Innovating and strengthening the postnatal package of care for HIV-exposed infants: ensuring comprehensive services for the first 2 years of life

Johannesburg 20-23 June, 2017

MEETING REPORT

Contents

List of acronyms

ANC	Antenatal care
ART	Antiretroviral Therapy
ARV	Antiretroviral drugs
AZT	Zidovudine
BF	Breastfeeding
EID	Early Infant Diagnosis
ePNP	Enhanced Postnatal Prophylaxis
FDC	Fixed Dose Combination
HCW	Health Care Workers
HEI	HIV exposed infants
HF	Health Facility
HIV	Human Immunodeficiency Virus
HTC	HIV Testing and Counselling Service
LTFU	Lost-To-Follow-Up
MIP	Mother-Infant Pair
MNCH	Maternal, New-Born and Child Health
MOH	Ministry of Health
M&E	Monitoring and Evaluation
NAT	Nucleic acid test
NVP	Nevirapine
PCR	Polymerase Chain Reaction
PITC	provider initiated testing and counselling
PMTCT	Prevention Mother to child transmission (of HIV)
POC	Point-of-Care
PW	Pregnant women
RDT	Rapid Diagnostic Test
SSA	Sub Saharan Africa
TBA	Traditional Birth Attendant
VL	Viral Load
WLHIV	Women Living With HIV

Background

The Global Plan efforts had a substantial impact in the prevention of new HIV infections among children, leading to a 60% reduction of the number of HIV paediatric infections in 21 of the most affected countries in sub-Saharan Africa. Still, the burden of new HIV infections in children is significant: in 2016, there were (160,000 [110,000–220,000]) new infection in children globally,[1] and 70% of these children were in in the same 21 priorities countries.

Coverage of antiretroviral treatment (ART) among children living with HIV has also notably improved since 2010. Nevertheless, in 2016, only 43%[2] of the estimated 2.1 million [1.7 -2.6 million] children living with HIV were receiving ART. HIV infected infants and younger children have an exceptionally high mortality without access to HIV care and treatment, with a mortality of approximately 30% by the first year of life and 50% by their second year of life[3,4,5]. Many of these HIV-related deaths could be avoided by early diagnosis of HIV and rapid ART initiation.

Numerous factors affect the timely delivery of effective ART for infants and younger children. Identification of HIV exposed and infected children is still a significant bottleneck in several settings. Early Infant Diagnosis (EID) coverage remains low, in 2016 only 43% of infants exposed to HIV received an HIV virological testing within the first two months of life. In addition to limited access, several countries have long turn-around time to receive the EID results, leading to delayed ART initiation. Infants continue to be exposed to HIV during the breastfeeding (BF) period, however there are limited data on the final HIV status for HIV exposed infants (HEI) after cessation of breastfeeding. Options for more effective regimens to prevent HIV infection in infants, during the Post-Natal period, have been promoted[6] and several novel interventions are being introduced to allow for greater access to earlier treatment. However, the use of optimal antiretroviral (ARV) formulation for preventing and treating HIV in newborns and young infants remains a challenge in many countries. Limited availability of appropriate formulations and administration of adequate dosing schedules that account for prematurity and low birth weight, continue to result in unavoidable complexity that health care workers struggle with.

Furthermore, more efforts and innovative strategies are needed to improve retention of HIV exposed infants, and their HIV positive mothers, during the post-natal period (from delivery to the first EID test and from a negative first EID test to the cessation of breastfeeding). HIV infected infants can also be effectively identified in other settings, such as hospital children's wards, nutrition clinics and in the community. However, the lack of consistent provider initiated testing and counselling

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[1] UNAIDS Data 2017. Available at http://www.unaids.org/en/dataanalysis/knowyourepidemic/epidemiologypublications

[2] UNAIDS 2017. Ending AIDS WHO- Progress towards the 90–90–90 targets. Available at http://www.unaids.org/en/resources/documents/2017/20170720_Global_AIDS_update_2017

[3] Newell ML, Coovadia H, Cortina-Borja M, Rollins N, Gaillard P, Dabis F (2004). Mortality of infected and uninfected infants born to HIV-infected mothers in Africa: a pooled analysis. Lancet 364: 1236–43

[4] Becquet R, Marston M, Dabis F, Moulton LH, Gray G, et al. (2012) Children Who Acquire HIV Infection Perinatally Are at Higher Risk of Early Death than Those Acquiring Infection through Breastmilk: A Meta-Analysis. PLoS ONE 7(2): e28510.

[5] Brahmbhatt H, Kigozi G, Wabwire-Mangen F, Serwadda D, Lutalo T et al (2006). Mortality in HIV-Infected and Uninfected Children of HIV-Infected and Uninfected Mothers in Rural Uganda. J Acquir Immune Defic Syndr 2006;41

[6] World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: Recommendations for a public health approach. WHO, Geneva: 2nd Edition. 2016.

(PITC) in specific settings continues to result in missed opportunities for HIV diagnosis, with an associated adverse impact on infant mortality.

The Start Free, Stay Free, AIDS Free Framework[7] was developed to build on the Global Plan progress and, to provide a road map to reach super-fast targets by building on key initiatives that are already accelerating the global response to HIV towards ending the epidemic by 2030. Start Free activities aim to reduce the new HIV infections in children to less than 40,000 by 2018 and 20,000 by 2020. AIDS Free aims to reach 95% of all children living with HIV with lifelong HIV treatment by 2018. Key activities for achieving these ambitious goals include the promotion of: recommended infant feeding practices to maximize HIV-free survival; timely identification of infants and children living with HIV; rapid linkage to ART for children diagnosed with HIV; tailored service delivery models, to ensure a more integrated and sustainable approach with Maternal-Neonatal-Child health (MNCH) services, spanning from antenatal care, delivery, postnatal care and care of children under 5, and for the comprehensive care of children living with HIV.
Within the Start Free, Stay Free, AIDS Free framework WHO continues to work to ensure the provision of technical assistance to adapt and adopt WHO recommendations, and to introduce novel innovations to scale up testing, treatment, and care for children. The 2016 WHO Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection presented some innovative approaches, such as the use of enhanced prophylaxis to improve HIV prevention among infants; the use of nucleic acid testing at or around birth for diagnosing HIV in newborns allowing prompt and earlier ART initiation and the use of Point-of-Care (POC) nucleic acid testing for rapid diagnosis. In addition, innovative strategies to retain infants and children in the testing to treatment cascade (i.e. mentor mothers, mother-baby pair service) have been piloted and tested in many settings, offering potential models for strengthening service delivery in postnatal care services.

To date, few countries have started introducing some of these innovations, therefore sharing the experience of early adopters helps other countries to gain better understanding of the operational challenges and best practices as they consider the implementation of these new strategies. In this context, the WHO in collaboration with UNICEF, PEPFAR and other relevant stakeholders has organized a regional workshop with delegations from 16 priorities African countries, that was held in June 2017, in Johannesburg, South Africa.

Objectives

General objective

The overarching objective of the workshop was to provide technical assistance to countries that are considering national implementation of key interventions to minimize HIV related mortality and morbidity during the post-natal period, up to 2 years of life.

Specific objectives

1. To review and support identification of HIV exposed and infected infants, considering challenges and needs for the introduction of new strategies to scale up the identification of HIV infected infants:

[7] Available at https://free.unaids.org/

a. Addition of nucleic acid testing at birth
b. Introduction of Point of Care EID technologies
c. Strategic HIV testing outside of Prevention Mother to child transmission (PMTCT) settings
d. Optimal use of Rapid Diagnostic Testing (RDT) for identification of HIV exposed and HIV infected infants

2. To support optimal use of ARVs to prevent and treat HIV in newborns, infants and young children.
3. To review and discuss service delivery approaches to promote service integration, optimal retention in the post-natal period, and overall improvement of patient and program outcomes.

Participants

A total of 16 countries participated in the regional workshop. African countries with the largest paediatric treatment GAP (above 10,000 untreated children in need of ART as of end of 2015) and the largest total numbers of new HIV infections among children were invited.
These countries were: Angola, Cameroon, Chad, Cote d'Ivoire, Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.
Each country delegation included Ministry of Health (MOH) representatives, implementing partners, UNICEF, PEPFAR and WHO country office focal points. In addition, technical experts from regional academic and research institutions, CDC, USAID, UNITAID, UNAIDS, GFATM and UNICEF from HQ, regional and headquarter level participated as speakers and facilitators. Representatives of civil society and networks of women living with HIV (WLHIV) from nine countries also participated in the meeting.
A total of 130 participants attended the workshop. The list of participants is provided in Annex 1.

Methodological approach

Preparatory work was undertaken through a survey on countries policies, programme results and implementation challenges. Country responses were compiled, analysed and disseminated during the meeting to inform the development of country action plans.

The meeting included:

- **plenary presentations** to provide technical introduction on existing guidance and considerations on their practical implementations;
- **presentations of country experiences** to share challenges and opportunities of early adoption of key innovations;
- **breakout sessions** for countries to discuss opportunities for introduction of new strategies to improve patient and program outcomes in the post-natal period, in the context of each country setting and based upon the existing national plan.

During the meeting, each country team developed a list of targeted action items for incorporation into national strategies focused at optimizing identification, treatment and care of HIV exposed and infected infants.

Key outcomes

Identification of HIV exposed and infected infants

Introduction of Point-of- Care EID technologies

Technical performance – from both laboratory and field evaluations – have highlighted good performance of POC EID technologies compared to laboratory-based platforms. Two technologies have received WHO prequalification and data are consistent across studies. National regulatory agencies are then encouraged to not delay adoption by conducting further evaluations, but instead adopt a rapid and streamlined registration and national approval process for immediate implementation.

Implementation studies presented by Malawi and Mozambique showed that the use of POC EID led to significantly reduced test turnaround times, more results being returned to the health care facility and caregiver, and earlier and higher rates of ART initiation among HIV-infected infants.

The key lessons learned during these pilots on the operational implementation of the POC EID included:

- Planning: selection of health facilities with high prevalence and high volume to maximize device utilization, selecting high yield entry points (such as nutrition and paediatric wards) within health facilities.
- Logistics: establish a service and maintenance strategy with suppliers and ensure the availability of service engineers.
- At health facility level: assess the need for additional training and mentoring to HCWs; strengthen the linkage between services and ensure availability of paediatric ARV formulation for younger babies to guarantee earlier ART initiation once the infants are diagnosed.

Addition of nucleic acid testing at Birth

Addition of NAT at birth to the existing EID testing approach could result in earlier identification of HIV infected newborns and consequently to earlier treatment and lower mortality among infants. However, it is crucial to consider that to ensure effectiveness of NAT at birth, uptake and retention in the infant testing to treatment cascade needs to be improved, ensure tracking of infants with negative NAT at birth (to ensure their follow up) and guarantee the confirmatory testing and timely linkage to care and treatment for infants who tested positive. Based on a cost-effectiveness analysis undertaken by WHO to inform the 2016 Guidelines, the survival gains from adding NAT at birth to the NAT at 6 weeks would be lost if the loss-to-follow-up (LTFU) after negative birth result exceeds 37%.

South Africa has been the first country to introduce NAT at birth in the African region. This was introduced in January 2015 only for high risk HEI, and, after few months, it was extended to all HEI due to programmatic difficulty in identifying high risk infants. Nurses at postnatal services and delivery services were trained for providing NAT and the M&E tools were amended to capture the data. The introduction of NAT at birth and of the enhanced prophylaxis for HEI were associated to a

revision in the timing of subsequent NAT testing for infants with negative NAT at birth: low risk HEI repeat NAT testing at 10 weeks, and high risk HEI at 14 weeks.
Challenges that have been reported from South Africa on the implementation of NAT at birth include:

- Low coverage of EID at 10 and 14 weeks (for infants with negative result at birth)
- Weak linkage of the identified positive infants to care
- Delayed ART initiation for HIV infected infants and newborns

Kenya has recently started the planning for the phased introduction of the NAT at birth (defined as test performed within 72 hours from birth). A pilot was started in July 2015 and the NAT at birth has been integrated into the existent EID system for sample collection, analysis and transport of result that determined the need for mothers to be retained at maternity for 3 days, until the test result is back. The implementation was conducted after training of nurses working at delivery services in the pilot area and revision of the M&E tools.
The main challenges identified during the pilot were:

- No follow up testing recorded for infants with negative test at birth
- Lack of ART availability suitable to treat HIV positive newborns.

The lessons learned from this first pilot led Kenya to develop a protocol for a national birth testing, which included definition of the neonatal ART regimens and links to routine follow-up and testing for negative newborns. The national pilot is expected to start in October 2017.

The key implementation issues that emerged from experiences in both countries is the crucial need for clear messages for communities and health care workers to avoid the lost to follow up after a negative NAT at birth, as well as the need to insure the prompt access to treatment for HIV positive babies identified at birth.

Strategic HIV testing outside of PMTCT programs

Although PMTCT coverage has expanded significantly over the last five years, there is still a high proportion of LTFU along the PMTCT cascade. As a result, many exposed and infected infants are identified too late, if ever. Since 2013 WHO recommends *provider-initiated testing and counselling (PITC) for everyone attending all health facilities in generalized epidemic.* These recommendations have been reviewed and refined in the 2016 WHO guidance to support prioritization of testing in settings where children are more likely to be identified such as malnutrition clinics, Outpatient Department (OPD) and TB clinics. As confirmed by the preparatory survey, policies are in place to expand the testing beyond PMTCT services, however implementation is often limited in practice. Overall expansion of HIV testing to multiple high yield entry points and stronger linkage between services remain crucial for improved identification of HIV infected infants.
Uganda, in 2016, had a EID coverage at 2 months of age of 36%. To better understand the testing gap, the MOH conducted a study to identify prevalence rates across different health care facilities. Higher yields of HIV infected infants were observed in nutrition wards (10% prevalence) and in-patient clinics (3.5%). Outreach and immunization wards had prevalence rates of less than 0.3%. Identifying an HIV-positive infant in nutrition wards was three times more likely when compared to PMTCT settings, and 60 times more likely when compared to immunization services. According to this experience testing at immunization clinics was also less likely to diagnose an HIV positive infant compared to inpatient services. 30% of the infants of mothers identified outside the PMTCT were infected, and while almost 50% of their mother were aware of their status only 18% had been

enrolled into the PMTCT program. Testing at more entry points led to identification of more HIV exposed and infected children.

This experience from Uganda emphasizes that expanding HIV testing for infants in services outside the PMTCT program is essential to increase testing coverage. Expansion of HIV testing beyond PMTCT settings remains therefore a priority and efforts should be put in place to target and prioritize the point of services with high yield and that allow early identification of infants even before they become sick.

Optimal use of RDT for identification of HIV exposed or HIV infected infants

RDTs can be used to assess exposure in infants less than 18 months of age. However, the test has good sensitivity only until about 4 months if used on the infants. HIV exposure in infant and children 4-18 months of age should be ascertained by undertaking HIV serological testing in the mother first.
RDTs can be used to exclude established infection in healthy, HIV-exposed infants at 9 months and beyond, (but as long as breastfeeding continues the infants will be exposed and in need of follow-up testing).
RDTs can be used to diagnose infection at 18 months of age and beyond (i.e. 3 months post breastfeeding cessation). However, RDTs in infants that started ART early or when their mother was infected too late to generate and transfer antibodies can be negative even if the child is infected. It is thus crucial to ascertain HIV status by undertaking confirmatory testing and collecting a second specimen before ART is started.
Serological tests used in infants over 4 months of age could miss identifying exposure in some HIV-exposed infants. Recent evidence in Uganda and Kenya suggests that serological tests may miss identifying exposure in HIV-positive infants. Uganda assessed the use of RDT to ascertain exposure in children less than 2 years old at different entry points (OPD, inpatient, nutrition, immunization and outreach). All infants received RDT and NAT testing. 36 out of the 94 HIV-infected infants had a negative RDT (sensitivity 61.7%). Similar findings were reported from Kenya among sick hospitalized infants <18 months of age. For each Mother Infant Pair (MIP), maternal and infant RDT was conducted. Infants whose mothers had a positive RDT were then also tested using DNA PCR. Among the 73 infants whose mother had positive RDT, 13 infants had negative RDT but positive NAT. The proportion of these cases was higher among younger infants: from 23% in the 0-8 month age group.

These experiences confirm WHO recommendations, that in infants 4-18 months of age HIV exposure should be ascertained by maternal HIV serological testing, which if positive should trigger a NAT in the infant. Exposure can be assessed by RDT testing of infants less than 4 months of age.

Optimal use of ARVs to prevent and treat HIV in newborns, infants and young children

Enhanced postnatal prophylaxis (ePNP)

The 2016 WHO guidance on infant prophylaxis recommends that newborns who are at high risk for acquiring HIV should receive dual prophylaxis with AZT and NVP for the first 6 weeks of life followed by an additional 6 weeks using either AZT and NVP or NVP alone.
These recommendations present three key implementation challenges for programmes:

1. Identifying and distinguishing high-risk infants from those who are at relatively lower risk
2. Choosing whether to administer one drug or two drugs during the second six-week period
3. Selecting and dosing from the available ARV formulations.

Simplified approaches to implement ePNP were discussed: the use of a simplified algorithm to assess risk at delivery, the use of NVP alone during the second 6 weeks of prophylaxis and the use of scored dispersible tablets of AZT/3TC/NVP during the first 6 weeks.
Two national programmes shared their experience with implementing these recommendations. Kenya revised their infant prophylaxis policy in 2016 following a highly consultative process involving MOH and all stakeholders. The country chose to recommend ePNP for all HEI due to the complexity of risk stratification. The chosen approach includes 6 weeks of dual therapy, (with syrups), followed by a minimum of 6 weeks more of NVP alone. National M&E tools were revised to accommodate the new ePNP guidance. Due to concerns about lack of protection due to poor adherence among breastfeeding women, the decision to discontinue NVP at the end of the 12-week period is made by the clinical provider, based on reported maternal ART adherence and/or evidence of viral suppression. In case of doubt or lack of VL data the infant is maintained on NVP.
South Africa introduced their first guidance on ePNP in 2015 and had five different risk scenarios, but due to complexity of implementation the new guidance in 2017 includes just two scenarios: low risk (infants of mother on lifelong ART) and high risk (all other HEI) with the latter receiving 12 weeks of dual drug prophylaxis.

WHO will soon release a policy brief addressing the operational implication for implementing the ePNP, which will consider earlier adopters' experiences and consensus from panel of experts.

ARVs treatment in newborn and young infants

Early infant ART improves survival, immune response, and reduces long-term morbidity.
The use of NAT at birth associated with POC technology or with laboratory referral of the PCR-DBS plus optimal turnaround time, could allow starting ART within two weeks of age, with a potentially significant impact on infant survival. However, ARV formulations available for this age group are limited. It is well known that a NVP based regimen for infants is a suboptimal choice, however, the only available regimen during the first two weeks of life is AZT/3TC/NVP. This regimen could be either continued till the 3 months of life and then switched to LPVr-based regimes using pellets LPV/r, or LPV/r could be introduced at the end of the 2nd week of life as syrup and then switched to pellets formulation at 3 months of age.
Paediatric ART is being scaled up in several countries, however treatment of the newborn can face specific challenges due to the need for close clinical monitoring and the availability of specific formulations.
South Africa has been the first country in the African Region to adopt newborn treatment, after adoption of the NAT at birth. Newborns are started on NVP based regimens and switched to a PI regimen after 2 weeks of life. The majority of the identified HIV infected newborn were healthy at the time of diagnosis and their treatment did not require expert medical input. However, a key aspect for all infants is the challenge of adherence: mothers of HIV infected newborn were less likely to have been on ART and more likely to have had adherence issues. Good virological outcomes are

possible with very early newborn ART but successful adherence and follow-up must take into account physical, emotional and psychosocial issues.

Countries that intend to introduce birth testing and promote newborn treatment will need to decide whether to decentralize newborn treatment by building healthcare workers capacity and ensuring the availability of commodities at peripheral health facilities or strengthening the referral system to ensure that newborns are started on treatment by specialized clinicians.

Service delivery models to ensure overall improvement of patients' and programs' outcomes.

There are several barriers to effective infant HIV services and no single intervention will address all barriers for all women in all places. Programmes could consider combining different interventions together into "packages" to support service delivery. Interventions that have been proven to improve infant HIV services and retention of mother-infant pairs (MIPs) include:

- Patient-focused interventions like SMS text messaging, conditional cash incentives and male partner involvement.
- Programme-focused interventions such as POC testing technologies, provider training and enhanced counselling
- Systems-focused interventions such as community based services, quality improvement intervention and service integration. Integration can take many forms depending on the local context (antenatal & postnatal services, HIV services & MCH services, infant & maternal services)

In Ethiopia, a "Pilot Community HTC" is being tested for pregnant women in 30 Health Posts. Health Extension Workers identify PW in the community and provide ANC care and HIV testing. Identified HIV infected PW are then referred to facilities for ongoing care in combination with ongoing community support. The pilot is expected to result in early identification and initiation of ART among HIV infected PW, improved adherence and improved tracing of LTFU.

Ghana recently introduced a combined maternal and child records book to improve the identification of the HEI and the linkage between services. The card starts from first ANC and contains all maternal and child data until the child is 5 years old.

Tanzania has been one of the countries included in the multi-country Partnership of HIV-Free Survival, through this program the country piloted quality improvement interventions at health facility level that led to improvements in the retention of MIPs. These activities are now being scaled up to more districts.

Strengthening service delivery for HIV exposed infants is crucial and it would need to focus on integration with MCH platform, aiming to ease the mother-infant pair follow up and hence improve retention into care. This should also consider the integration in M&E tools and in baby health chart, as well as the support from communities.

Monitoring & Evaluation for mothers, newborns and infants in chronic HIV care

M&E strengthening and updates remain crucial to measure progress and inform programme planning particularly when introducing innovative interventions such those outlined above.

Key elements and tools to considered are:

- Longitudinal Monitoring & Cohort Analysis.

- Linkages across platforms and facilities (cross linkage of tools and patient cards).
- Integrated monitoring on the MNCH platform as a pathway to addressing high risk scenarios (retesting of negative mothers to identifying incident infections).
- Review of primary data collecting and summary tools should be considered to allow multiple entry point monitoring and appropriate risk-stratification of cohorts.
- Strengthening and scaling up of community service delivery means that there is a need for developing a M&E system: from entry point, linkage and follow up perspectives.

Cote d'Ivoire has been one of the first countries to introduce a MIP longitudinal follow up register and enhanced monitoring system of option B+ with early retention monitoring for PW and HEI. In 2016, the country issued a new integrated mother-baby health card. Moreover, data analysis and monitoring have been strengthened at facility, district and regional level.
Tanzania also has introduced a longitudinal cohort monitoring of mother-baby pairs, cohort Analysis are conducted at 3, 6, 12 and 24 Months and it tracks progress until final child's HIV status is established. Tanzania also established an enhanced monitoring, conducted on quarterly basis in selected high priority HFs to promote quality improvement,
Zimbabwe has recently introduced a new Electronic Health Record, an integrated system across services that integrates multiple diseases/conditions using same device (tablet). It contains all data from primary health care, reduce the workload of HCWs and allow easier and more effective patient follow and analysis.

Lessons learned from countries experiences show that the use of longitudinal monitoring, cohort analysis and linkages across the MNCH and HIV platforms are possible and useful M&E strategies allow improvement in the quality of program evaluation. In addition, while considering the implementation of innovations, (like NAT at birth, case finding from alternative entry points, identification of incident infection in pregnant and breastfeeding), countries should also discuss the M&E implication of such implementations.

Community Engagement in Strengthening Postnatal care for HIV Exposed Infants

Various models for the topic were presented and discussed including the mother-mentor services both at facility and community levels. The INSPIRE MoMENT study[8] was also presented as clear evidence for supporting community engagement.
The engagement of networks of WLHIV has been effective in several countries. Their involvement goes from community literacy activities to increase demand creation, support groups at health facility and at community levels, inter- and intra-facility linkages, defaulter tracing and active follow up of MIP. In several settings, these interventions led to reduction of LTFU among MIP, however these activities are still mostly supported by external funding and there is still limited ownership by governments.

Action Plan development

During the meeting, country teams evaluated the country specific needs and opportunities for optimizing identification, treatment and care of HIV exposed and infected infants. More specifically

[8] Sam-Agudu NA, Ramadhani HO, Isah C, Anaba U, Erekaha S, Fan-Osuala C, et al. (2017). J Acquir Immune Defic Syndr 2017;75:S173 – S181,

countries considered the added value of introducing the innovations discussed in the plenary sessions.

In each key area, countries identified priority interventions, activities, and resources needed to either innovate or strengthen the existing activities. The interventions most frequently prioritized by countries were the introduction of ePNP, followed by improving EID coverage through the use of POC EID and the introduction of NAT at birth (Figure 1).

Figure 1. Most frequently prioritized interventions.

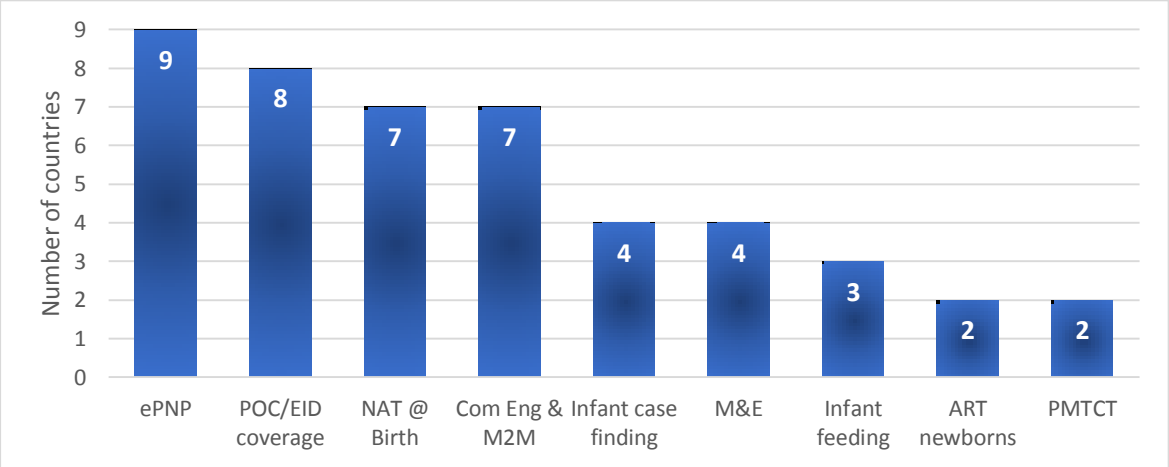

Figure 2 shows the three priority interventions that each country has identified.

Figure 2.Priority interventions included in action plan by each country

Country	ePNP	POC/EID coverage	NAT @ Birth	Infant case finding	ART newborns	Com Eng & M2M	M&E	Infant feeding	PMTCT
Angola	■	■				■			
Cameroon	■		■			■			
Chad		■		■			■		
Cote d'Ivoire		■		■					
DRC	■		■			■			
Ethiopia	■	■	■						
Ghana		■							■
Kenya			■			■		■	
Malawi	■			■		■			
Mozambique	■		■		■				
Nigeria	■		■	■					
South Africa						■	■	■	
Tanzania		■				■	■		
Uganda	■	■							■
Zambia	■	■					■		
Zimbabwe			■		■			■	

Technical assistance was mostly requested for the development and review of protocols for rolling out or scaling up the implementation of POC EID (6 countries), NAT at birth (5 countries), ePNP (4 countries). Countries that require assistance for the roll out of NAT at birth also stated the need for the development of guidance and provision of optimal ART regimens for the treatment of newborns. Five countries also requested technical assistance in the revision of the M&E tools, to incorporate

longitudinal follow up of the MIP, to develop cohort analysis, and to adapt tools to incorporate data on the innovations. Three countries reported the need for technical assistance for developing tools and training material for the roll out and scaling up of mentor mother programmes; and two countries for communication material to disseminate the 2016 guidance on infant feeding in the context of HIV.

Financial resources were in some cases already included into the national plan, or into the Global Fund proposal that countries have recently developed. However, most of the countries reported that the inclusion of the innovative approaches will require additional funds: for the acquisition of the POC machines, for the acquisition of ARVs syrup for ePNP (i.e. AZT), for the training of health care workers on new guidance, and for the development of new M&E tools.

Next steps and Recommendations:

- The action plans drafted during the meeting will be finalized through in-country discussions between MOH and stakeholders for integration into the national plan. It is expected for this revision occur by September, with possible delays in some countries due to concomitant MOH activities. WHO will follow up the finalization of these plans and, particularly, the identification of needed TA to be provided and share the final action plan with all intervenient.
- WHO, UNICEF, PEPFAR will facilitate follow up to ensure that countries receive the technical assistance as requested.
- WHO will organize dedicated webinars and country calls to provide further updates and continue the country to country learning and sharing

Annex

Annex 1. Agenda

Time	Session	Topics	Responsible
Day 1, Tuesday, June 20th			
8.00- 8.30	**Registration**		Secretariat
8.30-9.50	**Opening**	Introductions and welcome remarks	WHO Representative
		Opening speech	MOH South Africa UNICEF Representative
		Presentation of the participants	Morkor Newman (WHO-ESA)
		Administration and security briefing	WCO South Africa
		Workshop introduction	Françoise Bigirimana (WHO AFRO)
09.50-10.20	**Presentation of the questionnaire results**		Frank Lule (WHO AFRO)
10.20-10.30	Group photo		
10.30-11.00	**Coffee Break**		
11.00-11.30	**Keynote presentations**: The status of HIV identification among infants		George Siberry (OGAC)
INFANT DIAGNOSIS			
11.30-12.30	**Point of Care EID** ***CHAIRS:*** S. De Lussigny (UNITAID) G. Chipungu (UNICEF)	Introduction	Lara Vojnov (WHO)
		Early adopters' experiences	Mozambique Malawi
		Discussion	All Participants
12.30-13.30	**Lunch**		
13.30-15.00	**NAT Birth Testing** ***CHAIRS:*** H. Dale (CDC) C. Chouraya (EGPAF)	Introduction	Martina Penazzato (WHO)
		Early adopters' experiences	South Africa Kenya
		Discussion	All Participants
15.00-16.00	**Entry points: testing**	Introduction	Lara Vojnov (WHO)

	infants within and outside PMTCT programs ***CHAIRS:*** H. Dale (CDC) C. Chouraya (EGPAF)	Early adopters' experiences	Uganda
		Discussion	All Participants
16.00-16.30	**Coffee Break**		
16.30-18.00	**Countries Breakout session**	Country work group and discussion	Supported by expert, WHO, UNICEF and PEPFAR HQ, regional and country staff
18.00-18.30	**Organizers/facilitators meeting**		WHO HQ/AFRO

Time	Session	Topics	Responsible
Day 2 , Wednesday, June 21st			
8.30-9.00	**Keynote presentations:** The status of HIV treatment in infants		Elizabeth Obimbo (University of Nairobi)
Infant Feeding			
9.00-10.00	***CHAIRS:*** D. Trovoada (WHO IST-CA) L. Gulaid (UNICEF)	Introduction	Ameena Goga (SAMRC)
		Early adopters' experiences	Zimbabwe
		Discussion	All participants
10.00-10.30	**Coffee Break**		
Enhanced Post-Natal Prophylaxis			
10.30-12.00	***CHAIRS:*** M. Newman (WHO IST-ESA) N. Putta (UNICEF)	Introduction	Shaffiq Essajee (WHO)
		Early adopters' experiences	Kenya South Africa
		Discussion	All participants
12.00-13.00	**Lunch**		
13.00-14.20	**Market Place**		
New born Treatment			
14.20-15.30	***CHAIRS:***	Introduction	Martina Penazzato (WHO)

	Landon Myer (Univ. Cape Town) A. Muriithi (WHO AFRO)	Early adopters' experiences	South Africa
		Discussion	All participants
15.30-16.00	**Coffee break**		
15.30-17.30	**Countries Breakout session**	Country work group and discussion	Supported by expert, WHO, UNICEF and PEPFAR HQ, regional and country staff
17.30-19.00	**WHO meeting with all NPOs**		WHO HQ/AFRO

Time	Session	Topics	Responsible
Day 3, Thursday, June 22nd			
8.30-9.00	**Keynote presentations:** service delivery and integration for infants' HIV services		Landon Myer (University of Cape Town)
Service Delivery			
9.00-10.30	***CHAIRS:*** D. Sullivan (USAID) A. Muriithi (WHO AFRO)	Introduction	Shaffiq Essajee (WHO)
		Early adopters' experiences	Tanzania Ethiopia Ghana
		Discussion	All participants
10.30-11.00	**Coffee Break**		
Community Engagement			
11.00-12.30	***CHAIRS***: J. Makokha (South Africa) N. Furtado (Global Fund)	Panel of Civil society representatives (Cameroon, Kenya, Nigeria, Uganda)	
12.30-13.30	**Lunch**		
13.30-14.30	**Market Place**		
Monitoring and Evaluation			
14.30-15.30	***CHAIRS:*** H. Dale (CDC) F. Tsiouris (ICAP)	Introduction	Nande Putta (UNICEF)
		Early adopters' experiences	Cote d'Ivoire Tanzania
		Discussion	All participants

Use of Rapid Test in Infants			
15.30-16.30	***CHAIRS:*** H. Dale (CDC) F. Tsiouris (ICAP)	Introduction	Lara Vojnov (WHO)
		Early adopters' experiences	Uganda Kenya
		Discussion	All Participants
16.30-17.00	**Coffee break**		
16.30-17.30	**Countries Breakout session**	Country work group and discussion	Supported by expert, WHO, UNICEF and PEPFAR HQ, regional and country staff
17.30-18.00	**Organizers/facilitators meeting**		WHO

Date/time	Session	Topics	Responsible
Day 4, Friday June 23rd			
8.30-11.00	**Action Plan development**	Country team works and presentation of main ley points	Supported by expert, WHO, UNICEF and PEPFAR HQ, regional and country staff
11.00-11.30	**Coffee**		
11.30-12.30	**Countries presenting key action points**		
12.30-13.00	Wrap up and Closing remarks		WHO
13.00-14.00	**Lunch**		
14.00- 15.30	Next steps meeting with WHO, UNICEF and PEPFAR staff at country, regional and HQ level.		

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