

Original Research Article

Implementation of the revised guidelines on TB/HIV collaborative activities in Lagos, Nigeria

Abstract

Background

The National TB and Leprosy control programme commenced the implementation of the revised the National TB/HIV guideline in line with the recommendations from the World Health Organization in January 2013. This study evaluated the effect of the revised guideline on the implementation of TB/HIV collaborative activities geared towards reducing the burden of HIV in TB patients in Lagos, Nigeria.

Methods

Retrospective review of presumptive and TB cases managed in TB treatment centers of the Lagos State TB and Leprosy control programme between January 1st to December 31st 2012 (pre implementation period) and January 1st to December 31st 2013 (post implementation period)

Results

Of the 19,533 presumptive TB cases registered during the pre-implementation period 17,530 (89.7%) were offered HCT out of which 15,247 (87%) accepted to be tested and 20.9% of those tested for HIV were positive. However in the post implementation period, of the 22,721 presumptive TB registered cases, 20397 (90%) were offered HCT and 19,264 (94.4%) accepted to be tested. Of those that were tested, 4430 (23%) were HIV positive. The proportion of TB/HIV co-infected patients enrolled on CPT and ART during the pre and post implementation period were 76.6% vs 84.5% and 39.3% vs 53.8% respectively at $p < 0.05$.

Conclusion

25 There was increase in the uptake of HIV testing, ART and CPT post implementation of the
26 guideline. Sustaining the gains of policy implementation is of utmost importance

27 **Key words: TB/HIV, guideline, implementation, Nigeria**

28 **Introduction**

29 Human Immunodeficiency Virus (HIV) infection is the leading risk factor for the development
30 of tuberculosis (TB) while TB is the leading cause of death in persons living with HIV (PLHIV)
31 [1]. In 2004, the World Health Organization (WHO) developed an interim policy on the
32 implementation of joint TB/HIV collaborative activities to assist countries to mitigate the effect
33 of the dual infection and reduce the burden of HIV in TB patients [2]. The policy focused on
34 promoting HIV counseling and testing (HCT) and HIV prevention methods for all TB patients,
35 co-trimoxazole preventive therapy (CPT) and HIV/AIDS care and support including
36 antiretroviral therapy (ART) for those with TB/HIV co-infection [2]. A revised guideline for the
37 implementation of TB/HIV collaborative activities for national programmes and other
38 stakeholders was published in 2012 by WHO [3]. It emphasized routine HIV testing and
39 counseling for all presumptive and diagnosed TB patients, routine administration of co-
40 trimoxazole preventive therapy to HIV infected patients with active tuberculosis irrespective of
41 CD4 count and the commencement of antiretroviral treatment in TB patients living with HIV
42 irrespective of their CD4 counts. It recommended that ART should be commenced within the
43 first 8 weeks of anti-TB treatment. However TB/HIV co-infected patients with CD4 count less
44 than 50 should receive ART within the first two weeks of initiating TB treatment. It has been
45 shown that early treatment of TB/HIV co-infected patients with ART enhances their survival and
46 improves their chances of having treatment success with TB treatment [4].

The Nigerian National TB and Leprosy Control Programme (NTBLCP) also revised the National TB/HIV guideline in line with the recommendations of WHO [5]. The full implementation of the revised guideline commenced in January 2013. This study therefore evaluate the effect of the implementation of the revised guideline on the TB/HIV collaborative activities on the burden of HIV in TB patients in Lagos, Nigeria.

Methodology

Lagos state is located in the south west geopolitical zone of Nigeria with an estimated population of 9.3 million according to the 2006 national population census. The state is divided into 20 Local Government Areas (LGAs). The Lagos State TBL control programme (LSTBLCP) commenced in 2003 with the collaboration between the Lagos State Government, International Union against TB and Lung Diseases (IUATLD), World Health Organization (WHO), Canadian International Development Agency (CIDA) and the United States Agency for International Development (USAID). There are 218 TB treatment centers and 54 TB microscopy centers scattered all over the state. Each of the TB clinics is managed by a trained general health care worker usually a community health officer or community health extension worker at the local government level and a nursing officer at the secondary or tertiary level.

A presumptive TB patient is defined according to the national guidelines as one having ongoing cough for two weeks or more while a diagnosed TB patient is one who has at least 2 sputum smear examined positive for AFB or (smear positive), a person whose sputum smear is negative but based on other ancillary investigations) was confirmed by a medical officer as having clinical tuberculosis (Sputum negative pulmonary TB) or patients with signs and symptoms suggestive of TB outside the lung (Extra pulmonary TB) [5]. Two sputum samples are usually collected from

70 TB suspects in the clinic and transported to the laboratory by the TB and Leprosy Supervisor
 71 (TBLS). The TBLS also retrieves the sputum result of the patient from the laboratory which is
 72 used to decide the treatment modalities. Each diagnosed patient was registered for treatment
 73 using commenced on the 6 months regimen treatment. This consists of a fixed dose drug
 74 combination of rifampicin, isoniazid, ethambutol and pyrazinimide in the intensive phase lasting
 75 two months and ethambutol and isoniazid for 4 months continuation phase, also as fixed dose
 76 combination.

77 The criteria for the evaluation includes: HIV test offered to all presumptive TB clients: Each
 78 presumptive TB patient was offered HIV testing by the general health care worker in the TB
 79 clinic. This involves pre-information on HIV and to confirm their willingness to have the test
 80 done. This is followed by the test. The HIV rapid test kit used in accordance with the national
 81 HCT policy is determine (determine HIV-1/2 Akele, Japan 2012) and Unigold (Trinity Biotech
 82 PLC, Wicklow, Ireland 2013) in parallel algorithm. A concordance result is regarded as positive.
 83 In cases of discordant result STAT PAK is used as the tie breaker. Patients who were TB/HIV
 84 co-infected should be offered CPT along with their anti-TB medications. TB/HIV co-infected
 85 patients should be referred to the ART clinic where they are offered ART within 8 weeks of
 86 commencement of their anti-TB medications

87 Data was collected from presumptive TB register and the central TB treatment register submitted
 88 to the LSTBLCP between January 1, 2012 to December 31, 2013. The study period is divided
 89 into: pre-implementation period (January 1 2012 to December 2012) and post implementation
 90 period (January 1 2013 to December 31 2013). All TB patient registered during the study period
 91 were included in the study.

92 Ethical issues: data for this study were retrieved from secondary data routinely collected by the
93 Lagos State TB control programme and as such no ethical clearance were obtained

94 **Results**

95 **Presumptive TB cases**

96 A total of 19,533 presumptive TB cases were registered during the pre-implementation period
97 compared to 22,721 registered during the post implementation period. Of the 19,533 presumptive
98 TB cases reported during the pre-implementation period, 17,530 (89.7%) were offered HCT and
99 15,247 (87%) accepted to be tested out of which 20.9% were HIV positive. Out of the 22,721
100 presumptive TB cases seen during the post-implementation period, 20397 (90%) were offered
101 HCT while 19,264 (94.4%) accepted to be tested. Of those that were tested, 4430 (23%) were
102 HIV positive as shown in Table 1.

103 **Diagnosed TB cases**

104 A total of 8455 (43.3%) out of the 19,533 presumptive TB cases were registered for TB
105 treatment during the pre-implementation period while 9444 (41.6%) were registered out of the
106 22,721 presumptive TB cases during the post implementation period. Of the 8455 registered TB
107 patients during the pre-implementation period, 7787 (92.1%) were offered HCT, out of which
108 7482 (96.1%) accepted to be tested for HIV and 1666 (22.3%) were HIV positive. Similarly
109 during the post-implementation period 8726 (92.4%) were offered HCT, out of which 8260
110 (94.7%) accepted to be tested for HIV and 1835 (22.2%) were HIV positive. as shown in Table
111 2. TB patients who were tested for HIV were significantly more in the pre- implementation phase
112 compared with the post implementation phase ($P < .001$).

Of the total TB cases notified, the proportion of those less than 15 years (childhood TB) was significantly higher (7.3%) during the post implementation period compared with the pre implementation period (6.4%) ($P = .02$). In total 15.5% (746/4800) males compared to 25.2% (920/3655) of females were TB/HIV co-infected in the pre-implementation period while 15.2% (814/5352) males compared to 44.8% (1021/4092) females were TB/HIV co-infected in the post-implementation period ($P = .804$) as shown in Table 3.

The TB/HIV co-infected patients were registered for TB treatment. The proportion of TB/HIV co-infected patients enrolled on CPT and ART were 76.6% and 39.3% respectively during the pre-implementation period while in the post-implementation period the proportion TB/HIV co-infected patients enrolled on CPT and ART were 88.2% and 49.8% respectively. Females had a higher uptake of both CPT in both the pre- (77.8% v 74%) and post implementation era (89% v 86%). Similarly females had higher uptake of and ART during the pre (39.6% v 38.1%) and post implementation period (51.3% v 47.7%) as shown in figure 1.

Discussion

This study showed that a high proportion of presumptive TB cases were offered HIV testing and counseling during the pre and post implementation period. This may be due to the improved skills in offer provider initiated HIV testing and counseling and testing (PITC) as a result of ongoing efforts at training all health care workers on PITC of all presumptive and diagnosed TB patients in accordance with the national guidelines. The PITC strategy differs from the traditional voluntary counseling and testing in that HIV testing and counseling is offered by the provider to the patient as part of routine care, patients were given the opportunity to opt out and emphasis is placed on post-test counseling rather than pre-test counseling contrary to what was done during voluntary counseling and testing [3]. The experience of PITC in some African

136 countries shows high rates of acceptance of HIV testing similar to what was observed in this
137 study [6-8].

138 The HIV prevalence among TB patients in this study ranged from 21.4% -22.2%. This is lower
139 than HIV prevalence of 27.2% - 61% [9-13] reported among TB patients in eastern and southern
140 African countries. This may be as a result of the high HIV prevalence in the general population
141 of these countries compared with a 3.4% HIV prevalence rate in the general population in
142 Nigeria [14].

143 The implementation of PITC among presumptive TB patients presents an opportunity for the
144 early diagnosis of HIV and referral for HIV services especially in patients with presumptive TB
145 who were free of active TB disease. In our study, 55.6% of presumptive TB patients co-infected
146 with HIV in the post-implementation phase compared with 47.7% in the pre-implementation
147 phase were not diagnosed with active TB. The HIV screening provided an opportunity for such
148 clients to know their HIV status, receive accurate information and be referred for HIV care and
149 support. Also an opportunity was provided for presumptive TB patients who were tested HIV
150 negative and did not have active TB, to know their HIV status, assess their risk for HIV and
151 make informed decisions to stay negative.

152 Our study observed that there was a significant increase in the number of TB/HIV co-infected
153 commenced on co-trimoxazole prophylaxis therapy (CPT) between the pre and post
154 implementation period from 76.6% to 88.2%. This was higher than 45.95- 70% reported in
155 similar studies [15-18]. The WHO recommended the routine use of CPT as a proven strategy to
156 reduced morbidity and mortality among co-infected patients. One of the reasons for increase in
157 CPT uptake during the post implementation period may be that health care workers now

understand the importance of CPT in improving survival among co-infected patients. Also the availability of co-trimoxazole by the National TB and Leprosy Control programme and the implementing partners supporting HIV/AIDS services in the state have greatly contributed to this success.

The study also showed a significant increase (39.3% to 53.8%) between the pre- and post-implementation period among TB/HIV co-infected patients who commenced ART within 8 weeks of starting anti-TB medications. ART uptake among TB patients was higher compared to studies in other African countries which reported ART uptake from 13% - 41.4% [19-21]. Despite the recent recommendations, there are still some hesitations among HIV care providers to implement this new strategy. Many HIV care providers still continue with the use of stringent eligibility criteria for the commencement of ART thereby denying co-infected patient from early commencement of ART. In addition some practitioners have raised the issue of immune reconstitution syndrome common among TB/HIV co-infected patients who commence both TB and HIV medications concurrently. In such situations clinicians who manage HIV patients prefer TB/HIV co-infected patients to complete their anti-TB medications before commencement of ART. Others have attributed the low ART uptake among co-infected patients to poor record keeping at the facility [22]. There is therefore the need to strengthen the monitoring and evaluation systems at the facilities. Studies have shown that the early commencement of ART in TB/HIV co-infected patients reduces the morbidity and mortality in co-infected patients [3,19]. The on-going engagement of HIV care providers in the country on the early commencement of ART is necessary to improve survivability of co-infected patients.

Conclusion

180 Uptake of CPT and ART was significantly higher during the post implementation of the new
181 revised TB/HIV guidelines. Sustaining the gains of policy implementation is of utmost
182 importance.

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Table 1: Presumptive patients who were offered and tested for HIV during the pre and post implementation phase in Lagos

Variable	Pre-implementation period	Post implementation period	χ^2	P value
Total presumptive TB	19533	22721		

cases				
Proportion offered HIV testing	17530/19533(89.7%)	20397/22721(89.8%)	0.01	0.9299
Proportion tested for HIV	15247/17530(87.0%)	19264/20397(94.4)	641.66	< 0.001
Proportion positive for HIV	3188/15247 (20.9%)	4430/19264 (23%)	21.56	<0.001

244

245 **Table 2: Diagnosed TB patients who were offered and tested for HIV during the pre and**

246 **post implementation phase in Lagos**

Variable	Pre-implementation	Post implementation	X2	p
Total registered	8455	9444	NA	
Male: Female ratio	1: 0.76	1:0.76	NA	
Proportion offered HIV test	7787/8455(92.1%)	8726/9444(92.4%)	0.55	0.457
Proportion tested for HIV	7482/7787 (96.1%)	8260/8726 (94.7%)	18.74	< 0.001
Proportion HIV positive	1666/7482 (21.4%)	1835/8260 (22.2%)	0.01	0.938
Proportion on	1276/1666 (76.6%)	1618/1835 (88.2%)	81.76	< 0.001

CPT				
Proportion on ART	652/1666 (39.3%)	913/1835 (49.8%)	39.83	< 0.001
% Yield of HIV+ who did not have active TB	3188-1666/3188 (47.7%)	4130-1835/4130 (55.6%)	44.18	< 0.001

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248 Note: NA = Not applicablle

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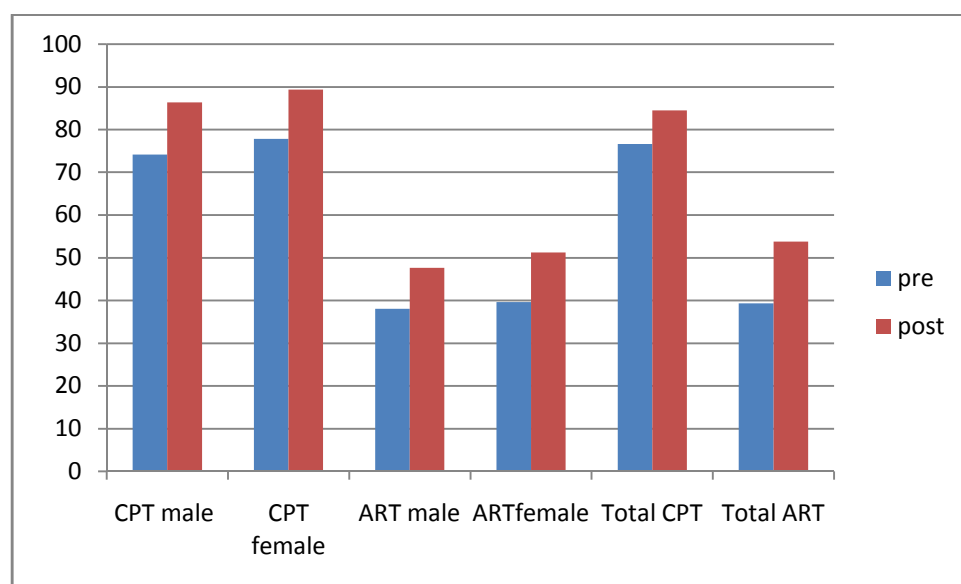
250 **Table 3: Age, gender and HIV status of TB cases notified during the pre and post**
 251 **implementation period in Lagos**

Variable	Pre-implementation period freq (%)	Post- implementation period freq (%)	χ^2	p
Age group				
0- 14	539 (6.4)	685 (7.3)	5.40	0.020
≥ 15	7916 (93.6)	8759 (92.7)		
Total	8455 (100.0)	9444 (100.0)		
Gender				
Male	4800 (56.8)	5352 (56.7)	0.02	0.893
Female	3655 (43.2)	4092 (43.3)		
Total	8455 (100.0)	9444 (100.0)		
HIV positive cases by gender				

Male	746 (44.8)	814 (44.4)	0.06	0.804
Female	920 (55.2)	1021(55.6)		
Total	1666 (100.0)	1835 (100.0)		

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253 Figure 1: Percentage of TB/HIV co-infected patients on CPT and ART by Sex during the pre and
 254 post implementation era



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