Meeting report

Technical consultation on HIV linkage

3 March 2019

Seattle, USA

EXECUTIVE SUMMARY

Following recent World Health Organization (WHO) recommendations to "treat all" people living with HIV and support rapid antiretroviral therapy (ART) initiation, there is an increased importance of improving linkage between all steps of the HIV care continuum, from testing and treatment to prevention and retention activities. Broadly defined, HIV linkage includes linkage to prevention, linkage to treatment, and re-engagement in HIV care following a treatment interruption.

The International AIDS Society (IAS) convened a one-day technical consultation on HIV linkage in Seattle, USA, on 3 March 2019. The consultation brought together more than 50 representatives from global normative agencies, funders, research and academic institutions, implementing partners and ministries of health to highlight the importance of linkage in reaching the global targets for HIV and discuss how to prioritize specific linkage interventions to address key gaps. The consultation included best practice presentations on linkage across the HIV care continuum. The panel discussions focused on linkage to prevention, linkage in the context of HIV self-testing and updates from WHO on current and forthcoming recommendations around linkage. As part of the group work, participants discussed linkage to treatment interventions and single- and multiple-intervention strategies. Furthermore, group work highlighted the impact of incentives of rates of linkage, initiation for clients living with advanced HIV disease and ways to facilitate re-engagement in care after treatment interruptions.

The agenda from the consultation can be found in Annex 1 with the files from the consultation, including most of the slide decks, available for download here.

Based on the consultation, a series of next steps are being defined to support further analysis and advocacy for HIV linkage. These include:

1. **Encouraging the inclusion of specific linkage recommendations within WHO guidance** – for linkage to prevention, linkage following a positive HIV diagnosis and re-engagement in care
2. **Highlighting the gaps in our understanding of effective HIV linkage strategies** as a result of multi-component interventions
3. **Advocating for further research on priority interventions to support linkage**, particularly for the specific client groups who are underserved by current linkage and treatment programmes
4. **Promoting further implementation research on effective strategies to re-engage clients** into services and more prominent messaging on the growing challenge of clients disengaging from care
5. **Developing a more circular HIV treatment cascade** to shift away from a linear understanding of the HIV treatment journey
6. **Supporting sustained efforts to ensure that linkage is seen as the responsibility of both those working in HIV testing and those working in HIV treatment** and ensuring collaboration on linkage (inclusive of planning for and evaluation of linkage strategies)
7. **Facilitating further discussion on how to define successful HIV linkage to treatment**, beyond ART initiation, that measures quality of care as longer-term retention or viral suppression.

Acronyms

AHD	Advanced HIV disease
ART	Antiretroviral therapy
CASCADE	Same-day ART Initiation Versus Standard of Care After Positive HIV-test Result in Rural Lesotho
CHAI	Clinton Health Access Initiative
CHiPs	Community HIV care providers
DSD	Differentiated service delivery
HIVST	HIV self-testing
HTS	HIV testing services
IAS	International AIDS Society
MoH	Ministry of health
MSF	Médecins Sans Frontières
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
POC	Point-of-care
PopART	Population Effects of Antiretroviral Therapy to Reduce HIV Transmission
RCT	Randomized control trial
SEARCH	Sustainable East Africa Research in Community Health
SLATE	Simplified Algorithm for Treatment Eligibility

BACKGROUND

In September 2015, the World Health Organization (WHO) recommended "treat all", supporting antiretroviral therapy (ART) for all people living with HIV[1]. Two years later, in July 2017, WHO strongly recommended rapid ART initiation for all people living with HIV following confirmed diagnosis and clinical assessment[2]. These new recommendations have increased the importance of improving linkage between all steps of the HIV care continuum, from testing and treatment to prevention and retention activities.

Together with partners, the International AIDS Society (IAS) convened a one-day technical consultation on HIV linkage, inclusive of:

- Linkage from HIV testing to HIV treatment, including:
    - Referral from testing to treatment
    - Support for rapid ART initiation
- Linkage from HIV testing to HIV prevention
- Re-engagement in HIV care following a treatment interruption.

The agenda from the consultation can be found in Annex 1. The consultation brought together more than 50 representatives from global normative agencies, funders, research and academic institutions, implementing partners and ministries of health to highlight the importance of linkage in reaching the global targets for HIV and discuss how to prioritize specific linkage interventions to address key gaps (see Annex 2). The discussions took into consideration today's realities of the HIV epidemic, including: the diverse needs of people living with HIV; the fact that the majority of people living with HIV are currently or have been on HIV treatment; the increased availability of HIV self-testing (HIVST); and the challenging decisions around budget allocations at a time when overall funding of the HIV response is declining.

MEETING OBJECTIVES

- To present a broad definition of HIV linkage – inclusive of linkage to treatment, prevention and re-engagement into care
- To review evidence and share best practice examples of context-specific linkage strategies
- To discuss and debate which linkage interventions should be prioritized for which populations.

[1] https://www.who.int/mediacentre/news/releases/2015/hiv-treat-all-recommendation/en/
[2] https://www.who.int/hiv/pub/guidelines/advanced-HIV-disease/en/

MEETING OUTCOMES

The presentations, discussions and group work are summarized below. Where available, the images are hyperlinked to the complete slide deck.

SESSION 1: Introductions and overview

Introductions and meeting objectives

Anna Grimsrud (IAS, South Africa)

Anna set the scene for the day within the context of differentiated service delivery (DSD). DSD is a client-centred approach that simplifies and adapts HIV services across the cascade of HIV care to reflect the preferences and expectations of various groups of people living with or at risk of acquiring HIV while reducing unnecessary burdens on the health system. DSD frameworks have been developed for ART delivery, specific populations, key populations and HIV testing services (HTS).

Current WHO recommendations on HIV linkage

Rachel Baggaley (WHO, Switzerland)

Rachel outlined the WHO guidance that, over the years, has highlighted the importance of linkage to prevention and treatment services, including for key populations. She stressed that linkage is required for multiple services at multiple points in the client's continuum of care and that it is not required only by the client, but also by the client's sexual partners, family and social contacts. WHO guidance on linkage has not been consolidated and nor does it include recommended interventions. It has taken the form of a menu of suggested approaches for linkage identified through reviews undertaken. Linkage guidance will be included in the next WHO HTS guideline, expected in December 2019.

Service delivery of HIV linkage

Lynne Wilkinson (IAS, South Africa)

Lynne presented the multiple non-linear connection steps required between services. She summarized the interventions for linkage to prevention services, from HIV self-testing to treatment services, into standardized categories of interventions. This includes those related to: organization of services; information provision to clients; clinical management; referral systems; interpersonal engagement; case management. She framed linkage interventions according to the level of engagement with the client: from interventions that enable self-linkage to those that indirectly and directly support linkage taking place. Lynne also highlighted the fact that linkage service delivery implementation could be planned using the DSD framework, starting with a situational analysis, defining the linkage challenges and identifying the target population/s. Next is assessing whether a service exists that can be adapted or whether a new service should be built to provide the linkage intervention and, lastly, determining the building blocks of the linkage intervention ("when" – service frequency;

	"where" – location; "who" – provider; and "what" – the package of care).

SESSION 2: Linkage from testing to treatment
Single-component linkage strategies

	**Commentary on single-component linkage strategies** **Monisha Sharma (University of Washington, USA)** Monisha provided an overview of barriers to linkage, from testing to treatment services. There are limited studies evaluating single-linkage interventions. Evidence to date shows mixed outcomes for point-of-care (POC) CD_4 count testing regarding improving linkage from testing to ART services, but it does show reduced time to ART start. Small increases in linkage to ART services were reported for provider accompaniment and home follow-up immediately post testing, compared with referral alone. Linkage could be improved by phone and home visit follow-up for clients who missed their linkage appointment. Importantly, studies show that linkage to ART services is not enough, with many of those linked not initiated on ART. Future linkage research should be designed to evaluate single-linkage interventions and not only for newly diagnosed clients. Linkage interventions must be evaluated for high-yield community HTS strategies, such as partner notification services.

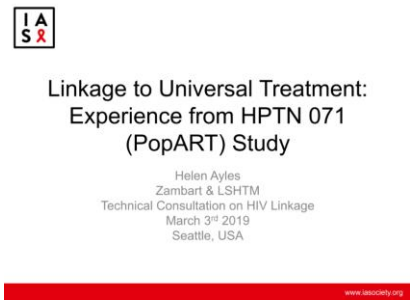
Best practice example 1: Patient-centred call by clinical officer at time of HIV testing or re-contact **James Ayieko (Kenyan Medical Research Institute, Kenya)** James described the outcomes of a nested randomized control trial (RCT) within the Sustainable East Africa Research in Community Health (SEARCH) study in Kenya. A clinical officer provided a structured phone call to clients after testing or re-engagement with services. A transport reimbursement was given at arrival at the ART service in both the intervention and standard of care (SOC) arms. This intervention improved linkage within seven days and 30 days, respectively, but linkage remained <50% within 30 days.	

	**Best practice example 2: Community-based HIV testing and linkage** **Ruanne Barnabas (University of Washington, USA)** Ruanne described the outcomes of an RCT evaluating three linkage strategies from community-based home testing to ART services and ART initiation in South Africa and Uganda. SOC linkage to ART services was already high at 89%, but only 67% initiated ART (34% of all HIV-positive persons, but not everyone was eligible due to CD_4 count criteria). Compared to the standard of care, arm one (clinic facilitation, or accompaniment, where the lay counsellor met the client at their first clinic visit) and arm two (home follow-up by a lay counsellor at month one, three and size) showed a modest improvement in linkage to ART services. Accompaniment had no effect on ART initiation, but home follow-up resulted in a 23%

	increase in ART initiation. POC CD_4 had no effect on linkage to ART services or ART initiation.

Multiple-component linkage strategies

Commentary on multiple-component linkage strategies **Duncan MacKellar (Centers for Disease Control and Prevention, USA)** Duncan summarized linkage interventions and outcomes in five multiple-component linkage intervention studies, including the SEARCH trial in Kenya and Uganda, Link4Health in Eswatini, Engage4health in Mozambique, linkage case management programmatic roll out in Tanzania and Eswatini, and the Same-day ART Initiation Versus Standard of Care After Positive HIV-test Result in Rural Lesotho (CASCADE) trial in Lesotho. Studies reported linkage rates to ART services, raising the question of whether this is the outcome of interest or whether studies should also be evaluating ART initiation and retention rates following linkage. The study linkage intervention packages were compared with those recommended by the International Association of Providers of AIDS Care (IAPAC) (2012), Centers for Disease Control and Prevention (2014) and WHO (2016).	

	**Best practice example 2: Linkage to universal treatment (PopART)** **Helen Ayles (Zambart, Zambia)** Helen described the linkage package and time to linkage from referral by community HIV care providers (CHiPs) to ART initiation within the Population Effects of Antiretroviral Therapy to Reduce HIV Transmission (PopART) study in Zambia and South Africa. The linkage package included: i. CHiPs developing a relationship within the community and ART clinic ii. Setting up a clinic triage desk to help navigation iii. Accompanying clients on request iv. Sending an electronic message a month after testing for those not initiating v. Home follow-up for those still not linking. After the first round of community testing, 50% of those diagnosed initiated ART by 10 months. The time to linkage improved to 3.5 months by round three, with 75% initiating by 12 months. This study showed that linkage required sustained effort from community-based testing, with linkage taking longer than expected; some clients need more time.

SESSION 3: Linkage to prevention (Panel discussion)

Chair: Kevin Fisher (AVAC, USA)
Discussants: Chris Akolo (LINKAGES, USA), Rachel Baggaley (WHO, Switzerland), Ruanne Barnabas (University of Washington, USA), Kim Green (PATH, Viet Nam), Philip Smith (Desmond Tutu HIV Foundation, South Africa)

The themes that emerged from the panel discussion included:

1. *New testing strategies offer opportunities and challenges*: Index testing as a way to link to prevention poses security and confidentiality challenges and the risk of intimate partner violence. Self-testing offers an

opportunity to get new people tested, but linkage to prevention will be challenging as an individual's HIV-negative test may confirm that their current prevention strategy is working and no additional prevention measures are needed.

2. *Context matters*: Since there is potentially a very large group of at-risk HIV-negative people in the denominator, the filtering of those who might benefit is needed and profoundly influenced by local context. Linkage to prevention will require even more bespoke solutions than linkage to treatment.

3. *Linkage to prevention is still a developing field*: An HIV test as a portal to prevention will always be a strategy, but other portals (for example, school programmes or clubs) should be further explored. The toolbox for linkage to prevention is still developing and will benefit from research.

SESSION 4: Prioritizing interventions to support linkage to treatment (group work)

This session required small groups to:

1. Identify, prioritize and briefly describe up to three evidence-based linkage interventions/approaches within the linkage category assigned to the group. Linkage categories included a number of possible linkage interventions with examples provided.
2. Provide a brief description in terms of the service location ("where"), service frequency ("when"), service provider ("who") and service package ("what") for each priority intervention.
3. Indicate for which population group/s the interventions should be prioritized.
4. Choose the group's number one intervention in the assigned linkage category.
5. Identify the group's priority interventions outside of the assigned linkage category.

Group outputs are described in tables in Annex 3. The most commonly identified priority linkage interventions across groups were:

- Case management for clients missing linkage, ART initiation or ART refill appointments
- Supportive client-friendly services.

SESSION 5: Incentives for linkage to prevention and treatment (commentary)

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<td>Commentary on incentives for linkage to prevention and treatment
Harsha Thirumurthy (University of Pennsylvania, USA)
Harsha explained that extrinsic interventions are needed to supplement intrinsic motivations. Incentives can be anything that reduces financial costs or increases benefits, including transport support and in-kind and cash incentives. There is mixed evidence on effectiveness of incentives on linkage, with interventions often combining a cash incentive with another linkage intervention, making it difficult to determine effect. Effectiveness also depends on many factors, including frequency of incentive, size, design and population targeted. In environments with multiple barriers to linkage, addressing a few barriers with incentives is likely to be insufficient. A 2019 study published by Choko et al showed improved linkage to ART initiation and voluntary medical male circumcision for men when antenatal attendees take an HIV self-test to their male partner with a cash incentive for linkage. Other approaches showing some effect include transport vouchers and performance-based rewards, such as social franchisees rewarded per test and linkage case. Going forward, incentive intervention research should: align the incentive amount with the value of the outcome; be targeted</td>
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	towards leveraging social networks; avoid crowding out of intrinsic motivation for behaviour; and focus on priority populations.

SESSION 6: WHO service delivery recommendations: What's coming for linkage

	**WHO service delivery recommendations: What's coming for linkage** **Meg Doherty (WHO, Switzerland)** Meg confirmed that existing linkage guidance is spread across testing and treatment guidelines and is dealt with in different sections. WHO held a think tank on future directions for HIV service delivery in November 2018. This meeting included consideration of what linkage looks like in the era of rapid ART initiation, DSD and advanced disease interventions. A country-level service delivery survey highlighted the lack of attention on linkage; there is more focus on rapid ART start. WHO 2017 rapid start guidance identified tools that required development to support implementation. It is necessary to determine whether these have been developed and what their effects are. WHO intends to bring out new consolidated testing, treatment and prevention guidelines in 2020, including greater specificity on evidence-based linkage service delivery approaches for populations left behind. Updated guidance is also intended to provide recommendations for re-engagement, including a friendly approach and package of services.

SESSION 7: Linkage from HIV self-testing (panel discussion)

Chair: Helen Ayles (Zambart, Zambia)

Discussants: Tsitsi Apollo (Ministry of Health and Child Care, Zimbabwe), Augustine Choko (Wellcome Trust, Malawi), Kate Dovel (University of California, Malawi), Heather Ingold (Unitaid, Switzerland), Tanya Shewchuk (Bill & Melinda Gates Foundation, USA)

The themes that came out of the panel discussion included:

1. New evidence confirms that HIV self-testing is a valuable additional testing strategy, particularly for identifying men and young people living with HIV.
    a. PopART (Mulubwa et al) showed that HIVST reached people not reached in two previous rounds of community testing.
    b. Choko et al showed significantly improved testing of male partners through secondary distribution by antenatal attendees and strengthened linkage with the addition of a small cash incentive.
    c. Dovel et al showed significantly improved testing and high yield by secondary distribution by the ART cohort to their sexual partners.
2. Linkage rates are harder to track with HIVST compared with conventional healthcare worker-provided rapid HTS.
    a. HIVST can identify people living with HIV who may not otherwise have tested and can provide access for repeat testing.

b. Further implementation research is required to evaluate effectiveness of HIVST plus single-component linkage interventions to determine what works to improve linkage and ART initiation rates.

3. Monitoring of linkage is complicated, time consuming and less possible in secondary distribution of HIVST. Secondary distribution of HIVST is more likely to be reaching targeted populations.

   a. Linkage following HIVST should be estimated by studies and surveys alongside programme data.

   b. It is unfeasible to monitor HIVST yield and linkage in a routine programmatic setting.

   c. Ministries of health (MoHs) are willing to accept limited data on linkage and yield from HIVST based on the understanding that this testing strategy is targeting those not being reached by conventional testing approaches. Most MoHs are including a column in the HTS register asking clients whether they previously tested with an HIVST.

   d. Donors realize that there are difficulties with measuring yield and linkage from HIVST, and they are funding specific studies and surveys to fill this gap.

SESSION 8: Accelerated and supported ART initiation for clients presenting well and for those presenting with advanced HIV

Facility approach for well clients

Simplifying and accelerating HIV treatment initiation: SLATE I and SLATE II studies

Sydney Rosen (Boston University, USA)

Sydney described two consecutive studies evaluating simple clinical algorithms for starting ART on the same day as arrival at the ART service. Simplified Algorithm for Treatment Eligibility (SLATE) I, in South Africa and Kenya, randomized clients to accelerated ART initiation within seven days or SOC with little effect on retention by 28 days and no effect by eight months. Retention was poor in both arms (<60%). Clinical eligibility criteria excluded >40% of clients from same-day initiation, mostly because of the presence of a TB symptom. SLATE II, in South Africa, adapted the algorithm to be more inclusive of clients presenting with TB symptoms. Early results from this RCT report that 86% of clients were eligible for same-day ART initiation, with a greater proportion of those in the intervention arm having initiated ART within seven and 28 days, respectively. No retention outcomes are available yet.

Community ART initiation approach for well clients

Community-based ART initiation: Experience in Lesotho

Niklaus Labhardt (Swiss Tropical and Public Health Institute, Switzerland)

Niklaus described the CASCADE RCT in Lesotho. Clients were tested at home and if eligible – that is, not clinical stage 4, Crag negative (CD_4 <100) and not pregnant or breastfeeding – were provided with immediate ART initiation at home (one-month supply) compared with SOC (referral to the nearest clinic for ART initiation). Home initiation improved three-month linkage, 12-month retention and viral suppression. After completion of the primary endpoint at 12 months, patients not in care were traced and encouraged to return

back to care. As a result, both arms were similar in retention in care and viral suppression at 24-month. Those who did not link were more likely to be younger, urban and at their first HIV diagnosis. The main reported reason for not linking was refusal to attend care (20-30% of all non-linkers), with >10% out of all patients enrolled in the trial continuing to refuse ART upon tracing after the primary endpoint. Among non-linkers at 24 months, 66% did not take their first ART supply; those who did had accumulated resistance.	

	*Community ART initiation and management approach* Outreach initiation and management **Claire Keene (MSF, South Africa)** Claire presented on the Médecins Sans Frontières (MSF) pilot in Khayelitsha, South Africa. An outreach service was set up to diagnose, initiate and manage clients from populations with poorer ART uptake. Services were offered for extended hours targeting youth and on Saturdays targeting men. Youth-focused services integrated family planning, and male-focused services integrated erectile dysfunction screening. Of those testing, 47% had not tested in the past 12 months. No linkage rates were reported and there was limited acceleration of ART initiation compared with clinic clients. Continued ART management, including ART refills, were provided by the outreach service, with poorer retention at six months compared with clinics.

Community ART initiation approach for well clients Linking from HIV testing to treatment in a community-based project in Tanzania **Haruka Maruyama (ICAP, Tanzania)** Haruka described a programmatic approach in nine regions in Tanzania. A clinic nurse provided testing within communities, homes and other venues at extended hours designed to reach key and vulnerable populations. People diagnosed HIV positive were immediately registered and provided with a 14-day ART starter pack and a clinic follow-up appointment, where baseline bloods were taken. A peer person living with HIV/expert patient provided linkage case management (three sessions – at the testing site and at first and second ART refill – as well as appointment reminders, navigation to the facility where possible and follow-up for partner notification/index testing). The approach improved ART initiation over a 12-month period by >30%, with the greatest gains among key populations. Importantly, the community initiators represented 30% of all new initiations during this period, and >80% were linked to the clinic for their first ART refill. The programme demonstrates that this approach is feasible at scale and raises the need for community ART refills.	 *Slides not available*

Commentary on initiation for advanced HIV clients: New Unitaid initiative and the importance of linkage

Carolyn Amole (CHAI, USA)

One-third of adults initiating ART in low- and middle-income countries have advanced HIV disease (AHD) at presentation, and approximately 10% die within the first three months on ART. The Clinton Health Access Initiative (CHAI) received a Unitaid grant to reduce the price of priority products to support implementation of treating AHD at country level and accelerate product introduction through catalytic procurement, adoption and roll out support in Lesotho, Malawi, Nigeria, South Africa and Tanzania. Accelerated linkage from testing is critical due to increased risk of rapid disease progression and limited time to mortality for hospitalized patients. Integration of POC CD_4 accelerates clinical action, including initiation. Linkage for clients with AHD can be improved by leveraging existing POC CD_4 infrastructure to maintain access, increase access to new POC products (including CD_4 lateral flow assay) and integrate AHD services into patient flow. The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight HIV, TB and Malaria have committed to supporting AHD commodities.

SESSION 9: Re-engagement into care

Commentary on re-engagement into care

Izukanji Sikazwe (Centre for Infectious Disease Research in Zambia, Zambia)

Izukanji explained that the number of clients disengaging from care and who need to be linked back into care is steadily growing; this includes all clients counted as lost to follow-up who are not silent transfers and have not died. Importantly, it is already known who these clients are; healthcare workers do not have to find and diagnose them. It is necessary to understand the reasons for disengagement to support re-engagement. Studies have shown various drivers of disengagement, including structural issues relating to service delivery. A strong preference has been shown for friendly providers, even if this means more waiting time or further travel. Many clients do return to care. A Zambian study found that 50% of clients previously lost to follow-up had returned at one year and 62% at two years after disengagement, but service obstacles at facilities delay the restart of ART. Improved monitoring and evaluation must be prioritized to trace these clients, and re-engagement strategies, incorporating human-centred design, are required to address the needs of different patient populations and healthcare workers.

Best practice example: Supporting re-engagement with care

Claire Keene (MSF, South Africa)

Claire described an MSF pilot in Khayelitsha, South Africa, to support re-engagement. An assessment of true disengagement from care was estimated as 23% disengaged at least once in a two-year period. MSF introduced a comprehensive "welcome back" service at an ART facility, starting on the day of re-engagement. It is made up of three pillars: i) identification of the approach with active tracing and triage of walk-ins; ii) rapid restart or switch with clinical management of those returning with AHD; and iii) psychosocial support normalizing disengagement, including counselling and peer navigation. During the first four months of the pilot, 196 clients previously disengaged were identified, with travel being the main reason for disengagement. Of those, 87% returned for their follow-up visit and 78% were virally suppressed after three months from restart. MSF is also using a social media campaign (WhatsApp and Facebook) to reach out to clients who may have disengaged from care. The Department of Health in South Africa is also using components of this pilot in its new #WelcomeBack campaign.

Annex 1: Agenda

TIME	SESSION AND PRESENTERS	CHAIRS
08h00-08h45	*Arrival and registration*	
08h45-09h30	**SESSION 1: Introductions and overview** Introductions and objectives – Anna Grimsrud (IAS, South Africa) Current WHO recommendations on HIV linkage – Rachel Baggaley (WHO, Switzerland) Service delivery of HIV linkage – Lynne Wilkinson (IAS, South Africa)	Thoko Kalua (MoH, Malawi) Tanya Shewchuk (BMGF, USA)
09h30-10h30	**SESSION 2: Linkage from testing to treatment** Single-component linkage strategies (Commentary) – Monisha Sharma (UW, USA) Best practice example 1 – James Ayieko (KEMRI, Kenya) Best practice example 2 – Ruanne Barnabas (UW, USA) Multi-component linkage strategies (Commentary) – Duncan MacKellar (CDC, USA) Best practice example – Helen Ayles (LSHTM, Zambia)	
10h30-10h45	*Coffee*	
10h45-11h30	**SESSION 3: Linkage to prevention (Panel discussion)** Chris Akolo (FHI360, USA), Rachel Baggaley (WHO, Switzerland), Ruanne Barnabas (UW, USA), Kim Green (PATH, Viet Nam), Philip Smith (DTHF, South Africa)	Kevin Fisher (AVAC, USA)
11h30-12h00	**SESSION 4a: Prioritizing interventions to support linkage to treatment (Group work)** GROUP 1 Post-test/linkage counselling approach (including disclosure support) – Kristina Grabbe (Jhpiego, USA), Edward Oladele (FHI360, Nigeria) GROUP 2 Point-of-care CD4 – Naoko Doi (CHAI, USA), Ade Fakoya (Global Fund, UK) GROUP 3 Appointment reminders (including electronic) – Ingrid Bassett (Mass Gen, USA), Priscilla Tsondai (UCT, South Africa) GROUP 4 Peer or clinician support after diagnosis (telephonic/in person) – James Ayieko (KEMRI, Kenya), Solange Baptiste (ITPC, South Africa) GROUP 5 Peer navigation/accompaniment – Kim Green (PATH, Vietnam), Ingrid Katz (Harvard Global Health Institute, USA) GROUP 6 Case management to linkage appointment – Michael Herce (CIDRZ, Zambia), Simukai Shamu (FPD, South Africa) GROUP 7 Supportive/Client-friendly services – Claire Keene (MSF, South Africa), Brooke Nichols (HE2RO, South Africa) GROUP 8 Case management for missing appointment (those not linking to care) – Joseph Larmarange (IRD, France), Zara Shubber (World Bank, USA)	
12h00-12h45	*Lunch*	

12h45-13h30	**SESSION 4b: Prioritizing interventions to support linkage to treatment (Group work report back)**	Ade Fakoya (GF, UK) Cordelia Kautreebe (MoH, Uganda)
13h30-13h40	**SESSION 5: Incentives for linkage to prevention and treatment (Commentary)** Harsha Thirumurthy (UPenn, USA)	
13h40-14h00	**SESSION 6: WHO service delivery recommendations – What's coming for linkage?** Meg Doherty (WHO, Switzerland)	
14h00-14h30	**SESSION 7: Linkage from HIV self-testing (Panel discussion)** Tsitsi Apollo (MoHCC, Zimbabwe), Augustine Choko (Wellcome Trust, Malawi), Kate Dovel (UCLA, Malawi), Heather Ingold (Unitaid, Switzerland), Tanya Shewchuk (BMGF, USA)	Helen Ayles (LSHTM, Zambia)
14h30-14h45	*Coffee*	
14h45-16h00	**SESSION 8: Accelerated and supported ART initiation for clients presenting well and for those presenting with advanced HIV** Facility approach, well clients – Sydney Rosen (BU, USA) Community ART initiation, well clients 1 – Niklaus Labhardt (Swiss Tropical and Public Health Institute, Switzerland) Community ART initiation, well clients 2 – Claire Keene (MSF, South Africa) Community ART initiation, well clients 3 – Haruka Maruyama (ICAP, Tanzania) Initiation for advanced HIV clients (Commentary) – Carolyn Amole (CHAI, USA)	Lloyd Mulenga (MoH, Zambia) Obinna Onyekwenya (GF, Switzerland)
16h00-16h45	**SESSION 9: Re-engagement into care** Facilitating return to care (Commentary) – Izukanji Sikazwe (CIDRZ, Zambia) Best practice 1 – Claire Keene (MSF, South Africa)	Aleny Couto (MoH, Mozambique) Peter Ehrenkranz (BMGF)
16h45-17h00	**SESSION 10: Wrap up and close** Tsitsi Apollo (MoHCC, Zimbabwe), Ingrid Katz (Harvard Global Health Institute, USA), Peter Ehrenkranz (BMGF, USA), Kim Green (PATH, Viet Nam)	Anna Grimsrud (IAS, South Africa)

Annex 2: Attendee list

	First name	Last name	Organization	Country	Email
1	Chris	Akolo	FHI 360, Linkages	USA	cakolo@fhi360.org
2	David	Allen	Bill & Melinda Gates Foundation	South Africa	david.allen@gatesfoundation.org
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7	Okikiolu	Badjo	Institute of Tropical Medicine	Belgium	okikolubadejo@gmail.com
8	Rachel	Baggaley	World Health Organization	Switzerland	baggaleyr@who.int
9	Solange	Baptiste	International Treatment Preparedness Coalition	South Africa	SBaptiste@itpcglobal.org
10	Ruanne	Barnabas	University of Washington	USA	rbarnaba@uw.edu
11	David	Barr	The Fremont Centre	USA	david@thefremontcenter.org
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21	Ade	Fakoya	The Global Fund to Fight HIV, TB and Malaria	UK	Ade.Fakoya@theglobalfund.org
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Annex 3: Outputs from group work

Group 1: Post-test/linkage counselling approach (including disclosure support)	
Prioritized intervention	Post-test counselling at the point of delivering the initial HIV-positive test result
Service frequency (WHEN)	Immediately after delivering the initial HIV-positive test result
Service location (WHERE)	In the community or the facility, wherever HTS happens
Service provider (WHO)	HTS provider; they pass on to an on-site expert client/peer navigator/linkage counsellor
Brief description of intervention package (WHAT)	Immediate counselling should include: • Making sure that client is stable and can cope with result • Providing information: understanding importance of early ART, benefits of ART for health of client and partner/family (U=U), viral load testing and suppression • Logistics: availability of treatment, treatment is free, nearby clinics, escort, follow-up • ART preparedness: client barriers, identify solutions, disclosure support • Treatment pathway: availability of DSD models once stable and other support services
Priority population	All clients receiving HIV-positive test result

Group 2: Point-of-care (POC) CD4	
Prioritized intervention	POC CD_4 at testing facilities* **once CD_4 LFA available should become priority intervention provided immediately after HIV diagnosis at point of testing*
Service frequency (WHEN)	At the time of testing (if possible)
Service location (WHERE)	Testing facility
Service provider (WHO)	Healthcare worker providing HIV testing
Brief description of intervention package (WHAT)	• Conduct POC CD_4 • Provide same-day test result to client • CD_4 explanation, encourage immediate linkage irrespective of CD_4, explain AHD if necessary • Complete referral card with result for ART service • Accompany clients with AHD to ART service
Priority population	All clients receiving HIV-positive test result at a facility

Group 3: Appointment & electronic appointment reminders	
Prioritized intervention	2-way text messages (SMS/WhatsApp) to all HIV-positive people who have consented
Service frequency (WHEN)	2 and 7 days before appointment
Service location (WHERE)	Auto-generated from clinic
Service provider (WHO)	Data capturer enters into system
Brief description of intervention package (WHAT)	• Personalized • Zero rated • No use of words that can be stigmatizing • Language chosen by client
Priority population	All consenting clients receiving an HIV-positive result with access to a mobile

Group 4: Telephonic/in-person peer/clinician support after diagnosis	
Prioritized intervention	Differentiate based on resources available: Low resourced (LR): SMS Mid-level resourced (MR): telephone support Well resourced (WR): SMS, telephone, in-person
Service frequency (WHEN)	LR & MR: within 2 days of HIV-positive test result WR: within 2 days of HIV-positive test result, with follow-ups (sequenced)
Service location (WHERE)	At the place where testing took place
Service provider (WHO)	LR: HTS counsellor MR & WR: HTS counsellor (first call) + receiving clinic (second call) WR only: add peer support
Brief description of intervention package (WHAT)	SMS: positive message with linkage reminder Telephone support • Client experience • Barriers • Assessment of need/barriers to linkage
Priority population	All clients receiving HIV-positive test result

Group 5: Peer navigation/accompaniment	
Prioritized intervention	Combination peer navigation approach: peer navigation and accompaniment from community to ART service facility and inter-facility reception and navigation
Service frequency (WHEN)	At diagnosis

Service location (WHERE)	Community & facility
Service provider (WHO)	Peer navigator (based in community or facility)
Brief description of intervention package (WHAT)	• Assess client linkage needs • Offer peer navigation (opt-out approach) • Link client
Priority population	Key populations, men, adolescent girls and young women (context specific)

Group 6: Case management to linkage appointment	
Prioritized intervention	Motivation interview-based counselling support visits
Service frequency (WHEN)	From post-test counselling onward Longitudinal: frequently until "linkage to care"
Service location (WHERE)	Clinic or home/community = "client-friendly" setting
Service provider (WHO)	Peer/community health worker/lay cadre Nurses
Brief description of intervention package (WHAT)	• Screening for those most at risk of not linking • Consent to longitudinal follow-up • Identify & troubleshoot barriers • Assess readiness
Priority population	Adolescent girls and young women, key populations, men

Group 7: Supportive/client-friendly services	
Prioritized intervention	Structural changes to: • Increase staff friendliness (including decanting stable clients into DSD models to reduce burden) • Ensure ART can be initiated at any time at a facility by increasing the number of days on which the HIV service initiates ART and number of ART prescribers outside of HIV service • Extend clinic hours to improve accessibility
Service frequency (WHEN)	• When clients initially engage in healthcare and/or are tested • ART initiation immediately on presentation at facility with positive diagnosis • Outside of work hours – late afternoon/early evening and weekends
Service location (WHERE)	Where patients initially engage in healthcare and/or are tested
Service provider (WHO)	All cadre of staff that can provide testing and ART

Brief description of intervention package (WHAT)	• Provide friendly services, including spending more time with patients who need it • Initiate ART at presentation at a facility irrespective of time or day. No need to come back on another day to be started • Extended hours allowing appointments outside of work hours
Priority population	"Sticky" linkage populations

Group 8: Case management for missed appointment	
Prioritized intervention	Increasingly intensive set of interventions to trace people
Service frequency (WHEN)	D1: SMS D7: phone call D14: home visit
Service location (WHERE)	Context dependent
Service provider (WHO)	Context dependent
Brief description of intervention package (WHAT)	• Collect contacts at testing site • Computer-assisted software for case management
Priority population	All clients given an HIV-positive result who have not arrived at their chosen ART service site on their appointment date