

# Availability of medicines as a measure of preparedness of Zimbabwe's health system to respond to Emerging and Re-emerging infectious diseases with focus to Parirenyatwa and Mpilo hospitals

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**Abstract:** *Infectious diseases are responsible for a large number of deaths worldwide with Africa being the most affected. According to (Organisation, World Health Organisation, 2018), “More than half of all deaths, 56 %, in low-income countries in 2016 were caused by the so-called “Group I” conditions, which include communicable diseases, maternal causes, conditions arising during pregnancy and childbirth, and nutritional deficiencies. Some of these are emerging in countries there were previously unknown such as Zika virus disease while others such as malaria are re-emerging diseases. Recent outbreaks of plague in Madagascar and Marburg virus in Uganda have pointed out the need for health systems that are prepared to respond to infectious diseases, both emerging and re-emerging.*

*The focus of this paper was to assess availability of medicines in the Zimbabwe's Health System to respond to emerging and re-emerging infectious diseases. To get a clear picture of Zimbabwe's health system, Parirenyatwa hospital and Mpilo hospital were used and 257 respondents were interviewed or answered questionnaires using purposive and stratified random sampling methods. These hospitals are the largest in the country and handle most referral patients. A Convergent mixed methods approach was employed using both quantitative and qualitative methods in data collection. Quantitative data was collected using questionnaires and qualitative data was collected using Focus group discussions and Key Informant interviews in this research to explore the level of preparedness on the elements that constitute a health system.*

*Findings indicated that Zimbabwe's health system was severely compromised and could not respond to emerging and re-emerging infectious diseases. The study found that medicines for emerging and re-emerging infectious diseases are not always readily available, accessible and affordable in Zimbabwe. The variables were found statistically significant at 5% level. All the responses relating to the perceived availability of medicines for emerging and re-emerging infectious disease response attained a mean composite score of 2.80 which implied that medicines for emerging and re-emerging infectious disease response are not always readily available*

**Key Words:** *Emerging Infections diseases, reemerging infections diseases, Heath System.*

## 1. INTRODUCTION:

Infectious diseases can be grouped into emerging and reemerging diseases. Emerging Infectious Diseases (EID) according to (Fletcher, 2013) can be defined as, “an infectious disease whose incidence is increasing following its first introduction into a new host population or whose incidence is increasing in an existing host population as a result of long-term changes in its underlying epidemiology” while ‘Reemerging Infectious diseases (RID) are diseases that once were major health problems globally or in a particular country, and then declined dramatically, but are again becoming health problems for a significant proportion of the population’, according to (Health, 2007).

Because of the evolution of some of the infectious diseases such as influenza through processes such as Antigenic Drift and Antigenic Shift and antibiotic resistance of others such Tuberculosis (TB), it has become increasingly complex to prevent infectious diseases outbreaks. (Jamison DT, 2006) states that “Furthermore, the presence of exacerbating factors, such as poor hygiene, unreliable water supplies, civil conflicts, and increased numbers of immune compromised patients attributable to the ongoing HIV epidemic, can further increase the burden of antimicrobial resistance by facilitating the spread of resistant pathogens”, such as those TB, a situation, which calls for new ways to be developed to respond to their occurrence.

Though health systems of some governments especially those in the developed countries have managed to contain infectious diseases and stop outbreaks, it remains a major challenge for developing world governments. (Kendyl Salcito, 2014) States that “Poverty and inequality create conditions for infectious diseases to thrive, and the diseases, in

turn, interact with social-ecological systems to promulgate poverty, inequity and indignity”, a situation common which may then affect health systems response and preparedness to infectious diseases. Most developing countries’ governments lack skills and resources to manage and strengthen their health systems and prepare them to respond to unpredictable emerging and re-emerging infectious diseases.

Of note in the struggle with infectious diseases are the recent outbreaks that occurred in Uganda and Madagascar. In Uganda, there were reports of the Marburg virus, which resulted in the death of one person and exposure of more than 200 people who attended the traditional burial of the first casualty as stated by (Organisation, World Health Organisation, 2017). WHO reported that it was monitoring the situation in the Kween province in Uganda, however in Madagascar as reported by (Senthilingam, 2017) a plague outbreak has infected 1192 people and resulted in 124 deaths. In the struggle to combat infectious diseases many African governments with the help of international donor agents, have done immensely well in eradicating diseases such as measles and polio. This has however been affected by the emergence of previously known diseases known as re-emerging infectious diseases and emerging infectious diseases. (Corporation, 2003) states that “Highly resilient varieties of cholera, pneumonia, malaria, dysentery, and typhoid have also emerged and are now prevalent in varying degrees throughout the Asia-Pacific region, Europe, and Africa”

Between 2008 and 2009 there was a cholera outbreak in Zimbabwe that killed 4011 people according (Matimati, 2009). The poor state of the health systems made it difficult to contain the outbreak resulting in a high death rate. In the same year, 2008 there was a Government of National Unity (GNU), which resolved matters with international donors and stabilized the economy with the use of the American dollar currency, which in turn led to an improved health system. However, in June 2013 the GNU ended, and the economy slid back into turmoil. Brain drain, shortage of foreign currency and lack of resources threatened to collapse the health system. In 2016, there was a typhoid outbreak in Harare the capital due to poor sanitation and contaminated drinking water.

The research focused on Zimbabwe’s two largest hospitals in terms of complexity of services given to patients’, number of medical staff, number of beds and facilities, financing and medical supplies. Located in Harare, Parirenyatwa hospital is the largest in the country followed by Mpilo hospital located in Bulawayo. These two health institutions were used in the research to give a representation of how Zimbabwe’s health system responds to infectious diseases. It is against this background that the research was conducted.

## **2. LITERATURE REVIEW:**

The African continent has been associated with almost all diseases because of the environment, which is conducive for bacteria growth, poverty and poor sanitation. According to (Hill, 2004) ‘Infectious diseases account foremost part of the global health problem, with most of the affliction falling in third world countries with around 14.5 million deaths in 2001 being attributed to the effects of infectious diseases.

Zimbabwe, a developing country in Africa, has had numerous experiences with infectious diseases and many lives lost in the process. Through its health system, which is, well-structured efforts have been made to control and combat infectious diseases. The system has been through leaps and bounces, from 1980 when the country got independence the system was thriving being backed up by a strong economy until 2000 when the land appropriation caused severe damage to the country. (Bate, 2005) says ‘presented World Bank data show that between 2000 and 2001, public health expenditure as a percentage of GDP fell from 3.8% to 2.8% and private healthcare spending fell from 3.6% to 3.4% of GDP, perhaps a symptom of the worsening economic situation’. Overall both private and public healthcare spending fell from 7.4% to 6.2% of GDP. This leads to a surge of infections, with Cholera in 2008-2009 being significant.

## **3. CONCEPTUAL FRAMEWORK:**

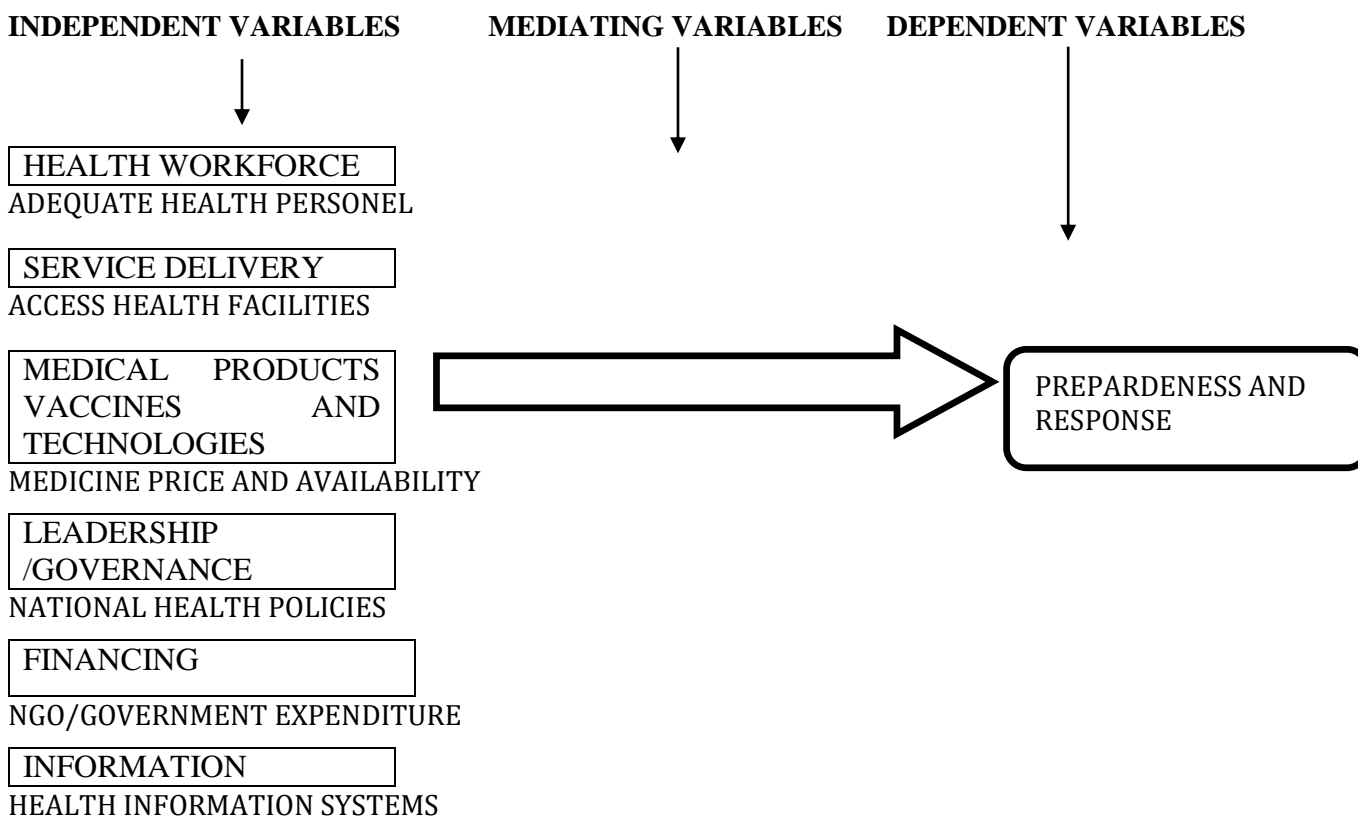
### **Relationship between Health Systems and Infectious Disease**

Preparedness to reemerging and emerging disease is based on the premise that health systems are structured not only to handle the sick in the population but also to be ready to respond to infectious diseases events. According to (Duchin, 2016), Preventing, preparing for, and responding to infectious disease outbreaks demands a sustained and forward-looking investment in public health.

Leadership and governance is an important block in a health system .it relates to the responsible management of institutions and careful application of laws that uphold policies set by Governments and donor agencies. Response to infectious diseases would be possible if Governments had strong leadership and governance skills, however, most African counties struggle with upholding their own health laws and mismanagement is rampant. (Chigozie J. Uneke, 2012) , alludes to the fact that lack of operational governance and leadership is a challenge in low-income countries. (Richard Coker R. A., 2008) Argues that while Governments focus on their domestic institutions and laws, attention must also be given to international law and establish a basis for collaboration in event of international public health emergencies such as the outbreaks of Ebola and SARS.

Access to health is a basic human right as enshrined in the United Nations charter. Access to medical products, vaccines and technologies have remained a significant challenge to most low-income countries such as Zimbabwe. Lack of financing due to a non-performing economy and negative international community political atmosphere has seen Zimbabwe lacking essential medicines which in some cases led to the stoppage of surgeries due to lack of basic drugs as anaesthetic and insulin as reported by (NewsDay, 2017).

**CONCEPTUAL FRAMEWORK: HEALTH SYSTEM AND PREPAREDNESS**



**4. METHOD:**

A convergent mixed method was used in this study. According to (CRESWELL, 2013) ‘mixed methods research is an approach to an inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct that may involve philosophical assumptions and theoretical frameworks’.

The targes population for the study was hospital workers from the two largest hospital in Zimbabwe. The focus was on the health personnel that work and practice there. The research utilized purposive sampling and stratified random sampling. The sample was comprised of medical personnel who are involved with morbidity and mortality cases due to emerging and reemerging infectious diseases at these facilities. The researcher distributed 326 questionnaires and a total of 257 completed the questionnaires, which was used in computing results. Key informant interviews were also carried at the hospitals.

**5. DISCUSSION AND ANALYSIS:**

**Perceived availability of medicines at health facilities to emerging and re-emerging infectious disease response**

The study aimed to ascertain the availability of medicines at Mpilo and Parirenyatwa hospitals for emerging and re-emerging infectious disease response. Henceforth, this section presents the findings obtained from the questionnaire, focus group discussions and interviews. The results are presented in Tables 1, 2 and 3.

The distribution of the responses relating to the perceived availability of medicines for emerging and re-emerging infectious diseases response is presented in Table 1. As shown in the table the majority of the participants to the study were in disagreement with most of the statements relating to perceived availability of medicines at Mpilo and Parirenyatwa hospitals for emerging and re-emerging infectious disease response. Exceptionally, 78 (30.4%) respondents strongly agreed that the hospitals provided adequate personal protective equipment (PPE) and clothing to avoid the transmission of the diseases to the health practitioners.

**Table 1: Frequency distribution for perceived availability of medicines at health facilities to emerging and reemerging infectious diseases response (N=257)**

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Sufficient medicines	87 (33.9%)	98 (38.1%)	65 (25.3%)	7 (2.7%)	-
Equipped laboratory	41 (16.0%)	64 (24.9%)	62 (24.1%)	69 (26.8%)	21 (8.2%)
Enough supplementary stock of medicines	42 (16.3%)	61 (23.7%)	57 (22.2%)	49 (19.1%)	48 (18.7%)
Adequate personal protective equipment (PPE) and clothing	38 (14.8%)	41 (16.0%)	41 (16.0%)	59 (23.0%)	78 (30.4%)

Source: Research Findings

As shown in Table 1, significant proportions of 38.1% and 33.9% respectively disagreed and strongly disagreed that there are sufficient medicines in the hospitals for infectious diseases (p=0.000). Although 26.8% of the respondents strongly agreed that there are equipped laboratory for disease testing and verification of pathogens suspected to be infectious, 24.9% disagreed (p=0.000). The study also learnt that the hospitals do not always have enough supplementary stock of medicines in case of re-emerging infectious diseases (p=0.000). Majority of the respondents (30.4%) strongly agreed that the hospitals provided adequate personal protective equipment (PPE) and clothing to avoid the transmission of the diseases to the health practitioners. Over 50% of the respondents agreed. The variables were found statistically significant at 5% level. All these responses relating to the perceived availability of medicines for emerging and re-emerging infectious disease response attained a mean composite score of 2.80. This implies that medicines for emerging and re-emerging infectious disease response are not always readily available.

**Table 2: Perceived availability of medicines for emerging and reemerging infectious disease response**

Statement	Percentage of respondents (%)					Chi-square	
	SD	D	N	A	SA	df	p
Sufficient medicines	33.9	38.1	25.3	2.7	-	8	.000
Equipped laboratory	16.0	24.9	24.1	26.8	8.2	8	.000
Enough supplementary stock of medicines	16.3	23.7	22.2	19.1	18.7	8	.000
Adequate personal protective equipment (PPE) and clothing	14.8	16.0	16.0	23.0	30.4	8	.000
<b>Chi-square (10.65)</b>						8	<b>.222</b>
<b>Composite Score Index</b>							<b>2.80</b>

SD, D, N, A, SA, M= strongly disagree, disagree, neutral, agree, strongly agree, mean (std. dev.)

In order to achieve the objective of ascertaining the availability of medicines at Mpilo and Parirenyatwa hospitals for emerging and re-emerging infectious disease response, the study conducted further tests, bivariate analysis. The results from the bivariate analysis are therefore presented in Table 2. The study adopted four variables and all these were found to be statistically insignificant to predict the availability of medicines for both emerging and re-emerging infectious diseases. All the variables; sufficient medicines (r=0.002, p=0.971), equipped laboratory (r=-0.005, p=0.930), enough supplementary stock of medicines (r=0.117, p=0.061) and adequate personal protective equipment (PPE) and clothing (r=0.020, p=0.747) were found to be statistically insignificant as the p-values were greater than 0.05. The findings infer that the hospitals under study have no readily available medicines for emerging and re-emerging infectious disease response.

**Table 3: Bivariate Analysis: Perceived availability of medicines for emerging and reemerging infectious disease response**

Variable	Pearson Correlation	Sig. (2-tailed)	N
Sufficient medicines	0.002	0.971	257
Equipped laboratory	-0.005	0.930	257
Enough supplementary stock of medicines	0.117	0.061	257
Adequate personal protective equipment (PPE) and clothing	0.020	0.747	257

Source: Research Findings

The health personnel interviewed and participants in the focus group discussions pointed out to the fact that availability medicines were a major problem. One of the participants narrated:

*“Lack of research and limited availability of diagnostic tests have been interfering with public health efforts in improving the preparedness of the health facilities to prevent and control outbreaks of both emerging and re-emerging communicable diseases such as Cholera”*

*“Drugs and medical supplies were largely unavailable in most major hospitals in Zimbabwe and this is an indication that the health public sector is not yet prepared for emerging and re-emerging infectious diseases...”*

*“Even though efforts have been made to address drug shortages, the medicines for emerging and re-emerging infections are still not easily accessible and affordable...”*

*“Currently, medicines and medical supplies are in short supply and unaffordable due to foreign currency shortages hitting the economy...”*

The crippling economic conditions and severe lack of foreign currency to import medicines are blamed for the unavailability of medicines. Another view was that budgetary allocation given to the health sector was not enough to support the Ministry of health in securing medicines or enough allocations of foreign currency to private companies and pharmacies to secure medicines. It was stated by one participant that;

*“Since 2000 the country has had severe economic challenges due to poor political engagement internally and externally which has resulted in the economy failing to produce or procure essential medicines from outside .basically there no money or foreign currency to buy them”*

It was pointed out that some medicines for re-emerging infectious diseases such as malaria and HIV were available due to prioritization by the government and international donor agencies. International donors were said to be on the forefront of providing medicines during outbreaks as in the case of cholera and typhoid that recently occurred, however without such assistance medicines to respond to any infectious diseases occurrence will nearly be non-existent. Another view that was put across was that the current political situation which has led to segregation and sanctions against the country has resulted in the country failing to access funds and medicines from foreign countries and companies primarily the United States of America and Britain who are major donors in global health initiatives.

## 6. FINDINGS:

There was a consensus from personnel at both hospitals that medicines were critically scarce in the country. Because of the dire economic situation in Zimbabwe, the country has been failing to secure and stock essential medicines due to lack of foreign currency. Independent drug and medicine suppliers such as pharmacies have also been affected by a lack of foreign currency. The Reserve bank of Zimbabwe which allocates foreign currency is overwhelmed by other essential services such as fuel and importation of grain, leaving the health sector deprived of essential medicines. Furthermore, those independent drug suppliers who are able to source the medicines on their own without assistance from the reserve bank charge exorbitant prices which are too high for the general public.

Another important aspect of the shortage of medicines is the insufficient allocation of funds for the ministry of health in the National budget. Zimbabwe is a signatory to the Abuja declaration where states are to allocate 15% of their total budget to Health as highlighted by (Organisation, World Health Organisation, 2019) .Over the years, Zimbabwe has been allocating less than 15 % to Health. In 2018 only 8% was allocated to Health, which has, in turn, led to a number of issues including an acute shortage of medicines in the country. As pointed out by the (NewsDay, 2017), Lack of financing due to a non-performing economy and negative international community political atmosphere has seen Zimbabwe lacking essential medicines which in some cases led to the stoppage of surgeries due to lack of basic drugs as anaesthetic and insulin. This situation is, unfortunately, true for all medicines needed at the hospitals and makes them highly incapable of responding to infectious diseases when they occur.

## 7. RESULT:

The study aimed to ascertain the availability of medicines for emerging and re-emerging infectious disease response. The study revealed that there were insufficient medicines in the hospitals for infectious diseases such that there is no enough supplementary stock of medicines in case of re-emerging infectious diseases. However, it was found that hospitals provided adequate personal protective clothing and equipment to avoid the transmission of the diseases to the health practitioners. Sufficient medicines, equipped laboratory, enough supplementary stock of medicines and adequate personal protective equipment and clothing were found to be statistically insignificant at 5%. The respondents to the study also reported a lack of research and limited availability of diagnostic tests, short supply of drugs, inaccessible and unaffordable medicines.

## 8. RECOMMENDATIONS:

The Government should strive to increase budgetary allocations towards preparedness and response to emerging and re-emerging infectious diseases. Improved relations with the international community can also assist the Ministry of health source funds for procurement of essential medicines for infectious diseases. International donor agencies and non-governmental organizations can balance the supply of antiretroviral drugs and the supply of medicines for other infectious diseases focus prevention and preparedness on both HIV and EIDs and RIDs.

## 9. CONCLUSION:

The study found that medicines for emerging and re-emerging infectious diseases are not always readily available, accessible and affordable in Zimbabwe leading to the conclusion that the prevailing political and economic situation in the country, mostly exacerbated by a shortage of foreign currency and decline in donor funding for medical supplies severely compromised Zimbabwe's health system ability preparedness in relation in emerging and re-emerging infectious diseases.

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