

12-2017

## Identifying Patterns in Health Care Disparities and Barriers to Health Care in Rural Tanzania

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#### Publication Information

Platts, Karlee; Sanborn, Christina; and Lull, Melinda E., "Identifying Patterns in Health Care Disparities and Barriers to Health Care in Rural Tanzania" (2017). *Pharmacy Faculty/Staff Publications*. Paper 183.

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# Identifying Patterns in Health Care Disparities and Barriers to Health Care in Rural Tanzania

## **Abstract**

Tanzania is a country in East Africa with a population of 55 million people. HIV/AIDS, malaria and nutritional deficiencies claim the lives of many each year across Tanzania. The World Health Organization (WHO) reported in 2013 that approximately 70 percent of the population of Tanzania live in more rural areas where access to healthcare, health education, and medications for these diseases may be limited. The objective of this study was to illuminate significant health disparities in rural Tanzania based on literature and direct observations to identify barriers to quality health care.

A comprehensive literature evaluation was completed on reports published on healthcare and health statistics in Tanzania from 1995 to present using Google Scholar and PubMed searches. This information was compared to direct observations, clinic evaluations and pharmacy inventories completed during a two week service program to villages in rural Tanzania. During this two-week trip, local health systems were directly observed and publicly available information about healthcare disparities in the region was recorded. Inventories of major diseases treated, services offered, and medications at two hospitals, one medical clinic and two pharmacies were recorded in the towns of Iringa and Ipalamwa, Tanzania.

Despite the need, many rural villages, like Ipalamwa, have no functional health clinic and limited pharmacies available to its people, preventing necessary care. In 2013 in Tanzania, there were 159 deaths per 100,000 people due to HIV/AIDS. Observations made in Iringa and Ipalamwa revealed that despite local pharmacies, antiretroviral therapies are not readily available. The WHO reported that 44 people per 100,000 people die every year from malaria and that in all regions of Tanzania, malaria is a major cause of health services for all ages. Observations made in rural Tanzania reveal that government run pharmacies only offer limited medications for malaria treatment, primarily Artequick (artemisinin/piperaquine), Lumiter (artemether/lumefantrine), and Coartem D (artemether/lumefantrine). From 2010-2011 it was reported that for children in Tanzania under the age of 5 years old, 13.6 percent were underweight, 6.6 percent experienced wasting, and finally 38.4 percent experienced stunting. Initial observations indicate that rates in rural areas well over 50 percent. Rural Tanzanian locations like Iringa are the highest producing maize regions and diet in the areas observed consists mainly of carbohydrate rich foods, such as corn and rice. Nutrient-rich food groups are avoided or sold for income or because of cultural beliefs.

Due to geographic location in rural regions of Tanzania, lack of resources present a barrier to health care. Lack of access to HIV/AIDS and malaria treatment raise concern. Due to the abundance of maize-heavy diets in rural settings, many have an imbalanced diet which leads to nutritional deficiencies and stunting. Despite access to other sources of food, many people do not take advantage due to lack of knowledge and cultural beliefs. Identification of unique issues in rural Tanzania along with specific barriers is critical as this will allow for programs and interventions to be more targeted in rural settings.

## **Keywords**

fsc2019

## **Disciplines**

Pharmacy and Pharmaceutical Sciences

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**Comments**

Presented at American Society of Health Systems Pharmacy Midyear Clinical Meeting in Orlando, Florida, December 2017.

# Identifying Patterns in Health Care Disparities and Barriers to Health Care in Rural Tanzania

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## Background

Tanzania is a country in East Africa with a population of 55 million people. HIV/AIDS, malaria and nutritional deficiencies claim the lives of many each year across Tanzania. The World Health Organization (WHO) reported in 2013 that approximately 70 percent of the population of Tanzania live in more rural areas where access to healthcare, health education, and medications for these diseases may be limited. Communities around the globe, depend on accessibility and obtainability of food. Maize production drives the economics of Tanzania. Rural villages like Iringa and Mybeya in the southern highlands are among the highest maize producing regions in Tanzania. The World Health Organization (WHO) considers the prevalence of child stunting in Tanzania to be 'unacceptably high'. It has been reported that one in four children under five are stunted—165 million children. Nutritional deficiencies, insufficient protein intake and infections may be directly responsible for stunting. Malaria has been linked to stunting. According to some studies, continuous reinfection can cause disturbances in growth.

## Objective

The objective of this study was to illuminate significant health disparities in rural Tanzania based on literature and direct observations to identify barriers to quality health care.

## Methods

A comprehensive literature evaluation was completed on reports published on healthcare and health statistics in Tanzania from 1995 to present using Google Scholar and PubMed searches. This information was compared to direct observations, clinic evaluations and pharmacy inventories completed during a two week service program to villages in rural Tanzania. During this two-week trip, local health systems were directly observed and publicly available information about healthcare disparities in the region was recorded. Inventories of major diseases treated, services offered, and medications at two hospitals, one medical clinic and two pharmacies were recorded in the towns of Iringa and Ipalamwa, Tanzania.

## Results



**Figure 1:** Map of the country of Tanzania with the observed areas (Iringa and Ipalamwa) starred.<sup>1</sup>



**Figure 2:** Map of Tanzania highlighting maize production is highest in rural areas.<sup>1</sup> The observed areas of Iringa and Ipalamwa are both in the Iringa region (bottom center of map). This region has the highest maize production in the country.

Total population (2015)	53,470,000
Gross national income per capita (International dollars, 2013)	\$1
Life expectancy at birth m/f (years, 2015)	60/64
Probability of dying between 15 and 60 years m/f (per 1,000 population, 2015)	311/245
Physician-to-patient ratio ( per 1,000 population, 2012)	0.031
Deaths due to Malaria (per 100,000 population, 2013)	44
Deaths due to HIV/AIDS (per 100,000 population, 2013)	159
Antiretroviral therapy coverage among people with HIV infection eligible for ART according to guidelines (2012)	61 %
Antiretroviral therapy coverage among people with advanced HIV (2009)	44 %

Stunting & Malnutrition	
Country-Wide (2010-2011)	Underweight: 13.6 % Wasting: 6.6 % Stunted: 38.4 %
Observed in Rural Tanzania (2017)	Stunted: >50 %

**Table 2 (above):** Demographic information and health statistics of Tanzania.<sup>3,4,5</sup>

**Table 3 (left):** Statistics on stunting in Tanzania.<sup>4,5</sup>

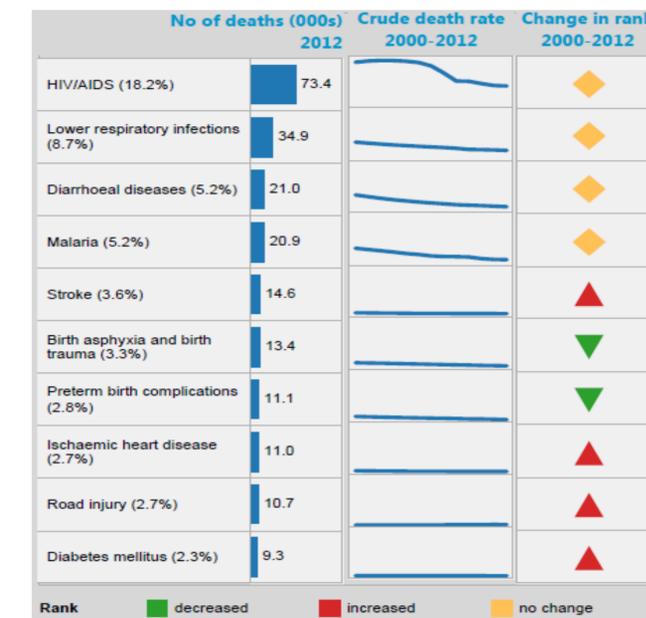
Common First line HIV Regimens	Readily Available?	Common First Line Malaria Agents	Readily Available?
Tenofovir (TDF) 300 mg / Lamivudine (3TC) 300 mg / Efavirenz (EFV) 600 mg	No	Artequick® (artemisinin/piperaquine)	Yes
Zidovudine (AZT) + Lamivudine (3TC) + Nevirapine (NVP)	No	Lumiter® (artemether/lumefantrine)	Yes
Tenofovir (TDF) 300mg + Emtricitabine (FTC) 200mg / Efavirenz (EFV) 600mg	No	Coartem D® (artemether/ lumefantrine)	Yes
Efavirenz (EFV) 600mg + Abacavir (ABC) 600mg+ Lamivudine (3TC) 300mg	No	Quinine	No

**Table 5:** Common first line HIV and Malaria medications in Tanzania compared to observed availability in rural Tanzanian pharmacies.<sup>6,7</sup>

## Common Foods in Tanzania

Millet
Sorghum
Beans
Pilaf
Cornmeal

**Table 1:** Table of the most common foods in Tanzania highlighting their carbohydrate rich diet.<sup>1,2</sup>



**Table 4:** Leading causes of death in Tanzania.<sup>3</sup>

## Conclusions

Due to geographic location in rural regions of Tanzania, lack of resources present a barrier to health care. Lack of access to HIV/AIDS and malaria treatment raise concern. Due to the abundance of maize-heavy diets in rural settings, many have an imbalanced diet which leads to nutritional deficiencies and stunting. Despite access to other sources of food, many people do not take advantage due to lack of knowledge and cultural beliefs. Identification of unique issues and specific barriers in rural Tanzania is critical. Identifying these issues will allow for programs and interventions to be more targeted in rural settings.

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## Disclosures

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