

Pediatric HIV treatment, care and support services at health center levels in Ethiopia

Dr. Solomie Jebessa,¹ Dr. Negussie Deyessa²

Abstract

Background: Ethiopia is one of the countries hit hard by the HIV epidemic. There is low enrollment rate to care & treatment among HIV patients in general and pediatric HIV cases in particular. Decentralization to primary health care (PHC) with task shifting to mid-level health workers has been the main strategy used to improve access to pediatric HIV care and treatment. This study attempts to compare the knowledge and skill of health care providers at PHC level and the enrollment rate of pediatric HIV infected and HIV exposed infants and overall quality of care at the supported and non-supported health centers. The support provided was capacity building of health care providers through training and intensive mentoring.

Methods: An analytic retrospective cohort study was conducted on 117 health centers in Oromia, Tigray, Amhara and Southern nations and nationalities and peoples' (SNNPR) regions. Two categories of study population were compared: the health centers & the health care providers in 'the supported health centers' with the health centers & the health care providers in 'non-supported health centers'. Pretested data collection tool was used to collect data from both categories of study population, specifically the health care providers and from the health centers national HIV/ART registers.

Results : A total of 117 health care providers were assessed, 50.4% were females, their mean age was 30.32 (± 6.24) with range between 22 and 50 yrs.; 62.4% were married; 68.4% were diploma nurses, 23.9% were health officers and the rest 7.7% were BSC(degree) nurses.

Knowledge and skills on clinical examination and diagnosis was found to be 'good' ($\geq 70\%$) in the supported health centers (86.1%) compared to the non-supported (50%) with RR (95%CI) = 1.72(1.23, 2.41). Similarly skill in clinical laboratory, Cotrimoxazole and ART drug prescription, ART patient follow-up for toxicity and failure; HIV Exposed infant follow up and diagnosis and keeping good medical record was found to be better in the supported than non-supported ones and the difference was statistically significant. A paired sample T- test showed statistically significant result with mean increment of 20.61 in the enrollment of new pediatric patients on HIV care and mean increment of 13.93 of those enrolled on ART care in the supported health centers between the two years period.

Conclusion: Over all on most of the parameters measured the supported clinics showed better quality of care. Moreover, this study has shown that middle level health workers can manage pediatric patients effectively at PHC setting if provided with technical support. Data from this study also identified gaps and weaknesses that need to be addressed but also reviewed strengths in the current approach.

¹ Senior Pediatrics Technical Advisor , African Network for Care of Children Affected by HIV AIDS(ANECCA),Head quarter, P.O.Box 7484 cell : [+256778653443](tel:+256778653443) , [+251911407063](tel:+251911407063).

² Ass. Prof. Epidemiology & Public Health , Addis Ababa University School of Public Health, P. O. Box 3252, Addis Ababa, Ethiopia ,Cell: [+251-91-1400059](tel:+251-91-1400059); Fax: [+251-11-5517701](tel:+251-11-5517701)

Introduction

The estimated number of people living with HIV/AIDS (PLHIV) at the end of 2011 was 34.3 million and the number of people newly infected with HIV was 2.5 million and the estimated AIDS deaths was 1.7 million. In sub-Saharan Africa the estimated number of PLHIV was 69% of the global. The estimated number of new infection in children in the same year was 330,000 of these 90% were estimated to be found in Sub-Saharan African.¹

HIV infected infants frequently present with clinical symptoms in the first year of life, and without effective treatment an estimated one third of infected infants will die by one year of age, and half will die by two years of age. Greater efforts are needed to scale up and expand services for Pediatrics HIV care and treatment not only at hospital levels but also at the primary health care (PHC) level where most of patients will have the access.²

In Ethiopia according to the Federal HIV/AIDS Prevention and control office (FHAPCO), the single point HIV prevalence estimate in 2010 was at 2.4%.³ The numbers of people living with HIV (PLHIV) were estimated to be 1,216,908 and of these 79,871 were children. In the same year 14276 new infections were estimated to occur in children.⁴

According to the data available from AIDS Resource Center (ARC), at the end of 2009, the numbers of children enrolled in HIV care were 29,546 and those started on ART were 13,650 while the forecasted estimates for the same year were 72,945 to be on care and 26,347 to be on ART.⁵ The total number of children below 18 months of age ever started on ART was 784 at the end of March 2009. Out of the total number of children on ART 7,716 were on 1st line and 84 children were on 2nd line treatment regimen.⁵ These statistics shows that children (0-14 years)

made up only 5.6 percent (7800/139,494) of the patients on ART. The situation was even worse in health centers with only 2.0 % (950/46,562) of clients on ART being children. This was far below the WHO recommended expected performance of 12-15%.⁵

In Ethiopia decentralization of HIV care and treatment services to selected health centers started with adult patients in 2006 and with pediatrics patients in 2008. Task shifting was effective through capacity building of clinical nurses to enable them to prescribe first-line ARVs, provide chronic HIV care, counseling & testing for HIV and prevention of mother to child transmission (PMTCT).⁶

One of the main programs which supported the government of Ethiopia through this decentralization process was the USAID HIV Care and Support Program (HCSP) from June 2007 to June 2011.

The HCSP program was funded by PEPFAR, and implemented primarily by Management Sciences for Health (MSH). African Network for Care of Children affected by HIV/AIDS (ANECCA) co-partnered with MSH to scale up Pediatrics HIV care, support and treatment at health centers in five regions of Ethiopia.

The five regions were: Oromia, Amhara, Tigray, Southern Nations Nationalities and Peoples' (SNNP) regions and Addis Ababa city administration, which cover more than 80 percent of the country's population and more than 90 percent of its estimated 1.2 million people living with HIV. The health centers were labeled as 'ART health centers' and were supported through provision of comprehensive HIV training, specialized pediatrics HIV refresher trainings and intensive mentorship with dissemination of relevant job aids.⁷

This study compares the health care provider skills in provision of pediatrics HIV care services and overall the impact of the HCSP program in regard to pediatrics patients' enrollment rate to chronic HIV and ART care in the 4 regions: Amhara, Oromia, Tigray and SNNPR.

Literature Review

Provision of pediatric HIV care, treatment and support at PHC level was assumed to create a lot of challenges at the beginning and several requirements were needed to be fulfilled in order to be able to treat pediatrics patients by mid-level health workers.

The following were suggested components to scale up pediatrics HIV care services by ICAP: counseling and HIV testing using Rapid Test Kits (RTKs) and Dried Blood Spot (DBS), clinical and immunologic (CD4) staging charts, CTX prophylaxis, growth monitoring, Immunization, Infant Nutrition, Developmental assessment, TB Screening and INH prophylaxis, Adherence counseling and psychosocial support, Provision of ART, follow up and patient tracking and referral linkages.⁸

In South Africa, pilot programs showed that down referral of patients to PHCs increased number of patients on ART by 55% in one quarter of 2009 compared to the same Quarter in 2008. The down referral also increased patient access to life saving medication due to proximity and reduced loss to follow up (LTFU), from above 10% to 5% in 2009. All trained nurses gained competence in managing ART, quality of care improved and treatment sites increased from five sites to twenty PHC sites.⁹

In a study done in Mozambique, it was found that decentralization and integration of HIV care services into the existing PHC system improved: the access to care; service quality through reduced loss to follow up; and patient

flow and system efficiency by linking services and service expansion pace.¹⁰

Elizabeth Glaser Pediatrics AIDS Foundation (EGPAF) identified a number of problems contributed for the poor rollout of pediatric HIV patients in South Africa. These were: suboptimal provider initiated testing and counseling (PITC) at various entry points, long turnaround time (TAT) for DBS-3 weeks for plasma PRC testes versus 3 months for DBS results, skill limitations in DBS/PCR testing, loss of DBS specimens, poor data capturing, ineffective referral with unknown referral outcomes.¹¹ EGPAF, additionally identified that: HIV positive mothers were not bringing their children for treatment services due to stigma, discrimination, denial, guilt, fear, cost, trans-border migration, non-disclosure of HIV status to partners, family, and children, cultural beliefs (e.g. use of traditional medicines, ARVs do not work/kill). Poor integration of pediatric HIV services at various service points, poor attitudes, ignorance and lack of ownership and "HIV is not our problem" mindset were also identified as problems. The lack of knowledge and confidence in managing pediatric HIV patients by health care providers were also significant challenges.¹¹

In 2008 after tackling the above problems, EGPAF found that; in 28 supported ART initiation sites and 75 Primary Health clinics; there were 79,804 adults and 7991(10%) of children under 15 years of age enrolled in to care and the number of people initiated on ART were 48,417 adults and 5401 (11%) children.¹¹

In a pilot task shifting program done in Rwanda, trained nurses were able to prescribe ART safely and effectively in a rural Sub Saharan setting given sufficient training, mentoring and support and nurse lead prescribing of ART could mean that timely, appropriate treatment reaches many more HIV patients.¹²

In Ethiopia, after the decentralization started there has never been any assessment on the effectiveness and quality of the program. This operational study helps to thoroughly assess the quality of Pediatrics HIV care at PHCs, helps to identify gaps, weakness and strengths which will help to further strategize program scale up and make the service accessible to more patients.

Methodology:

Analytic retrospective cohort – study was undertaken in Oromia, Tigray, Amhara, and SNNP regions' health centers that were providing HIV/ ART services.

The study population consisted of two categories; the first category was health centers & the health care providers working in those health centers which received technical assistance, referred here as the 'supported health centers'. The second category was health centers & health care providers working in those health centers which did not receive technical assistance, referred here as the 'non-supported health centers'.

Sample size was calculated using the formula for population with two proportions, assuming the occurrence of increment of 75% among the supported health centers, and a relative risk change of 2.00 at a 95% confidence level and a power of 80%. The sample sizes n_1 (supported health centers) = 80, and n_2 (non-supported health centers) = 40

The selection of samples was done using random sampling techniques from each region: the supported health centers were 32 from Oromia, 20 from Amhara, 16 from Tigray and 13 from SNNPR. The non –supported health centers were 21 from Oromia, 1 from Amhara, 3 from Tigray and 15 from SNNPR.

Data was collected using a pretested structured data collection tool. The health workers' knowledge and skill were assessed using three approaches: direct observation while they were

managing pediatric patients, by analyzing patient charts and by asking detailed technical questions.

'Knowledge' was defined as the information stored up in one's head and 'Skill' was defined as the ability to use knowledge to accomplish something. The cutoff point to score them was 70%: those who scored $\geq 70\%$ were graded as 'good' and those who scored $< 70\%$ were scored as having limited knowledge or skill.¹⁵

Data to quantify numbers of pediatric patients receiving care was collected from the HIV/ART registers for the three consecutive years retrospectively; December 2008, December 2009, and December 2010. The data was validated with the central HCSP/MSH data, and were found to be nearly similar.

The data collectors were pediatricians and a pediatric nurse; were oriented on the procedures of data collection. The principal investigator supervised the overall data collection process.

Result:

Demography: A total of 117 health care providers were assessed, 50.4% were females, their mean age was 30.32 (± 6.24) with range between 22 and 50 yrs; 62.4% were married; 68.4% were diploma nurses, 23.9% were health officers and the rest 7.7% were Bachelor degree (BSC) nurses.(table.1)

Most (76.1%) of the health centers were within 200 km; the maximum distance being 624 km away from the zonal city.

The study subjects in the HCSP-supported and non-HCSP-Supported were assessed for their difference in demographics, and the two groups have difference by age, region, sex, marital status, distance from zone city, however, there was no difference in educational level of health providers (table 1).

1-Assessment of diagnostic clinical examination skills

As shown in Table 3; 86.1% of the health workers from the HCSP-supported sites scored 'good' while 50.0% from the non-supported scored 'good' in the assessment of diagnostic clinical examination skill of pediatrics patients. This difference was statistically significant, (OR= 1.72; 95% CI; 1.23, 2.41).(Table-2)

The reasons cited by health workers for limitation to do proper clinical examination and reach relevant diagnosis, was lack of supervision by supervisors in 82% of the HCSP supported HC health workers and was lack of training in 50% of the HWs in non-supported HCs. Lack of supervision and absence of proper pediatric formats and lack of experience were the other reasons described by 17% and 11% of health workers in the non HCSP HCs respectively.

2-Assessment of clinical laboratory skills

About 110 of the 117 health care providers were found to be practicing laboratory tests ordering, interpretation of results and performance of provider initiated HIV testing and counseling (PITC). On this evaluation 82.9% of the HWs in the HCSP supported HCs were found to have good skills, but only 55.9% from the non-supported health centers had good skills in this respect, which was statistically significant, (OR = 1.48; 95% CI; 1.08, 2.03)(Table 2).

2.1 Low PITC performance in the ART clinics

Thirty-four health centers from the Non-HCSP supported and 17 health centers from the supported HWs were not providing PITC services using rapid test kits (RTKs) at their ART clinics even though this is the main part of HIV/ART program .Comparable percentage of HWs from the supported (64.7%) and from Non-supported (64.7%) gave the main reason for failure to comply on this was that they did

not consider it to be a task to be done at the ART clinics (Fig 1).

3 -Assessment of knowledge and skill on cotri-moxazole prescription and dosing

Almost all the 117 health centers' providers were found to prescribe cotri-moxazole and overall 90.6% demonstrated good skill. When the two groups were evaluated; 98.7% of the supported health centers' providers scored 'good' when compared with 73.7% of the non-supported, this difference was statistically significant, OR= 1.34; 95% CI; 1.11, 1.62). (Table 2)

4- Knowledge and skills on follow up of patients on ART

Assessment of knowledge and skills of health workers included proper ARV drugs dosing, identification of ARV drugs toxicity and failure, and ART follow up schedules. One hundred and three of the total 117 health centers were found to have pediatric HIV patients who were taking ART drugs and hence were found to have some experience in this respect. Nearly Eighty five percent (84.6 %) of the supported health centers demonstrated good skills, while only 28 % of the non-supported demonstrated good skills, showing statistical significant result, OR= 3.02; 95% CI, 1.6, 5.7), (Table-2).

5. Knowledge and skill of health care providers on HIV Exposed Infant (HEI) Follow up

Out of the 117 health centers assessed; 70 HCSP-supported and 15 Non supported health centers were found to have at least one HIV exposed infant. Ninety one percent (91%) of the supported health centers HWs were assessed to have good skill on HEI follow up and management, but only 20% of the non HCSP sites were found to have good skill on this respect, this difference was statistically significant, OR = 4.57; 95% CI; 1.66, 12.6), (Table-2).

Table 1. Socio-demographic Characteristics of Health workers participated in the study, May, 2011 (n=117)

Variables	Health center support status		X ² (df)	P-Value
	HCSP-Supported N (%)	NON-HCSP-Supported N (%)		
Region				
Oromia	31 (39.2)	20 (52.6)	19.646 (3)	0.0001
Amhara	20 (25.3)	0 (0)		
Tigray	16 (20.3)	3 (7.9)		
SNNPR	12 (15.2)	15 (39.5)		
Age of Health workers				
21-30	46 (58.2)	31 (81.6)	6.434 (2)	0.04
31-40	25 (31.6)	6 (15.8)		
41-50	8 (10.1)	1 (2.6)		
Mean (\pm SD)= 30.32 (\pm 6.24)]				
Gender				
Female	52 (65.8)	7 (18.4)	21.205 (1)	0.0001
Male	27 (34.2)	31 (81.6)		
Marital status				
single	20 (25.3)	23 (60.5)	13.964 (2)	0.001
Married	58 (73.4)	15 (39.5)		
Widowed	1 (1.3)	0		
Educational status				
Diploma Nurse	57 (72.2)	23 (60.5)	3.424 (2)	0.181
BSC-Nurse	7 (8.9)	2 (5.3)		
Health officer	15 (19)	13 (34.2)		
Distance from Zone city				
0-50Km	25 (31.6)	17 (44.7)	13.733 (5)	0.017
51-100Km	18 (22.8)	5 (13.2)		
101-200Km	16 (20.3%)	8 (21.1)		
201-300Km	10 (12.7)	0		
301-400Km	6 (7.6)	2 (5.3)		
>501Km	4 (5.1)	6 (15.8)		

Table 2. Different Skills and knowledge of HWs in HCSP- supported and Non- supported HCs, May 2011, (n=117)

Different Skills and knowledge of HWs	Good ($\geq 70\%$) N (%)	Limited ($< 70\%$) N (%)	RR (95% CI)
Clinical exam/diagnosis knowledge & skill			
HCSP-Supported	68 (86.1)	11 (13.9)	1.72 (1.23, 2.41)
NON-HCSP-Supported	18 (50.0)	18 (50.0)	1.00
Clinical laboratory knowledge and skills			
HCSP-Supported	63 (82.9%)	13 (17.1%)	1.48 (1.08,2.03)
NON-HCSP-Supported	19 (55.9%)	15 (44.1%)	1.00
CTX prescription, dosing knowledge, skill			
HCSP-Supported	78 (98.7)	1 (1.3)	1.34 (1.11,1.62)
NON-HCSP-Supported	28 (73.7)	10 (26.3)	1.00
Knowledge & skills on- ART follow up			
HCSP-Supported	66 (84.6)	12 (15.4)	3.02 (1.6,5.7)
NON-HCSP-Supported	7 (28.0)	18 (72.0)	1.00
Knowledge & skills on HEI follow-up			
HCSP-Supported	64 (91.4)	6 (8.6)	4.57 (1.66,12.6)
NON-HCSP-Supported	3 (20.0)	12 (80.0)	1.00
Knowledge & skill on communication and adherence			
HCSP-Supported	73 (92.4)	6 (7.6)	1.04 (0.9,1.2)
NON-HCSP-Supported	31 (88.6)	4 (11.4)	1.00
Knowledge & skill of keeping proper medical records			
HCSP-Supported	72 (91.1)	7 (8.9)	3.1 (1.83,5.2)
NON-HCSP-Supported	10 (29.4)	24 (70.6)	1.00
Multidisciplinary team (MDT)	Presence	Absence	
HCSP-Supported	74 (93)	5 (7)	1.48 (1.2, 1.9)
NON-HCSP-Supported	24 (63)	14 (37)	1.00

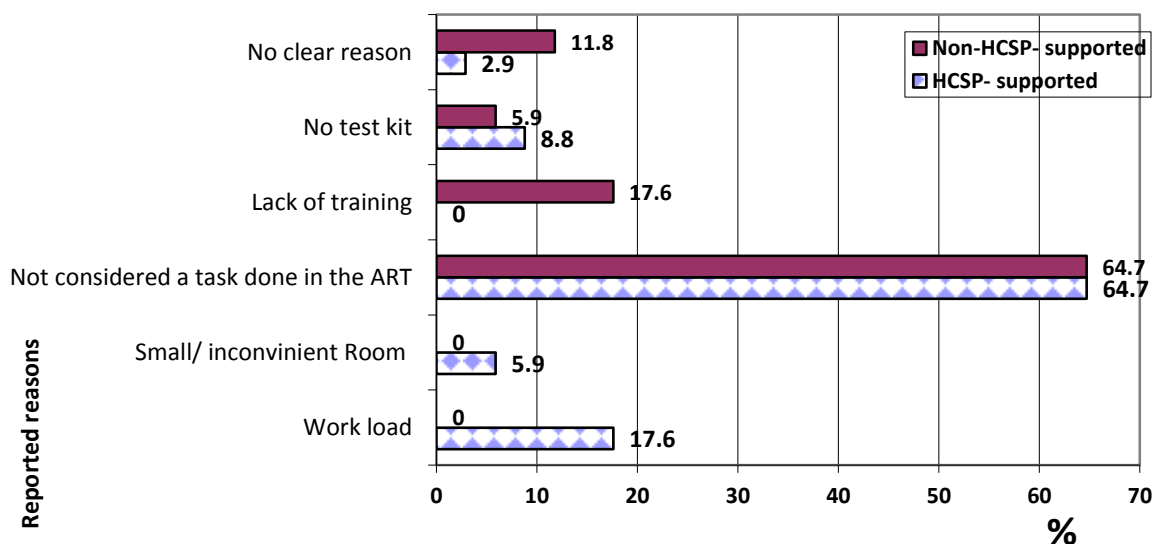


Fig 1. Reasons why HWs were not providing PITC service at the ART clinic in the supported and non-supported health centers, May 2011, (HCSP-supported n=17; Non-HCSP-supported n=34)

5.1. Why DBS is not done by clinicians

Seventeen (17) health workers in the HCSP and 27 in the non HCSP health centers were not performing DBS test by themselves and the reasons that they gave were : 82.3% of the health workers in the HCSP supported HCs said that they have not been doing it since it is done

by laboratory technicians, while most (48.1%) of the HWs in the Non HCSP supported sites said that they were not doing it for lack of test kits and 25.9% said that they were not trained to do DBS. Twenty two percent listed both reasons for not doing pediatric screening (Table 3).

Table 3. Reason of Health care providers for not doing DBS test for HEI s in the ART clinics of supported (n=17) and non-supported (n=27) health centers

Reason Why DBS is not done by clinicians	HCSP-Supported N (%)	NON-HCSP-Supported N (%)
No kit	0	13 (48.1)
Incomplete kit	1 (5.8)	0
Done in laboratory	14 (82.3)	1 (3.7)
Lack of training	1 (5.8)	7 (25.9)
No kit & trained personnel	0	6 (22.2)
Long turnaround time/TAT	1 (5.8)	0
Total	17	27

6. Knowledge and skills of health care providers on communication and adherence counseling

Most (92.4%) of the HWs in the supported health centers and comparable (88.6%) of the HW from the non-supported health centers demonstrated good ability in making proper communication with HIV positive children and

their care giver/parents, showing no statistical significant difference, OR=1.04; 95% CI, 0.9, 1.2), (Table-2).

7. Healthcare providers' skill in keeping proper Medical Records

Medical records were checked for completeness to contain the necessary and meaningful data which describes the patient status. The patient charts were found to be $\geq 70\%$ complete in 91% of the supported HCs and in only 29.4% of the non-supported HCs, showing a statistically significant difference, (OR= 3.1; 95% CI; 1.83, 5.2), (Table 2).

The reasons presented for not recording on pediatric intake forms in the HCSP sites were negligence or lack of interest in 35.7% and lack of supervision in 28.6% of HWs. In the Non – HCSP HCs the reasons were; lack of training in 38.5% and unavailability of pediatric intake forms in 38.5 %.

8-MDT team meeting

Multi-disciplinary team (MDT) –Meeting has been carried out in 93.6% of the HCSP supported and 63% of the non –HCSP supported health centers this difference was statistically significant, (OR= 1.48; 95% CI; 1.2, 1.9). (Table.2). In most health centers the meeting has been carried out every month and in some every 2-3 month.

Trend in Pediatrics patients on Care and On ART

The number of pediatrics patients on pre ART care increased from 672 to 2,280 in the HCSP supported HCs; and from 2 to 104 non HCSP HCs and the number of pediatrics patients on ART increased from 67 to 1143 in the supported HCs and from 0 to 62 in non-supported HCs from December 2008 to December 2010. (Fig.2). This is statistically significant increase in the total number of pediatrics patients receiving care and treatment between the three years period in the supported health centers as shown in table 5, however this analysis could not be done for non-supported health centers since there was little data recorded for those health centers at that time.

A paired sample T- test showed statistically significant result (P-value =0.0001) with mean increment of 20.61 in pediatrics patients on HIV care and mean increment of 13.93 in pediatrics patients on ART in the supported health centers between the two years period. (table.4)

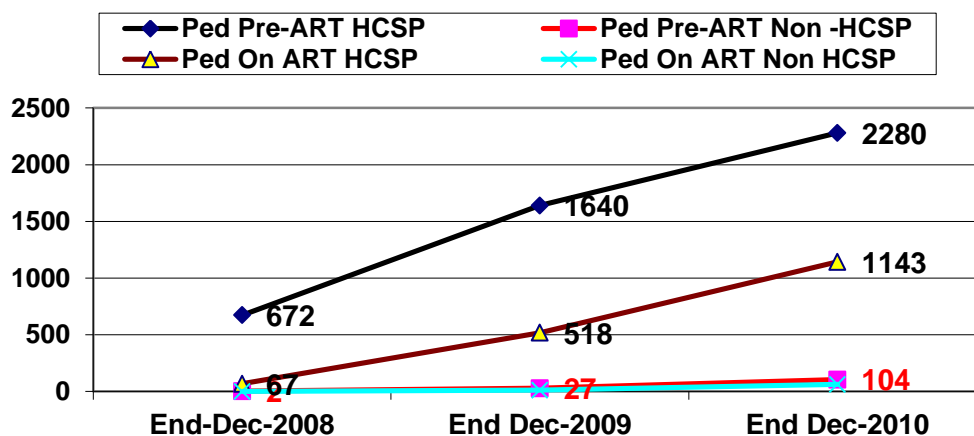


Fig 2- The Pediatric HIV care trend from Dec-2008- 2010 in the supported and unsupported HCs

Table 4- A paired sample test for pediatric patients on chronic HIV care on ART in December 2008 and December 2010 in the supported HCs (n=75)

Paired samples	Mean	Std. Deviation	Std Error Mean	95% CI of the difference		t	Df	Sig (2 tailed)
Dec 08-Ped Pre ART	-20.61	17.02	1.1.966	24.53	16.697	-10.486	74	.0001
Dec 10-Ped Pre ART								
Dec 08- Ped On ART	-13.93	10.81	1.248	16.42	11.45	-11.163	74	.0001
Dec 10-Ped On ART								

HIV Exposed infants Follow- up and care

The number of HIV exposed infants’ data was lacking for most Non-HCSP HCs in December 2008.

In 2008 there were only 75 HIV exposed infants enrolled at the HCSP supported health centers and

this increased to 1390 in 2009 and to 3623 in December 2010. The DBS test became available at the HCSP supported health centers in 2009 and 639 infants were tested and this figure tripled by December 2010, to 2,215 infants. (Table 5)

Table 5- HIV Exposed infant’s enrollment test and care in December 2009 and 2010

	HCSP Supported		Non HCSP /non-Supported	
	Dec 2009	Dec- 2010	Dec 2009	Dec - 2010
	Total HEI	1390	3623	5
DBS tested	639	2215	1	36
DBS Neg	562	1932	1	20
DBS Pos	74	222	0	1
DBS Pos On ART	56	121	0	1
HIV Neg confirmed	254	788	0	1

Discussion:

In this study 86% of the health care providers in the HCSP supported health centers demonstrated competent skills in making the correct clinical assessment. This strengthens the strategy to scale up the pediatric ART service at the PHC level as was suggested by ICAP, in 2008. ⁸

In this study 17.1% in the HCSP and 44.1% in the non HCSP HCs’ the health care providers were not providing PITC services which was also observed to be the gap in primary health clinics in the South African study by EGPAF .¹¹ In this study there was marked difference between the supported and non-supported HCs with regard to the HEI follow up ; 91.4% of HWs scored $\geq 70\%$ or ‘good’ in the HCSP sites

Compared to only 20% of HWs from the non-HCSP sites. This limitation was mainly due to lack of DBS test kit and lack of trained personnel which was also observed to be prominent gap at the PHC settings in South Africa supported by EGPAF.11

The number of HEIs increased from 75 in 2008 to 3623 in December 2010 and the number of those who were tested tripled by December 2010, at the supported HCs, and this has contributed for the increased enrollment rate of pediatrics patients. Strengthening the HEI service has been also the main strategy to scale up pediatrics HIV care and treatment programs by ICAP. 8

It was also found out that the main reason for limited ordering of basic laboratory tests (WBC count, CD4 and blood chemistry) was the fact that CD4 count was not done timely because of lack of budget for blood sample transportation from the health centers to the hospitals. And the main reason for poor interpretation of results was failure to apply the knowledge gained through training in the HCSP sites and lack of training in the non HCSP sites.

Most of those health centers that don't have MDT teams, had no clear reason, but some said that there was failure to organize the team due to lack of good team spirit and failure to solve problems during those meetings.

Strengths of the study

This is the only study done to assess health care providers skills in provision of Pediatrics HIV care, support and treatment services at PHC level. The assessment and data collection was done by pediatricians who looked through the details of management of pediatrics patients and quality of care hence the study identified

prominent gaps and strengths. This information is useful for the national pediatrics HIV scaling up program at PHC settings.

The fact that the study was done in the four big regions makes it strong to represent the general health center population in Ethiopia

Limitations of the study

The HCSP health centers selected for the support were said to be high case load clinics might affect the trend analysis in the comparison of the supported and non-supported health centers. Additionally there was no specific study done in this topic to be reviewed and even related studies were very few.

Conclusion & Recommendation

Over all on most measures the supported clinics showed better quality of care and this study has showed that mid-level health workers can manage pediatrics patients at Primary health care setting (health centers) if given the due technical support., hence government should focus on technical support of these lower level health workers to scale up Pediatrics HIV services with good access to patients. Data from this study also identified gaps and weaknesses that need to be addressed but also reviewed strengths in the current approach. The Provider initiated HIV testing and counseling (PITC) service has been neglected by comparable number of health workers from both supported and non-supported health centers and this should be considered as a big gap in the identification of HIV infected children hence should be given emphasis to be improved. Not all HIV exposed infants are being tested, and this is another major gap which needs to be addressed

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Acknowledgement

First most we would like to acknowledge Addis Continental Institute of public Health (ACIPH) for advising in undertaking this study.

We are very thankful to Management Science for Health (MSH) for granting fund to undertake this study; especially we are very grateful to Mr.Bud Crandall and Mr. John Shin for facilitating all the funding for field data collection activity.

We would like to thank Ms.Elke Konings, Dr.Edson Muhwezi,Dr.Nathan Tumwesigye, Dr.Daniel Assefa, Dr.Dagne Muluneh ,Prof. Mary VanderWal and Dr.Abdul Dawud for taking their time to comment and edit this manuscript.

We deeply acknowledge Dr.Tesfalem Hagos, Dr.Tadesse Getahun, Dr.Alemayehu Mekonen, Dr.Kinetsew Melkamu, Dr.Yared Tadesse, Sr.Ekuba Syoum, Dr.Sewagene Yeshiwas, Dr.Solomon Amsalu for actively participating in the data collection of this study.

We deeply thank Dr.Adamu Addisie for sacrificing his time to help on the data analysis.

Finally we would like to acknowledge all the health center health care providers and the health center heads who participated in this research.