totaling to 74 healthcare workers. For a population less than 10,000, the sample is computed as below:

$$nf = n / (1 + n/N)$$

where n = sample size (when population is greater than 10,000) = 384

$$\begin{aligned} N &= \text{estimate of the population size} = 74 \\ &= 384 / (1 + 384/74) \\ &= 384 / 6.19 \\ &= 62 \text{ respondents} \end{aligned}$$

There was purposive sampling done to select 3 key informants from the Pharmacy and Poisons Board, namely – the Head, Department of Trade Affairs, the Regulatory Officer – Licit Control Section and the Quality Management Systems Liaison Officer. This department deals with import licenses as well as trade matters for opioids which may affect access of opioids by patients.

**Quantitative variables**

Quantitative data collected was coded, cleaned and analyzed using Statistical Package for Social Scientists (SPSS). Descriptive statistics such as percentages, mean, standard deviation were used to summarize demographic data.

**Statistical methods**

Bivariate linear correlation analysis and multiple regression analysis was performed on these specific determinants of each of the predictor variables (X<sub>i</sub>) and the results discussed in terms of P-values, F-statistic, R<sup>2</sup>, Beta values and Pearson's Rho values.

**RESULTS**

**Descriptive data**

From the demographic characteristics of the respondents, the results showed that majority of the respondents are of middle age, had the necessary experience and are well educated, hence were able to clearly understand the purpose of the study and responded to the study questions based on their experience on the job.

**Main results**

The study results revealed that Commodity Management Practices influences access to opioids positively and significantly (r = .450\*\*, P = .006). Rational use of opioids positively influences their access and this influence is statistically significant (r = .409\*, P = .013) (Table 1).

**Table 1** Bivariate Linear Correlation Analysis: All Variables

		Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>
Access to Opioids (Y)	Pearson Correlation	1				
	Sig. (2-tailed)					
	<b>N</b>	36				
Palliative Care Policy Practices (X <sub>1</sub> )	Pearson Correlation	.083	1			
	Sig. (2-tailed)	.632				
	<b>N</b>	36	36			
Commodity Management Practices (X <sub>2</sub> )	Pearson Correlation	.450**	.453**	1		
	Sig. (2-tailed)	.006	.006			
	<b>N</b>	36	36	36		
Rational Use of Opioids (X <sub>3</sub> )	Pearson Correlation	.409*	.580**	.544**	1	
	Sig. (2-tailed)	.013	.000	.001		
	<b>N</b>	36	36	36	36	
Human Resource Practices (X <sub>4</sub> )	Pearson Correlation	.620**	.510**	.424*	.523**	1
	Sig. (2-tailed)	.000	.001	.010	.001	
	<b>N</b>	36	36	36	36	36

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

The correlations analysis results of this study revealed that there is a positive and significant influence of the human resources on access to opioids in Nyeri County Hospital (r = .620\*\*, P < .001) (Table 1). This study did not find any significant statistical evidence on the relationship between palliative care policy practices and access to opioids in Nyeri County Hospital (r = .083, P = .632). The human resource factor was found to not only affect access to opioids in Nyeri County Hospital but also influences positively and significantly the other three variables, that is palliative care policy practices (r = .510\*\*, P = .001), commodity management practices (r = .424\*, P = .010) and rational use of opioids (r = .523\*\*, P = .001) (Table 1).

**Table 2** Palliative Care Policy Practices: Regression Weights<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.213	.531		6.053	.000
1 X <sub>11</sub>	-.604	.279	-.365	-2.162	.038
X <sub>12</sub>	.379	.158	.404	2.397	.022

a. Dependent Variable: Y

From the multiple regression analysis, palliative policy awareness (X<sub>11</sub>) and policy implementation (X<sub>12</sub>) were seen to be statistically significant, X<sub>11</sub>:β<sub>1</sub> = -.604, P = .038 and X<sub>12</sub>:β<sub>2</sub> = .379, P = .022 (Table 2); there was a significant positive influence of consumption of opioids (X<sub>22</sub>) on access of opioids to patients (r = .522\*\*, P = .001) (Table 3); dispensing practices (X<sub>32</sub>) was statistically significant (β<sub>2</sub> = .579, P = .002) (Table 4); human resource competencies (X<sub>42</sub>) is statistically significant (β<sub>2</sub> = .397, P = .042) (Table 5).

**Table 3** Bivariate Linear Correlation Analysis: Commodity Management Practices

	Y	X <sub>21</sub>	X <sub>22</sub>	
Y	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	36		
X <sub>21</sub>	Pearson Correlation	.255	1	
	Sig. (2-tailed)	.133		
	N	36	36	
X <sub>22</sub>	Pearson Correlation	.522**	.419*	1
	Sig. (2-tailed)	.001	.011	
	N	36	36	36

\*\* . Correlation is significant at the 0.01 level (2-tailed).  
\* . Correlation is significant at the 0.05 level (2-tailed).

**Table 4** Rational Use of Opioids: Regression Weights<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.906	.380		5.012	.000
	X <sub>31</sub>	-.183	.203	-.175	-.902	.374
	X <sub>32</sub>	.579	.172	.652	3.371	.002

a. Dependent Variable: Y

**Table 5** Human Resource Practices: Regression Weights<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.167	.402		2.905	.007
	X <sub>41</sub>	.215	.131	.296	1.633	.112
	X <sub>42</sub>	.397	.187	.384	2.119	.042

a. Dependent Variable: Y

**Other analyses**

A multiple regression analysis performed on the four key factors (palliative care policy practices, commodity management practices, rational use of opioids and human resource practices) to test their combined influence on access to opioids. The regression output (Table 6) containing all the four variables in this study was found to be valid ( $F_{(4,31)} = 10.315, P < .001$ ) meaning the four predictor variables in this study are good in explaining access to opioids by patients in Nyeri County Hospital.

**Table 6** Access to Opioids: ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	10.313	4	2.578	10.315	.000 <sup>b</sup>
	Residual	7.748	31	.250		
	Total	18.061	35			

a. Dependent Variable: Y  
b. Predictors: (Constant), X<sub>4</sub>, X<sub>3</sub>, X<sub>2</sub>, X<sub>1</sub>

**DISCUSSION**

The study indicated that commodity management practices in the hospital need to be done correctly to ensure that opioids are available to patients when they need them. From literature review, commodity management practices have been identified as one of the key variables influencing access to opioids. Morphine was available in all hospitals in 10 countries in a survey of 40 countries; in other 12 countries, it was in most hospitals and in another 18 countries, it was available only in some hospitals. In Ukraine and Iran, there was no oral morphine at all (Human Rights Watch, 2011). A report showed that 13 countries did not set aside or consume opioids to treat even 1% of their terminal HIV/AIDS and cancer patients (Lohman and Shyne, 2016).

Both prescribing and dispensing practices directly influence access of opioids. Prescribers who are mostly medical doctors may be absent from the hospital at the time of pain in a palliative patient hence the need to incorporate other cadres of staff including nurses and clinical officers to prescribe opioids. Pharmacists may also not be always available to dispense opioids hence the need for other cadres including pharmaceutical technologists and nurses to be allowed to dispense these medications at the time of need to patients. From literature review, many developing country governments have limited the availability or supply for medical use of opioids and put strict policies in place that govern their prescription, dispensation and consumption (Union for International Cancer Control, 2013). Mozambique has legislation that restricts how doctors are allowed to prescribe opioids whereas Botswana, Democratic Republic of Congo, Malawi, Namibia, Swaziland and Zambia have initiatives to change regulations that restrict physician or patient access to pain relief (African Palliative Care Association, 2016).

Human resource in the hospital influences the other three variables to ensure access to opioids since they are the providers of palliative care to patients, hence human resource practices are the sole determinants of the other three practices/variables. From literature review, Uganda changed their law to allow nurses and clinical officers who complete special training in palliative medicine at Hospice Uganda to prescribe morphine (Jagwe and Merriman, 2007). Nurses and clinical officers must be empowered to provide quality care, including prescribing opioids to patients who need them (Morris, 2013).

From the multiple regression results, it indicated there is a significant inverse relationship between palliative care policy practices and access to opioids which means that palliative policies influence access to opioids negatively; the significant positive influence of consumption of opioids implies that access to opioids increases as consumption (demand) increases; significant positive influence of dispensing practices to access to opioids implies that access to opioids increases as dispensing practices improve and remain enhanced and finally human resource competencies increase access to opioids.

**CONCLUSION**

The study found out that the three main factors influencing access to opioids in Nyeri County Referral Hospital are commodity management practices, rational use of opioids and human resource practices. The study did not find any statistical evidence that palliative care policy practices influence access to opioids for pain management in palliative care in the hospital. In addition, the bivariate linear correlation analysis found out that human resources activities has the highest influence on access to opioids followed by commodity management practices and then rational use of opioids. Palliative health care policies did not return any significant relationships with access to opioids. There is therefore need to capacity build multidisciplinary human resources for health teams to increase access to opioids and ensure maximum impact and improved palliative patient treatment outcomes.

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#### References

1. African Palliative Care Association. Review of the Status of Palliative Care in Ten South African Countries. 2016.
2. Deepak M, Baby Paul D, Sreekumar K, Alan, D.K., and Nalini, V. Availability and Utilization of Opioids for Pain Management: Global Issues. *The Ochsner Journal*: Summer 2014, Volume 14, No. 2, p 208-215.
3. Human Rights Watch. Global State of Pain Treatment. Access to Medicines and Palliative Care. 2011.
4. Jagwe J, Merriman A. Delivering analgesia in rural Africa opioid availability and Nurse prescribing. 2007. *J Symptom Management*, Volume 33, (Issue 5), p 547-551
5. Lohman D, and Shyne NB. The impact of International Drug Policy on Access to Controlled Medicines. 2016
6. Morris C. Palliative Care and Access to Medications for Pain Treatment. *Cancer Control*. 2013.
7. Mugenda O and Mugenda A. Research methods - qualitative and quantitative approaches. 2003
8. Pain and Policy Studies Group. Improving Opioid Availability for Pain and Palliative Care: A Guide to a Pilot Evaluation of National Policy. University of Wisconsin, Carbone Cancer Centre. 2013.
9. Union for International Cancer Control. Palliative Care Backgrounder. The Global Opioid Policy Initiative (GOPI) Survey. 2013
10. World Health Organization. Access to Controlled Medicines Programme - WHO Briefing Note. Improving Access to Medications Controlled under International Drug Conventions. 2012.
11. World Health Organization. The Solid Facts - Palliative Care. 2004

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