

ORIGINAL ARTICLE

# Cotrimoxazole Prophylaxis Compliance Among HIV Exposed Infants in Chikankata District in Southern Zambia

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## ABSTRACT

**Objectives and design:** The general objective of the study was to determine factors associated with cotrimoxazole prophylaxis compliance among HIV exposed infants so that strategies are designed to improve cotrimoxazole prophylaxis uptake and compliance. A cross sectional study was conducted at Chikankata Mission hospital catchment area in Chikankata district.

**Measures:** The study comprised face to face interviews of 102 mothers/caretakers of HIV exposed infants aged 6 weeks to 18 months selected using convenient sampling method. These mothers/caretakers of HIV exposed infants were interviewed using a structured interview schedule. The study data collection was done from September to November 2014 over a period of 2-3 months whereby 3-5 questionnaires were administered per day due to limited sampling frame.

SPSS statistical package was used for data entering and analysis

Descriptive statistics were employed to illustrate the data and chi-square test was used test associations among variables. The p values of less than 0.05 were considered statistically significant.

**Results:** The findings showed that 78.7% of the respondents were non compliant with cotrimoxazole prophylaxis, 95% had heard about cotrimoxazole prophylaxis and their source of information was the health worker (98%). Though

knowledge on the uses of cotrimoxazole prophylaxis stood at sixty percent (60%) only 51% knew the benefits of cotrimoxazole prophylaxis. 75.5% of the respondents stated that cotrimoxazole was not available at the health facilities, 89.2% stated that the road between their respective homes and the nearest health facility was passable, 73% said that the health workers at their nearest health facility did not encourage them to collect the drug when it ran out and 53.9% said that nurses at the nearest health facility did not follow them up when they did not go back for resupply of the drug. 77.5% of the respondents stated that their spouses did not allow them to collect cotrimoxazole when it ran out, 89.2% reported that their spouses knew about their HIV status and 65.7% said that they felt free to give their child cotrimoxazole in public. 61.8% of the respondents did not know that there was a social support group for mothers/caretakers of HIV exposed infants in their community and 74.5% stated that there were misconceptions about cotrimoxazole in the communities where they live.

**Conclusions:** The study showed a significant association between compliance to cotrimoxazole prophylaxis and the following factors: non availability of drugs ( $P=<0.0001$ ), attitude of the health care providers at nearest health facility ( $P=<0.001$ ), lack of follow up ( $P=0.009$ ), and impassable roads ( $P=0.026$ ) as service related factor. There was also a significant association between compliance to the drug and the following socio-cultural factors; misconceptions ( $P=<0.001$ ), spouse not allowing mother/caretakers to collect the drug

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when it ran out ( $P=0.001$ ), lack of social support ( $P=0.002$ ), lack of knowledge of the benefit of cotrimoxazole ( $P=0.002$ ) and mother/caretaker feeling free to give cotrimoxazole to the child in public ( $P=0.009$ ).

## INTRODUCTION

Compliance to cotrimoxazole by HIV exposed infants can save lives of many HIV exposed infants. Cotrimoxazole is an important preventive element of HIV care and is recommended for the prevention of Opportunistic Infections (OIs), notably *Pneumocystis Jiroveci Pneumonia* (PJP), Some Bacterial infections, some protozoan infections and Toxoplasmosis. It also reduces morbidity and mortality among HIV exposed infants if used consistently<sup>2, 8, 9</sup>. Greater advocacy for the use of cotrimoxazole prophylaxis in children is urgently required<sup>2,8,9</sup>.

Cotrimoxazole prophylaxis can reduce morbidity and mortality among HIV exposed infants if used consistently<sup>2,8,9</sup>. However, 2008 estimates reveal that only about 8% of infants needing cotrimoxazole prophylaxis had been started on it by two months of age<sup>8</sup>.

Cotrimoxazole drug's routine use in resource-limited settings particularly sub-Saharan Africa has remained limited. For instance, out of an estimated 4 million children who are in need of cotrimoxazole prophylaxis (HIV-exposed and HIV-infected), only 4% are currently receiving this intervention<sup>5</sup>.

There is no data in Zambia regarding cotrimoxazole targets and any associated factors on why there is low uptake and compliance with the prophylaxis.

## MATERIALS AND METHODS

A cross-sectional study was conducted at Chikankata Mission Hospital and 3 Health centres in Dundu, Malala and Terranova areas involving 102 respondents. Simple random sampling was used to select the health centres and facilities.

The study population comprised mothers/caretakers of HIV exposed infants who were purposefully selected because of the limited sampling frame. At

health centre level, respondents were conveniently selected because of the limited numbers of HIV exposed infant. Structured interview schedule was used to obtain data from the respondents by face to face interviews. Data Analysis was done using Statistical Package in Social Science (SPSS) version 21.0 software. Data was processed in frequency, cross tabulation tables, pie and graphs. The confidence interval was set at 95%. A 5% level of significance ( $p$  value 0.05 or less) was considered statistically significant.

The Chi-square test within the SPSS was used to test for associations between independent and dependant variables.

## RESULTS

The study showed that 75.5% of the mothers/caretakers stated that cotrimoxazole was not available at their nearest health facility. This has resulted in 78.7 % of them not complying with the treatment. In addition, the study has revealed a very significant association with non availability of cotrimoxazole and compliance with cotrimoxazole prophylaxis ( $p<0.0001$ ). Ninety three (93.5%) of mothers/caretakers whose roads were not passable throughout the year did not comply with cotrimoxazole prophylaxis attributing a significant association with a ( $p$  value- 0.026). Further, distance between homes and health centres must be reduced even by increasing the outreach health post as the study showed a significant association between distance and the utilization of cotrimoxazole prophylaxis. (Table 1 Service related factors associated with cotrimoxazole prophylaxis compliance) Table 4.6. Indicated that the mothers/caretakers of HIV exposed infants who said that cotrimoxazole was available at the nearest health facility were more likely to be compliant with cotrimoxazole compared to those who said it was not available (86.4% Vs 13.6%,  $P<0.0001$ ). On average the mothers/caretakers of HIV exposed infants who were compliant with cotrimoxazole prophylaxis were likely to take less time to reach the nearest health facility from their homes compared to those who were not compliant (0.85±0.82 hours Vs

Variable	Compliant		P-value
	Yes, n(%)	No, n(%)	
<b>Cotrimoxazole available at their nearest health facility</b>			
Yes	19 (86.4)	4 (5.1)	<0.0001
No	3 (13.6)	74 (94.9)	
How long it takes before for them to be attended to at health facility when they reach, (mean hours)	1.26±0.66	1.50±0.91	0.178
Hours taken to reach nearest facility, (mean hours)	0.85±0.82	1.06±1.16	0.335
<b>Road between their respective homes and nearest health facility is passable, (mean hours)</b>			
Yes	17 (77.3)	5 (6.5)	0.026
No	5 (22.7)	72 (93.5)	
<b>Attitude of health care providers at nearest health facility</b>			
Encourage them to collect and use cotrimoxazole	17 (77.3)	10 (12.8)	<0.0001
Don't know	5 (22.7)	68 (87.2)	
<b>Nurses at nearest facility follow up monthers/caretakers</b>			
Yes	18 (81.8)	27 (34.6)	0.0009
No	4 (18.2)	51 (65.4)	

Table 1 service related factors associated with compliance to cotrimoxazole prophylaxis use.

1.06±1.16 hours). This relationship was however not statistically significant. The mothers/caretakers of HIV exposed infants who spent less time at the health facility before being attended to by caregivers were more likely to comply than those who were not compliant (1.26±0.66 hours Vs 1.50±0.91 hours) though this relationship was not statistically significant. Mothers/caretakers of HIV exposed infants who said that the road from their homes to the nearest health facility was passable were more likely to be compliant with cotrimoxazole prophylaxis compared to those who said the road was not passable (77.3% Vs 22.7%, P=0.026).

The mothers / caretakers of HIV exposed infants who said that nurses from nearest health facility followed them up to their homes to check on them

were more likely to be compliant with cotrimoxazole prophylaxis than those who said that nurses don't follow them up (81.8% Vs 18.2%, P=0.0009). It is also interesting to note that mothers / caretakers of HIV exposed infants who stated that providers those who felt that the providers were encouraging them to collect cotrimoxazole were more likely to be compliant with cotrimoxazole as compared to those who said that they did not know the attitudes of the providers (77.3% Vs 22.7%, P<0.0001).

Figure 1 shows that majority 78.7% of the respondents did not comply with cotrimoxazole prophylaxis.

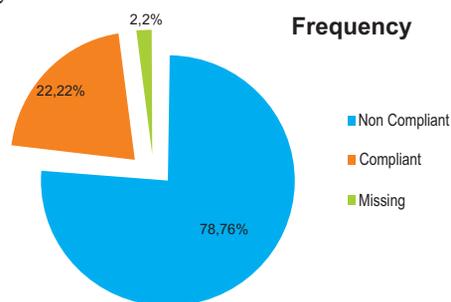


Figure 1: Compliance to the use of cotrimoxazole

Figure 2 show that 93.1% of the primary care takers of infants were their mothers.

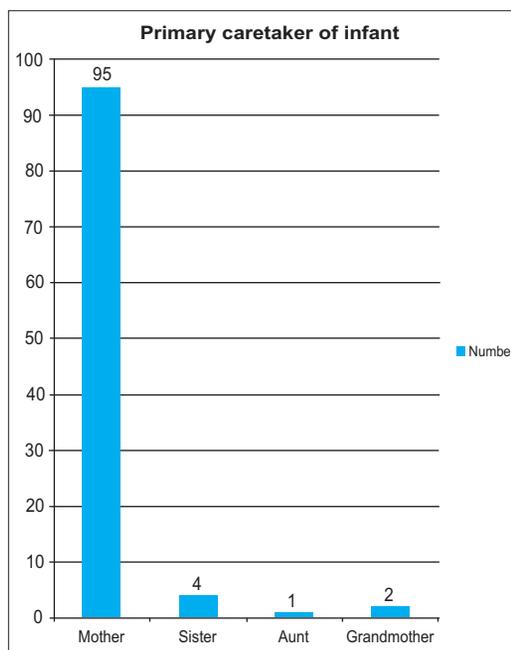


Figure 4.2: Primary caretaker of the infant

Table 2 shows that mothers/caretakers of HIV exposed infants who were compliant with cotrimoxazole prophylaxis were those who were allowed by their spouses to collect cotrimoxazole from the health facility when it ran out (90.5% Vs 9.5%,  $P < 0.0001$ ).

Variable	Compliant		P-value
	Yes, n(%)	No, n(%)	
Spouse allows mother/caretaker to collect cotrimoxazole when it runs out			
Yes	19 (90.5)	4 (5.4)	< 0.00001
No	2 (9.5)	74 (94.9)	
Spouse knows about the mother/caretaker HIV status			
Yes	19 (86.4)	72 (92.3)	0.408
No	3 (13.6)	6 (7.7)	
Mother/caretaker feels free to give a child cotrimoxazole in public			
Yes	20 (90.9)	47 (61.0)	0.009
No	2 (9.1)	30 (39.0)	
There is a social support group for mother/caretaker of HIV exposed infants			
Yes	17 (77.3)	20 (25.6)	0.0002
Don't know	5 (22.7)	58 (74.4)	
There are misconceptions about cotrimoxazole			
Yes	7 (31.8)	69 (88.5)	< 0.0001
No	15 (68.2)	9 (11.5)	
Highest level of education for mother/caretaker			
Had no formal education	2 (9.1)	7 (9.1)	1.000
Had formal education	20 (90.9)	70 (90.9)	
Mother/caretaker had knowledge of the benefits of using cotrimoxazole prophylaxis			
Yes	18 (81.8)	34 (43.6)	0.002
No	4 (18.2)	44 (56.4)	

Table 2: Social cultural factors associated with compliance to cotrimoxazole prophylaxis use

## DISCUSSION

The main objective of the study was to explore factors associated with cotrimoxazole prophylaxis compliance. Challenges cited for not complying include drug stock outs, long distance, staff shortages, misconceptions and inadequate knowledge about benefits of cotrimoxazole prophylaxis. On average the mothers/caretakers take about 1.3 hours to travel from their homes and reach the nearest health facility. HIV infected women who have to cover longer than 6 kilometers

may not be able to go for subsequent supply of cotrimoxazole for their infants. It was also established that most of the mothers/caretakers (90%) used to walk to get to the health facility to get the drugs. This finding showed a significant association with the non-compliance to cotrimoxazole prophylaxis ( $p=0.026$ ).

At the health facility on average they reported that it takes about 1 hour before they can be attended to by health care workers. As a result of staff shortage, the few available staff are overwhelmed with work and

may not give information education and communication to the clients as expected. The present study has found an association between compliance with cotrimoxazole prophylaxis and the attitude of the health workers ( $p < 0.0001$ ). There was a significant association between mothers/caretakers of HIV exposed infants who were followed up by health workers and compliance with cotrimoxazole prophylaxis ( $p = 0.0009$ ). This scenario is in line with the report that one of the main challenges countries face in scaling up uptake is the absence of mechanisms to systematically identify and follow up HIV-exposed infants at and after birth<sup>4</sup>. Therefore systems need to be in place to ensure that health workers consider the possibility of HIV infection in infants at birth, and at all the clinics or other health encounters thereafter so that this intervention can be provided on a timely basis.

As prevention activities are being scaled-up, it is important to remember that this will escalate the already existing challenges of human resources in prevention, as well as treatment, care and support. The current staffing levels in health facilities are inadequate to meet the demands of providing not only prevention, but other services as well<sup>6,7</sup>. This underpins the importance of multi-sectoral response in addressing the pandemic. Similar citation has been done that in Zambia staff shortages and heavy workload is among the key constraints to priority adequate Voluntary Counselling and Testing (VCT) and care<sup>1</sup>.

Mothers/caretakers of HIV exposed infants who were compliant with cotrimoxazole prophylaxis were more likely to feel free to give cotrimoxazole to their infants in public (90.9% Vs 9.1%,  $P = 0.009$ ). Mothers/caretakers of HIV exposed infants who indicated that there was a social support group for mother/caretaker of HIV exposed infants were more likely to be compliant with cotrimoxazole prophylaxis compared to those that said that they did not know (77.3% Vs 22.7% ,  $P = 0.0002$ ). ), thus indicating a significant association between social support and cotrimoxazole compliance. This study confirms the importance of family and community support systems (community based care). This is, in

accordance with the report that states that citing of home and community care should be an essential part of the response to the pandemic<sup>3,8</sup>. This result clearly indicates the key role the community plays in terms of offering support to its members who are sick. The kind of support given by the community will somehow influence the attitude of mothers/caretakers to comply with cotrimoxazole prophylaxis. Mother/caretaker of HIV exposed infants who stated that there were misconceptions about cotrimoxazole prophylaxis in the communities where they came from were significantly less likely to be compliant (31.8% Vs 68.2%,  $P < 0.0001$ ). However the study revealed no significant difference between mothers/caretakers who had no formal education compared to those who had formal education ( $P > 0.05$ ). It is also interesting to note that Mother/caretaker of HIV exposed infants who had knowledge of the benefits of cotrimoxazole prophylaxis were significantly more likely to be compliant than those who did not have the knowledge (81.8% Vs 18.2%,  $P = 0.002$ ).

## RECOMMENDATIONS

It is recommended that there is a need for consultative fora within Zambia that brings together key stakeholders at a national level, to disseminate information on current evidence, bridge gaps in knowledge, and allay fears on use of cotrimoxazole at country level. At the Chikankata District level, it is recommended that Information Education and Communication (IEC) strategies are strengthened by Chikankata District Medical Office (CDMO), placing more emphasis on dispelling misconceptions about cotrimoxazole prophylaxis and also educating the community on the benefits of cotrimoxazole prophylaxis use. It is also important that the government, through the relevant ministries, strengthen outreach programmes to ensure good follow up of mothers/caretakers and monitor utilisation of cotrimoxazole prophylaxis.

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