Implementation Science Research helps countries tackle HIV.

Most countries in the Region are moving towards early initiation of treatment for people living with HIV, however there are major challenges including early diagnosis and linkages to care, reaching key populations, developing robust monitoring and evaluation systems and identifying efficient service delivery models. Implementation science research which translates research findings into real world public health systems can help overcome these challenges.

To strengthen the role of implementation science research in HIV response, the WHO Regional Offices for South-East Asia and the Western Pacific jointly organized an expert consultation on implementation science research on 9-11 December 2014 in New Delhi, India. Participants discussed ongoing research projects and generated key research questions that could be answered in future projects to inform policies and programmes.

HIV early diagnosis/treatment: implementation science research to strengthen retention in the cascade

Report of an expert consultation
New Delhi, India, 9–11 December 2014
HIV early diagnosis/treatment: implementation science research to strengthen retention in the cascade

Report of an expert consultation
New Delhi, India, 9–11 December 2014
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acronyms</td>
<td>v</td>
</tr>
<tr>
<td>Executive summary</td>
<td>vii</td>
</tr>
<tr>
<td>1. Background</td>
<td>1</td>
</tr>
<tr>
<td>2. Objectives</td>
<td>3</td>
</tr>
<tr>
<td>3. Proceedings</td>
<td>4</td>
</tr>
<tr>
<td>3.1 Regional situation of HIV epidemic in Asia–Pacific</td>
<td>4</td>
</tr>
<tr>
<td>3.2 Implementation science research in the Asia–Pacific Region</td>
<td>5</td>
</tr>
<tr>
<td>3.3 Ongoing research on test and treat</td>
<td>7</td>
</tr>
<tr>
<td>3.4 Strengthening the cascade of HIV testing, care and treatment</td>
<td>11</td>
</tr>
<tr>
<td>services</td>
<td></td>
</tr>
<tr>
<td>3.5 Scaling up pre-exposure prophylaxis</td>
<td>15</td>
</tr>
<tr>
<td>3.6 Elimination of parent-to-child transmission</td>
<td>16</td>
</tr>
<tr>
<td>3.7 Partnerships, collaborations and capacity development for ISR</td>
<td>18</td>
</tr>
<tr>
<td>3.8 Group work</td>
<td>20</td>
</tr>
<tr>
<td>4. Conclusions</td>
<td>21</td>
</tr>
<tr>
<td>5. Key recommendations on next steps</td>
<td>24</td>
</tr>
<tr>
<td>6. References</td>
<td>26</td>
</tr>
</tbody>
</table>

## Annexes

<table>
<thead>
<tr>
<th>Annex</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agenda</td>
<td>32</td>
</tr>
<tr>
<td>2. List of participants</td>
<td>33</td>
</tr>
</tbody>
</table>
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC</td>
<td>antenatal care</td>
</tr>
<tr>
<td>ART</td>
<td>antiretroviral therapy</td>
</tr>
<tr>
<td>ARV</td>
<td>antiretroviral(s)</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention, Atlanta, USA</td>
</tr>
<tr>
<td>DR</td>
<td>drug resistance</td>
</tr>
<tr>
<td>EID</td>
<td>early infant diagnosis</td>
</tr>
<tr>
<td>HIVDR</td>
<td>HIV drug resistance</td>
</tr>
<tr>
<td>iPrEx-OLE</td>
<td>pre-exposure prophylaxis initiative (iPrEx) trial open label extension</td>
</tr>
<tr>
<td>ISR</td>
<td>implementation science research</td>
</tr>
<tr>
<td>KP</td>
<td>key population(s)</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>monitoring and evaluation</td>
</tr>
<tr>
<td>MSM</td>
<td>men who have sex with men</td>
</tr>
<tr>
<td>NAP+</td>
<td>National AIDS Programme database system (Thailand)</td>
</tr>
<tr>
<td>NCGM</td>
<td>National Center for Global Health and Medicine, Tokyo, Japan</td>
</tr>
<tr>
<td>NIH</td>
<td>National Institutes of Health, Atlanta, USA</td>
</tr>
<tr>
<td>PEPFAR</td>
<td>US President's Emergency Plan for AIDS Relief</td>
</tr>
<tr>
<td>PPTCT</td>
<td>prevention of parent-to-child transmission</td>
</tr>
<tr>
<td>PrEP</td>
<td>pre-exposure prophylaxis</td>
</tr>
<tr>
<td>PWID</td>
<td>people who inject drugs</td>
</tr>
<tr>
<td>RDMA</td>
<td>Regional Development Mission for Asia, USAID</td>
</tr>
</tbody>
</table>
STI  sexually transmitted infection(s)
UNAIDS  Joint United Nations Programme on HIV/AIDS
UNSW  University of New South Wales, Australia
USAID  United States Agency for International Development
VL  viral load
WHO  World Health Organization
Executive summary

The World Health Organization (WHO) launched consolidated guidelines in 2013 focused on the use of antiretroviral (ARV) drugs for HIV treatment and prevention and in 2014 on key populations (KP). While most countries in the Region are moving towards early antiretroviral therapy (ART) in KP, there still are major challenges in the wider implementation of these guidelines. Major challenges in the scale-up of services include reaching and engaging the KP, developing robust monitoring and evaluation systems and identifying efficient service delivery models in the face of challenging funding scenario. Implementation science research (ISR) on translating clinical findings into real world public health systems will be an important tool to overcome some of these challenges. The need for ISR to strengthen the HIV treatment cascade and metrics to inform national and global policies has been increasingly recognized over the past few years.

WHO in the South-East Asia and Western Pacific Regions is committed to push forward the ISR agenda to support the implementation of the 2013 and 2014 WHO guidelines, and monitor and evaluate their impact. Two previous gatherings on implementation science (Siam Reap 2012 and Beijing 2013) convened by WHO along with key partners in the Region laid the foundation for the collaborative effort needed between countries on ISR and the formation of HIV and Health Network – collaboration between key people from nine countries in the Region.

This expert consultation on ISR on HIV early diagnosis/treatment and retention in the cascade meeting was co-organized by the WHO Regional Offices for South-East Asia and the Western Pacific and was held on 9–11 December 2014 in New Delhi, India. The meeting aimed to discuss selected ongoing ISR projects, identify challenges which could be addressed using ISR and encourage horizontal collaboration between expertise available in the Region and country programmes that will directly benefit from ISR.
During the meeting, ongoing and planned ISR projects in the Region were discussed. Countries were encouraged to publish early findings from these ongoing projects, which could potentially inform the next version of WHO consolidated guidelines scheduled for 2015. Countries also identified several challenges in implementing different aspects of the WHO 2013 and 2014 guidelines, including scale-up of testing and treatment services in KP and potential future roll-out of pre-exposure prophylaxis (PrEP) and developing solid monitoring and evaluation systems. These discussions led to the generation of several ISR questions that could be answered in future projects to inform policies. Experts in the Region presented several examples of successful ISR projects and horizontal collaborations with the country partners. Many potential collaborating partners were identified, such as Kirby Institute, University of New South Wales (UNSW) Australia, the Thai Red Cross and the National Center for Global Health and Medicine (NCGM), Tokyo, Japan which are willing to provide technical support and build capacity in the Region through future projects. The international development partners were urged to increase their level of involvement in ISR in Asia. Countries were also encouraged to consider self-funding of key ISR projects and see it as a cost-effective exercise in the long run.
1. **Background**

The World Health Organization (WHO) launched the 2013 consolidated guidelines on the use of antiretroviral (ARV) drugs for HIV treatment and prevention followed by the new 2014 consolidated guidelines focused on KP.\(^1\)\(^2\) These guidelines encourage scale-up of HIV prevention, testing and treatment services and early antiretroviral therapy (ART) for HIV-positive individuals. This new guidance, if implemented, will reduce HIV-related morbidity and mortality as well as result in decline in HIV incidence.\(^1\) In line with this, the Joint United Nations Programme on HIV/AIDS (UNAIDS) in 2014 released the 90-90-90 target: increasing to 90% the proportion of people living with HIV who know their diagnosis, increasing to 90% the proportion of people living with HIV receiving ART as well as those on HIV treatment who have an undetectable viral load (VL).\(^3\)

Most countries in the Asia–Pacific Region have already adopted or are in the process of adopting the WHO 2013 guidelines for their national HIV prevention and treatment programmes. However, substantial challenges remain in successful implementation of HIV testing and treatment scale-up programmes. Most countries report significant leakages along the cascade of HIV care and their current cascades fall very short the 90-90-90 targets of UNAIDS, especially in the KP in the Region.

In recognition of the need for implementation science research (ISR) to inform scale up policies in the concentrated HIV epidemic seen in Asia, WHO and National Institutes of Health (NIH) had convened the first informal consultation on antiretroviral treatment as ‘HIV Prevention: Implementation Science in Asia’ in 2012 at Siem Reap, Cambodia. This meeting laid the foundation for the collaborative effort needed between countries on ISR to inform scale-up policies in the Region.\(^4\) Subsequently, the meeting on “HIV and Health Network of the Western Pacific Region: WHO 2013 consolidated guidelines on the use of antiretroviral for the treatment and prevention of HIV in Asia and the Pacific”, convened by Beijing Ditan Hospital, and the WHO regional offices for Western Pacific and South-East Asia identified key ISR questions and laid a new foundation for the health network – a network of people from a wide range of
disciplines from nine countries in the Region. One main goal of this network is to advance the collaborative effort on ISR in the Region.

The “Expert consultation on ISR on HIV early diagnosis/treatment and retention in the cascade” meeting was co-organized by the WHO regional offices for South-East Asia and the Western Pacific and was held on 9–11 December 2014 at New Delhi, India.
2. Objectives

The objectives of the consultation were to:

- share, review and discuss the HIV testing and treatment scale-up plans in countries;
- discuss the existing ISR projects and their links to the national scale-up plans;
- identify potential topics for ISR in countries;
- identify opportunities for horizontal collaboration and capacity-building needs for ISR at country level;
- link country programmes and research institutions for potential collaborative projects on early testing and treatment including monitoring of the treatment cascade; and
- identify the gaps and key issues to inform the global team for the next version of WHO ARV guidelines proposed in 2015.

The key expected outcomes were:

- key current ISR studies on testing and early treatment mapped and discussed;
- potential for pooled data analysis and regional synthesis of research findings across similar studies in the Region explored;
- potential collaboration – either across country programmes or with research institutions identified;
- research capacity needs at country level identified and capacity building plans drafted with WHO and research institutions; and
- potential future research studies mapped and resource needs for the same discussed.
3. **Proceedings**

An informal expert consultation on implementation science research (ISR) on HIV early diagnosis/treatment and retention in the cascade was held from 9–11 December 2014 in New Delhi, India and brought together regional and international expertise on ISR, developmental partners, representatives of national AIDS programmes from Member States from the WHO South-East Asia and Western Pacific Regions, including Cambodia, China, India, Indonesia, Malaysia, Nepal, Thailand, and Viet Nam, and research teams from Australia, Japan and Thailand (See list of participants in Annex 2).

3.1 **Regional situation of HIV epidemic in Asia–Pacific**

Asia and the Pacific rank second (after sub-Saharan Africa) in terms of the number of people living with HIV (4.8 million), with 1.4 million in the Western Pacific Region and 3.4 million in the South-East Asia Region in 2013.\(^6\)\(^7\) Though the rates of new HIV infections have declined since 2001, they remain largely unchanged in last five years. HIV epidemic in the Region is largely concentrated in KP, including men who have sex with men (MSM) and transgender people, sex workers and their clients, and people who inject drugs (PWID) with the HIV prevalence rates >5% in these populations in most countries.\(^7\) Further, while the testing rates have increased in some communities (e.g. for MSM in Thailand), they still report high rate of new cases and cohort studies and cross-sectional surveys reveal an increasing number of new HIV infections,\(^8\) suggesting that there are many unreached pockets of KP in the Region.\(^7\)

Most countries have adopted the 2013 WHO treatment guidelines\(^1\) (Thailand recommends ART for all HIV-positive individuals) and are moving towards earlier initiation of ART in KP groups (see Table 1 for summary of country guidelines). Though there is a wide inter- and intra-regional variation, coverage of prevention, testing and treatment services generally fall substantially short of the UNAIDS 90-90-90 targets. Also, the estimates of new HIV infections and coverage of key interventions along the testing and treatment cascades from most countries are imprecise and in want of robust and reliable data for better decision-making. Finally, there are funding challenges in the face of emerging priorities and a large reliance on
international donors. ISR in the Region is, therefore, urgently needed to help address these issues.

Table 1: Summary of national recommendations on ART eligibility criteria for adults, children and KP living with HIV, and VL for treatment monitoring (as of December 2014)

<table>
<thead>
<tr>
<th>ART eligibility criteria (CD4 count)</th>
<th>Cambodia</th>
<th>China</th>
<th>India</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Nepal</th>
<th>Thailand</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatrics</td>
<td>&lt;350</td>
<td>&lt;500</td>
<td>&lt;500</td>
<td>&lt;350</td>
<td>&lt;350</td>
<td>&lt;500</td>
<td>&lt;350</td>
<td>&lt;350</td>
</tr>
<tr>
<td>ART for TB/HIV patients</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>&lt;1 year</td>
<td>&lt;5 years</td>
<td>&lt;1 year</td>
<td>Irrespective of CD4 count</td>
<td></td>
</tr>
<tr>
<td>ART for HBV/HIV patients</td>
<td>&lt;350</td>
<td>&lt;500</td>
<td>Irrespective of CD4 count</td>
<td>&lt;350</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>&lt;350</td>
<td></td>
</tr>
<tr>
<td>ART for sero-discordant couples</td>
<td>&lt;500</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>Irrespective of CD4 count</td>
<td>&lt;350</td>
<td></td>
</tr>
<tr>
<td>ART for KP</td>
<td>&lt;350</td>
<td>&lt;500</td>
<td>&lt;500</td>
<td>&lt;350</td>
<td>&lt;500</td>
<td>&lt;350</td>
<td>&lt;350</td>
<td>&lt;350</td>
</tr>
<tr>
<td>PPTCT plan</td>
<td>Option B+</td>
<td>Option B</td>
<td>Option B+</td>
<td>Option B+</td>
<td>Option B+</td>
<td>Option B+</td>
<td>Option B</td>
<td></td>
</tr>
<tr>
<td>Routine VL monitoring</td>
<td>24 months, then every 12 months</td>
<td>Six months, 12 months, then every 12 months</td>
<td>Suspected clinical or immunologic failure</td>
<td>Suspected treatment failure</td>
<td>4–6 months; Consider every six months when stable on ART</td>
<td>At six months, 12 months, then yearly (every six months preferred)</td>
<td>Every six months, if available</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Implementation science research in the Asia-Pacific Region

ISR uses quasi-experimental real-world study designs and will, therefore, be critical in strengthening the HIV treatment cascade and informing policies for the scale-up of testing and treatment programmes in the Region. It is expected that the ongoing ISR projects will inform the development of the next version of WHO consolidated guidelines scheduled for December 2015 release. There are several ongoing/planned ISR initiatives in the Region looking at strategies to strengthen the HIV care continuum, including innovative approaches to HIV testing and early/immediate
treatment for serodiscordant couples and KP. However, critical questions for potential ISR studies in the Region continue to be identified (Table 2). Researchers at this and previous meetings have also suggested the need for metrics to monitor ‘HIV prevention cascade’ (i.e. the ‘left-side’ of cascade which includes evaluation of prevention interventions such as condom use or PrEP which need to be explored.

Table 2: Key research questions for future ISR in the Asia–Pacific Region

<table>
<thead>
<tr>
<th>Cascade step</th>
<th>Key research questions/topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Lay provider rapid HIV testing</td>
<td>Feasibility of lay provider offering HIV testing in the community</td>
</tr>
<tr>
<td></td>
<td>Role of lay provider in expanding HIV testing and treatment in women choosing to undergo home delivery (esp. in rural/ hard to reach areas)</td>
</tr>
<tr>
<td>Innovative strategies to increase uptake of HIV test</td>
<td>Strategies to encourage KP to access HIV testing services</td>
</tr>
<tr>
<td></td>
<td>Effectiveness of incentive-based models (e.g. incentives for peers referring people for testing)</td>
</tr>
<tr>
<td></td>
<td>Effectiveness of media/dating sites and mobile phone technologies</td>
</tr>
<tr>
<td></td>
<td>Self-testing, home testing and internet-based testing</td>
</tr>
<tr>
<td></td>
<td>Community-based testing approaches for KP</td>
</tr>
<tr>
<td></td>
<td>Strategies for linking those with a positive self-test to the nearest testing centre</td>
</tr>
<tr>
<td></td>
<td>How to best reach ‘hard-to-reach’ high risk populations including migrants?</td>
</tr>
<tr>
<td></td>
<td>Does testing of pregnant women in KP or partners of key population increases yield of HIV-positive pregnant women versus standard testing approaches?</td>
</tr>
<tr>
<td></td>
<td>What are the main barriers of partner testing?</td>
</tr>
<tr>
<td>Enrolment in care</td>
<td></td>
</tr>
<tr>
<td>Strategy to increase uptake of care and treatment</td>
<td>Does community-based testing and immediate referral to ART centre on the first positive test increase the uptake of ART?</td>
</tr>
<tr>
<td>Laboratory assessment</td>
<td>Strategies to minimize pre-ART laboratory tests required for initiating ART</td>
</tr>
<tr>
<td></td>
<td>Targeting of high-risk individuals for laboratory assessment (e.g. with known renal disease or at a high risk of end-organ disease)</td>
</tr>
<tr>
<td>Opportunistic infections</td>
<td>TB screening among HIV positive children</td>
</tr>
<tr>
<td>Antiretroviral treatment</td>
<td></td>
</tr>
<tr>
<td>Treatment uptake and retention</td>
<td>Does integrating testing and treatment + laboratory testing (e.g. CD4, TB, hepatitis B/C, etc.) at primary health facilities facilitate early treatment uptake and retention?</td>
</tr>
<tr>
<td></td>
<td>Does increase of CD4 cut off level to 500cells/mm3 improve ART coverage in country?</td>
</tr>
<tr>
<td></td>
<td>Does point of care CD4 facilitate early initiation of treatment?</td>
</tr>
<tr>
<td></td>
<td>Strategies to engage families and strengthen social support systems to improve uptake of and adherence to immediate ART</td>
</tr>
<tr>
<td></td>
<td>Does PMTCT option B plus increase uptake and improves retention in care of HIV infected pregnant women versus option B?</td>
</tr>
<tr>
<td>Cascade step</td>
<td>Key research questions/topics</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>How best to follow up HIV exposed infants born at home?</td>
</tr>
<tr>
<td></td>
<td>Does immediate treatment in children less than five years of age increase earlier uptake of and retention in treatment?</td>
</tr>
<tr>
<td></td>
<td>Adherence among KP</td>
</tr>
<tr>
<td>HIVDR</td>
<td>Will early ART result in increase in the incidence and prevalence of HIVDR?</td>
</tr>
<tr>
<td></td>
<td>Mathematical models to assess how frequently HIVDR surveys should be carried out in resource-limited settings</td>
</tr>
<tr>
<td></td>
<td>Use of dried blood spot versus plasma samples for genotyping for HIVDR surveillance</td>
</tr>
<tr>
<td>Outcome – viral suppression/mother-to-child transmission</td>
<td>Does decentralization of novel rapid VL tests (e.g. GeneXpert machines at primary health clinics) improve uptake of VL testing?</td>
</tr>
<tr>
<td></td>
<td>Frequency of CD4 monitoring after documented virological suppression and CD4 count &gt;350 cells/mm3: how frequently should CD4 count and VL test be offered?</td>
</tr>
<tr>
<td>Monitoring and evaluation of treatment outcome</td>
<td>How to best generate unique identifiers? (e.g. Linking to national insurance schemes vs. biometrics or other formats)</td>
</tr>
<tr>
<td>Strategic information</td>
<td>How to best integrate HIV treatment data with TB, PPTCT and laboratory services?</td>
</tr>
<tr>
<td></td>
<td>Local mapping of KP using sequencing/molecular epidemiology and modelling of sero-incidence</td>
</tr>
<tr>
<td>Addressing cascade gaps</td>
<td>Explore if integration/decentralization/task-shifting addresses the cascade gaps</td>
</tr>
<tr>
<td>Prioritization</td>
<td>How best to prioritize interventions with limited resources?</td>
</tr>
</tbody>
</table>

There is also a need for more collaborative research, which allows multi-country/regional analyses. Several ongoing projects in the Region are collecting similar core metrics of the HIV cascade. It is therefore conceivable that multicountry cohort collaborations are possible in near future, which will be instrumental in generating regional level robust data on various testing and treatment strategies.

### 3.3 Ongoing research on test and treat

In this session, teams from China, India, Indonesia, Japan (for projects in Mongolia), Thailand and Viet Nam discussed their various ongoing or planned ISR projects on early/immediate ART for serodiscordant couples and/or KP (Table 3). The early experiences from the Thai MSM/transgender test and treat study\(^9,10\) and Viet Nam’s immediate ART studies in serodiscordant couples and PWID show high acceptance rates of immediate ART irrespective of CD4 count.
### Table 3: List of key ongoing and planned ISR projects in the Asia–Pacific Region

<table>
<thead>
<tr>
<th>Area</th>
<th>Project</th>
<th>Study design</th>
<th>Focus</th>
<th>Principal interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosocial barriers</td>
<td>Fostering resilience of psychosocial and HIV risk in Indian MSM</td>
<td>Randomized controlled trial</td>
<td>Effect of interventions to increase self acceptance and reduce HIV risk and their impact on new HIV infections</td>
<td>A self-acceptance based HIV sexual risk reduction intervention and HIV/STI VCT (four group sessions focused on building self-acceptance, social support and HIV risk reduction skills; 6 individual sessions focused on personalized risk reduction; prevention case management) vs. HIV/STI VCT</td>
</tr>
<tr>
<td>Innovative strategies to increase uptake of HIV test</td>
<td>Integrated Care Clinics for IDUs in India: A cluster randomized trial</td>
<td>Randomized controlled trial</td>
<td>Effectiveness of IDU-oriented integrated care clinics (ICCs) for improving outcomes along the seek, test, treat, and retain continuum</td>
<td>VCT; condom distribution; counseling and education; needle exchange programs; opioid substitution therapy; management of sexually transmitted infections, TB, and viral hepatitis; and ART vs. standard of care</td>
</tr>
<tr>
<td></td>
<td>Spurring innovation in HIV testing and linkage: a crowdsourcing approach</td>
<td>Quasi-experimental trial</td>
<td>Effectiveness of a crowdsourced intervention and a social marketing intervention on HIV testing and linkage among young MSM</td>
<td>Crowdsourced intervention and social marketing intervention</td>
</tr>
<tr>
<td>Cascade of HIV testing, treatment and care</td>
<td>Active Treatment pilot project in China</td>
<td>Observational study</td>
<td>Impact of early linkage to ART on mortality</td>
<td>One-stop shop for HIV antibody and CD4 test and linkage to HIV care</td>
</tr>
<tr>
<td></td>
<td>Feasibility of operationalization of early or immediate ART to HIV infected partner as a combination intervention among HIV serodiscordant couples</td>
<td></td>
<td>Feasibility of and barriers to couples testing and prevention counselling (CHTC) and early or immediate initiation of ART</td>
<td>CHTC, spousal referral for testing, status disclosure, linkage to ART centers, retesting, early/immediate ART vs. standard of care</td>
</tr>
<tr>
<td></td>
<td>The HIV Awal (Early) Testing &amp; Treatment Indonesia (HATI) Project</td>
<td></td>
<td>To assess the impact of enhanced community-based interventions</td>
<td>ART irrespective of CD4 count for MSM, FSW, Waria (Transgender), PWID. Interventions to be developed by a qualitative study.</td>
</tr>
<tr>
<td></td>
<td>TasP for MSM in Mongolia</td>
<td>Cohort study</td>
<td></td>
<td>ART irrespective of CD4 count for MSM</td>
</tr>
<tr>
<td>Area</td>
<td>Project</td>
<td>Study design</td>
<td>Focus</td>
<td>Principal interventions</td>
</tr>
<tr>
<td>------</td>
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<td>-------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Feasibility of universal HIV testing and ART regardless of CD4 count using the Test and Treat strategy among MSM/TG in Thailand</td>
<td>Feasibility of providing couples HIV testing and counseling, and early ART for HIV positive partners in serodiscordant relationship in Viet Nam</td>
<td>Couples HIV testing and counseling; ART regardless of CD4 count for HIV-positive partner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expanded Thai MSM/TG Test and Treat Study</td>
<td>Antiretroviral therapy for prevention and treatment in serodiscordant couples in Viet Nam</td>
<td>Periodic voluntary HIV testing and counselling and early antiretroviral therapy for people who inject drugs in Viet Nam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early antiretroviral therapy among people who inject drugs (PWID) in Viet Nam</td>
<td>Early antiretroviral therapy among people who inject drugs (PWID) in Viet Nam</td>
<td>Early antiretroviral therapy among people who inject drugs (PWID) in Viet Nam</td>
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<tr>
<th>Area</th>
<th>Outcomes</th>
<th>Region</th>
<th>Time period</th>
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<tr>
<td>Psychosocial barriers</td>
<td>HIV/STI incidence, HIV risk reduction, psychosocial mediators</td>
<td>India</td>
<td>2014–2019</td>
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<tr>
<td>Innovative strategies to increase uptake of HIV test</td>
<td>Access to VCT; HIV transmission risk behaviours; access to clinical care; use of ART; community viral load</td>
<td>India</td>
<td>2011–2016</td>
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<td>Access to HIV testing, linkage to care, HIV transmission</td>
<td>Four cities in China</td>
<td>2014–2019</td>
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<td>Cascade of HIV testing, treatment and care</td>
<td>Mortality of newly diagnosed of HIV/AIDS cases</td>
<td>Guangxi, China</td>
<td>2012 onwards</td>
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<td>Primary outcome: Number and % of people who are virologically suppressed at 12 months after HIV diagnosis. Secondary outcomes: entire cascade of HIV care</td>
<td>Bandung, Jogjakarta, Denpasar in Indonesia</td>
<td>2015–2019</td>
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HIV early diagnosis/treatment: implementation science research to strengthen retention in the cascade

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<th>Area</th>
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<tr>
<td>HIV incidence, treatment outcomes</td>
<td>Together Center, Youth for Health Center and Human Right health support center, Mongolia</td>
<td>2013 onwards</td>
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<td>Repeated HIV testing rate and immediate ART acceptance rate; retention rate in the intensive and standard retention arms; adherence to ART and HIV RNA suppression in blood and anogenital compartment; changes in risk behaviours and rates of STI</td>
<td>Bangkok, Ubonratchathani, Lampang and Mahasarakham, Thailand</td>
<td>2012–2015</td>
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<td>Repeated HIV testing rate and immediate ART acceptance rate; retention rate in the intensive and standard retention arms; adherence to ART and HIV RNA suppression in blood and ano-genital compartment; changes in risk behaviours and rates of STI; uptake, adherence and retention in PrEP</td>
<td>Bangkok, Hat Yai, Pattaya, Chiang Mai, Pathumthani, Khonkaen and Udonthani, Thailand</td>
<td>2014–2016</td>
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<td>CD4 count at diagnosis; couples HTC uptake; linkage to care; ART retention; viral suppression at 12 months; self-reported risk behaviour; ARV adverse events</td>
<td>Can Tho and Dien Bien provinces, Vietnam</td>
<td>2013–2014</td>
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<tr>
<td>CD4 count at diagnosis; HTC uptake; linkage to care; ART retention; viral suppression; self-reported risk behavior; programme impact on overall retention in care; qualitative outcomes</td>
<td>Thai Nguyen and Thanh Hoa provinces, Viet Nam</td>
<td>2014–2016</td>
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Based on experiences from implementing early/immediate ART at the programmatic level and ongoing ISR, countries identified several challenges, including limited resources, procurement of drugs and test kits, high costs, concerns regarding toxicity and non-adherence, increased workload and low HIV testing rates. The importance of improved uptake of testing for the success of test and treat interventions was particularly re-emphasized during the discussions. ISR is needed to identify best testing strategies in low-prevalence settings, engage private sector in monitoring HIV cascade of care and move towards task shifting and community-based models. NIH also encouraged and expressed keen interest in studies on: (i) better methods/assays to measure HIV incidence at population level and (ii) innovative strategies to create demand for HIV testing in KP.
3.4 **Strengthening the cascade of HIV testing, care and treatment services**

**Novel approaches to service delivery**

Novel ongoing and planned approaches to HIV testing, especially among KP, were presented and discussed.

Thailand, under its national HIV programme, plans to prioritize geographical regions and tailor intensity of HIV interventions according to the density of KP in the Region. The focus will be on 30 provinces to increase HIV testing uptake at scale and effectively link to immediate treatment. Major components for increasing uptake of HIV testing in particular for KP and high HIV burden geographical areas include setting targets, demand creation using outreach services and social marketing approach, providing community-based services, managing structural and legal barriers and programme monitoring. Reaching KP and their partners, motivating them to receive HIV testing and engaging private sector are still major challenges for Thailand and many other countries in the Region.

Another novel approach proposed for engaging communities to services included crowdsourcing – a process of obtaining ideas from a large group in order to help achieve a specific task, often using multiple sectors and enabled by the Internet. A large multi-site randomized trial in China tested the impact of online interventions generated using crowdsourcing vs. conventional social marketing on the rate of HIV testing in MSM/transgender.\textsuperscript{11} Preliminary results presented suggest that crowdsourcing is at least as efficacious in improving testing rates, but possibly a more cost-effective and efficient way to engage communities than the conventional social marketing strategies to develop interventions. Currently, an ISR study on crowdsourcing for improving HIV testing is ongoing in China (Table 3).

Cambodia presented an ecological picture of recent strategic changes in their programme, which could likely explain the decline in HIV incidence over the last few years. Key strategies included scaling up and decentralization of HIV testing services; scale-up of ART; implementation of case management; and greater community engagement. In 2013, HIV testing procedures were further simplified and streamlined to address loss to follow-up. Finger prick testing was introduced in outreach settings and clients reactive on first test were directly referred to ART centres for confirmatory test and enrolment in pre-ART/ART care. As a result, in 2014,
about 70% of testing clients received test results on the same day and >85% were enrolled in care within two weeks of the test.

Ecological data on the impact of local interventions were also presented from the Rainbow Sky Association of Thailand clinic, funded by the United States Agency for International Development (USAID). These data demonstrated promising interventions to improve testing, including demand generation using social media/online dating sites; peer-driven intervention i.e. a chain referral system where each peer recruit is trained to recruit additional peers; incentive-based approaches for referring clients; and delivering targeted media messages. These strategies still need formal evaluation before adoption at a wider scale.

Finally, it was highlighted that mental health, self-acceptance and social acceptance are important determinants of risk of HIV in KP. Communities demand sensitive and culturally competent care, which is especially lacking at many government-run health clinics in the Region. A randomized pilot trial in India showed that building self-acceptance and skills to reduce HIV risk with group and individual sessions along with voluntary counselling and testing services were feasible, highly acceptable and influenced risk behaviour. However, these interventions require fully powered efficacy/effectiveness trials in order to be translated into policy. “Fostering resilience to psychosocial and HIV risk in Indian MSM” is one such trial that will examine the efficacy of a HIV sexual risk reduction intervention based on self-acceptance among MSM in India (Table 3).

In summary, expanding HIV testing to populations at risk is still a big challenge. Several promising strategies to scale up testing have been identified, but most need formal evaluation in real-world settings. More research on effective use of mobile phone and Internet-based technologies is also urgently needed. Finally, a strong monitoring and evaluation (M&E) system with a unique identifier system will be a key requirement for robustly evaluating these programmes.

**Improving the cascade of care for MSM and PWID**

MSM and PWID are particularly challenging populations to engage in services and suffer major leakages along the cascade of care. A PWID treatment cohort in India, for example, reported <10% rate of virological suppression. Previous studies have shown that mobile testing, community mobilization, incentives for linkage to care, and integrating HIV services with opioid substitution treatment/methadone maintenance treatment and
needle–syringe exchange services improve uptake of testing and ART and retention in this population.

A National Council of AIDS study in India on MSM and PWID, a cluster multi-site randomized controlled trial evaluating multiple interventions in integrated care centres, will provide useful data to inform policies for these KP (Table 3).20 Research on hepatitis C cascade of care in PWID will also be important in near future.21

**Effective use of programme monitoring for ISR**

The framework for monitoring testing and treatment cascade was presented and strategies to expand use of VL and implement HIV drug resistance (HIVDR) surveillance and monitoring were discussed.

**Metrics for cascade of HIV care**

In July 2014, WHO released the metrics/minimum indicators for monitoring HIV cascade of care for Asia and the Pacific that provide countries with the framework for monitoring their HIV programmes (Figure 1).22 These metrics were developed after extensive consultations and field testing and are useful for analysing gaps in HIV services and data. They encourage use of unique identifiers and triangulation with other data sources to get the full picture of the programme.

**Figure 1:** Key indicators in the cascade of HIV testing and treatment

![Figure 1: Key indicators in the cascade of HIV testing and treatment](image)
Most of the currently reported metrics are imprecise and are often based on aggregated or modelled data. There is a need for better estimates using cohort data, possibly using unique identifiers. Experts in the group highlighted several ideas which could improve/complement these metrics, including the: (i) standardization of how these metrics are measured and reported to facilitate comparison across countries/sites and over time; (ii) more research on how best to generate unique ID; and (iii) case-reporting/surveillance systems that could complement data from programmes in gaining accurate measurement. They also cautioned programmes that these metrics at national level could be insensitive to sub-national/clinic level changes in the programme activities. Therefore, lack of observed changes at national level should not necessarily halt the implementation of promising local level strategies.

**Strategies to improve VL monitoring**

VL monitoring is critical to programmes not only for clinical decision-making, but also to measure the final step in the cascade of HIV care – proportion of HIV-positive individuals on ART who are virologically suppressed. However, uptake of VL monitoring is still lacking in most countries in the Region.

Thailand provides a good practice model for VL monitoring in the Region. Thailand offers routine VL testing at six months, 12 months and yearly thereafter to all HIV-positive individuals on treatment (Table 1). Furthermore, they have a user-friendly national AIDS programme (NAP+) database system, which integrates individual level data (with unique identifiers) from several sources, including people receiving VL testing. This allows national and regional level assessment of the entire cascade of HIV care to identify priority geographical areas and clinics and develop targeted strategies to high-priority areas and clinics. As a result, this helps improve rates of virological suppression.

VL scale-up in the Region still has several challenges, including cost, infrastructure and training requirements. Newer promising technologies such as point-of-care tests or GeneXpert VL testing platforms are in the pipeline, which will likely improve the uptake of routine VL testing in the Region. ISR will be needed on how to best expand VL testing. Cost-reduction strategies, such as encouraging indigenous companies to develop VL technologies, should also be explored.
**HIVDR surveillance and monitoring**

HIVDR monitoring in the Region relies mainly on periodic cross-sectional surveys conducted in some countries. It will be especially important to assess if earlier treatment initiation is resulting in increased HIVDR in the Region.

Current data suggest low prevalence of transmitted and pre-ART drug resistance (DR) in most countries. However, there are several methodological issues in previous DR monitoring. The WHO updated and simplified 2014 strategy on HIVDR surveillance and monitoring will help standardize the monitoring process and is likely to be implemented over the next several years.\(^{23,24}\) Potential approaches to the implementation of HIVDR monitoring strategy include:

- integrating routine HIVDR surveillance/monitoring in the national programmes;
- harmonizing implementation of various HIVDR surveys;
- increasing partnership and cooperation from experts in the Region to improve capacity;
- strengthening laboratory capacities and investing in biomedical research and ISR; and
- assistance from experienced countries to improve the capacity for HIVDR in the Region.

Trends in HIV-1 DR in Japan illustrated how molecular epidemiological methods could be used to localize and tackle epidemics of transmitted DR. WHO is exploring possibilities for experts from Asian countries such as Japan who could assist and help improve capacity of other countries in the Region for monitoring HIVDR.

### 3.5 Scaling up pre-exposure prophylaxis

Several trials have now shown the efficacy of PrEP, which is now recommended in the WHO 2014 consolidated guidelines for MSM.\(^2\) Early experiences of PrEP demonstration project in Thailand\(^{25,26}\) were discussed
and countries identified several challenges for potential future implementation of PrEP.

Acceptability studies in China and Thailand suggest encouraging levels of willingness to use this prevention intervention among MSM, serodiscordant heterosexual couples and female sex workers. PrEP demonstration projects on MSM and sex workers are underway in India, Thailand and China. Early results from open label extension of the Pre-exposure prophylaxis (iPrEx) trial (iPrEx-OLE) suggest that the uptake is relatively high when PrEP is provided free of cost by experienced providers. Fear of toxicity and the need to take pills every day were identified by MSM as the main reasons for refusing PrEP.

While PrEP is a promising strategy to halt the rate of new HIV infections, several unknown factors needing research have to be taken into consideration to design and implement PrEP policies in the Region including: prioritization of KP to be targeted in the face of limited resources; feasibility of PrEP strategy in all KP; identification of individuals who will benefit most; cost-effectiveness in the context of the concentrated epidemic in Asia; the best payment and insurance model to cover the cost; the best strategies to improve adherence in those who receive PrEP, including evaluating peri-coital PrEP; technologies to improve delivery and adherence; and frequency of testing for HIV on those receiving PrEP.

Most countries, therefore, indicated a need for implementation data before PrEP could be introduced. Future ISR studies examining the questions mentioned above will be needed for the efficient and sustainable introduction of PrEP in the Region.

3.6 Elimination of parent-to-child transmission

Several countries presented their ongoing and future strategies on elimination of new paediatric HIV infections, and identified challenges specific to the Region that will need to be addressed by future ISR projects.

Although attendance for antenatal care (ANC) is relatively high in the Region, HIV testing coverage among pregnant women is still low. ART coverage among HIV-positive pregnant women also remains between 26–58\% even though most countries have adopted WHO-recommended Option B/B+ (i.e. treating all HIV-positive pregnant women with triple
ARV) (Table 1). Given the low HIV prevalence and high number of pregnancies in this Region, phased scale-up of HIV screening approach and geographic prioritization have currently been considered/adopted by countries. With declining HIV resources, ISR is urgently needed to provide guidance on HIV testing at ANC. Countries identified several other areas that will need more ISR, including early infant diagnosis (EID), paediatric ART, retention of mothers after pregnancy and engaging migrant populations in ANC.

The ongoing INSPIRE project in Africa will evaluate promising interventions to improve prevention of parent-to-child transmission (PPTCT) cascade and will be instrumental in informing PPTCT policies. However, it is based in a generalized epidemic setting (Africa) and its findings may not be directly applicable to Asian settings. ISR within the Region will, therefore, be a key to informing national and regional policies.

China has made substantial progress towards triple elimination of PPTCT of HIV, syphilis and hepatitis B and programmatic data was presented in support. In 2013, over 12 million pregnant women received an HIV test, >80% HIV-positive mothers received ARV while >90% HIV-exposed infants were given ARV. Success has come from the high rate of institutional deliveries, integration of PPTCT with maternal and child health services and an increase in national budget devoted to HIV prevention activities. They have also developed a strong M&E system, which integrates PPTCT and allows for the PPTCT cascade analysis and establishment of regional EID laboratories.

India presented the assessment of PPTCT Option B implemented in four southern states that are known to have high rates of institutional deliveries. They found high rates of HIV testing (>90%) and ARV coverage (>90%), and negligible transmission events. However, they reported high rates of loss to follow-up after six weeks of testing of infants and challenges in timely delivery of EID results. In 2014, India began the nationwide rollout of option B+, although it will be challenging in districts with low rates of institutional deliveries.

Nepal reports very low coverage of PPTCT interventions, although scale-ups are planned in 2015. High rates of home deliveries dispersed in inaccessible geographical areas along with funding issues are the main challenges for expanding PPTCT interventions. A pilot intervention project
Involving female community health volunteers and community home-based care teams in one province showed promising results by improving the proportion of pregnant women who received ANC and HIV testing. Cost-analysis suggested that implementing this intervention at the national level would cost up to US$ 39,000 per year per district.

In summary, very low HIV prevalence and a low rate of institutional deliveries in some countries pose significant challenges for the implementation of universal HIV testing and ARV for HIV-positive pregnant women and exposed infants. Even though national programmes and ISR have provided good practice models on community-based, decentralized and/or integrated service delivery, further research is needed in the low and concentrated epidemic settings to address the gaps in the PPTCT cascade to achieve the elimination targets.

### 3.7 Partnerships, collaborations and capacity development for ISR

The principles of ISR were discussed and successful examples of regional institutions in the Region building up capacity were highlighted.

Implementation science is the study of methods to improve the uptake, implementation, and translation of research findings into routine and common practices. ISR questions are often ‘practical’ or ‘how to best implement’ rather than efficacy trials. Key study designs include pragmatic trials, before–after study design, qualitative research and cost-effectiveness analyses.

In the Asia–Pacific Region, expertise and technical support is available from several groups/institutes, including but not limited to:

- Kirby Institute, UNSW Australia
- HIV-NAT and Thai Red Cross
- NCGM, Japan
- TREAT Asia
- Pasteur Institute, Cambodia
Countries also recognized training needs in ISR, and suggested establishing online courses, improving involvement of junior researchers and knowledge-sharing between countries and experts. Countries will also need support and resources in making a case for ISR funding, especially since HIV prevalence is declining in many parts of the Region. Horizontal collaboration should be encouraged, which will also ensure capacity-building in the Region. Examples of ongoing horizontal collaboration include HIV Awal Testing and Treatment study in Indonesia – a collaborative effort between the Kirby Institute, WHO and several local partners in Indonesia and the Thai Test and Treat study in Thailand – a collaborative effort between the Thai Red Cross, Ministry of Public Health, Thailand, CDC, USAID and WHO (Table 3).9,10

**Role of developmental partners**

Countries are encouraged to consider raising national funding for ISR projects. ISR can result in generation of efficient and cost-effective programmatic strategies and should, therefore, be seen by countries as a cost-saving/cost-effective exercise in the long-term. Several developmental partners are available for funding innovative ideas or providing technical support. These include the following.

- The US President's Emergency Plan for AIDS Relief (PEPFAR), traditionally an emergency response plan to the HIV epidemic, is now committed to ISR in the Region (although their major focus has so far been in Africa). Countries/potential investigators with innovative ideas are encouraged to contact local USAID/Regional Development Mission for Asia (RDMA) for ongoing funding opportunities in Asia.

- CDC country offices also play a key role in providing technical support.

- The Global Fund to Fight AIDS, Tuberculosis and Malaria committed 5–10% funds to M&E activities, but only 1–2% are actually utilized. This is largely because programmes have been unable to apply for and seek this additional funding. Programmes need technical support and high capacity to be able to make a case for M&E funds.
NIH and HIV Prevention Trials Network also fund protocols based mainly on efficacy and innovation (although Africa is still their main focus for ISR projects).

Experts urged that international funders should consider investment in Asia as a worthwhile exercise, especially since the HIV epidemic is concentrated in key groups and could potentially be halted by evidence-based policy initiatives.

WHO has a key role in the Region in pushing the ISR agenda and improving the HIV testing and treatment cascade in the Region by engaging in several activities such as:

- advocacy to ensure ISR gets funded and conducted in the Region;
- facilitating and convening key partners to encourage horizontal collaboration and generate ideas for ISR;
- facilitating capacity-building in the Region;
- supporting countries in finalizing their ISR protocols;
- supporting countries in adopting and implementing the latest WHO guidelines.

### 3.8 Group work

On the final day of the meeting, group discussions were held between country representatives and technical experts in the Region. These discussions were held in two groups where countries were divided by WHO administrative Region. The main objectives of this session were to facilitate countries to identify implementation science agenda across the continuum and cascade of HIV treatment in the Region to further inform the next generation of WHO ARV guidelines, as well as to identify potential implementation science studies at country level including technical support needs. Each country identified several unique challenges in the implementation and scale-up of HIV services while technical experts helped formulate ISR questions based on these challenges. Key outcomes from these group discussions have been incorporated in Table 2 and key next steps have been incorporated in Box 1.
4. **Conclusions**

The UNAIDS’s post-2015 90-90-90 targets are gaining momentum in the Asia–Pacific Region, with increased commitment to these goals as a means to end AIDS by 2030. Most countries in the Asia–Pacific Region have already adopted or are in the process of adopting the WHO 2013 guidelines moving towards early ART, especially in KP. Thailand now recommends offering ART for everyone living with HIV. To reach these goals, the need for ISR to strengthen the HIV treatment cascade and inform national and global policies has been increasingly recognized. Currently, there are several ongoing and planned implementation studies in the Asia–Pacific Region that are demonstrating the acceptability, feasibility and cost of various HIV prevention and treatment strategies, including test and treat for serodiscordant couples and KP. These strategies are designed to reduce attrition and improve health outcomes at each step of the cascade. Findings from these studies will assist in redesigning approaches and improve coverage of key HIV interventions and will likely inform the development of WHO guidelines in 2015. Countries should, therefore, strive to document and disseminate their implementation research findings.

Identifying and testing KP (sex workers, MSM/transgender people and PWID) remains a major challenge in most countries in the Asia–Pacific Region. Strategies such as demand creation, peer-driven interventions, outreach services, incentives, social marketing, and crowdsourcing in China and Thailand have shown promising results and need to be formally evaluated in the real-world setting. Also, decentralization of HIV testing in Cambodia has been successful in improving access to HIV testing. ISR on HIV testing through community-based testing (including campaign-based approach) is urgently needed. Experts also pointed out that sociobehavioural factors are major drivers of HIV transmission among KP and cannot be ignored while designing HIV prevention and treatment programmes for these populations. Further, with the self-testing kits likely to be more widely available in near future, it is time for research on how best to implement self HIV testing and subsequent linkage to care.37

In July 2014, WHO released metrics/ minimum indicators for monitoring the cascade of HIV testing, care and treatment. It was recognized that there is a need to standardize measurement and reporting of these metrics, which will facilitate comparison across countries/sites. Countries are also encouraged to develop unique-identifier system for...
monitoring, since accurate measurement of cascade metrics needs identification of individual-level cohort data rather than aggregate data. Some countries have adopted innovative information technology for data collection and use unique patient identifiers (e.g., NAP+ database system in Thailand). This facilitates national as well as sub-national level assessment of the treatment cascade, opening opportunities for targeted interventions based on the nature of the epidemic in a province/city. There is a need to improve capacity on data management and analysis in the Region and encourage more research on how best to generate a unique ID while maintaining confidentiality. Experts also pointed out that case-reporting/surveillance systems would be needed to complement data from programmes in gaining accurate measurement of these metrics.

VL monitoring, the final step in the HIV treatment cascade, is still not conducted routinely in most countries, though there are plans to scale it up from 2014 onwards in many countries. Moreover, newer, simpler and cheaper technologies to measure VL are likely to be available soon. Research will be needed on implementation of routine VL monitoring using newer technologies and metrics to measure virological response in the national programmes. Also, countries need to explore mechanisms for better price negotiations to increase affordability and access to VL, including encouraging indigenous companies to produce low-cost VL testing kits, especially in countries like China, India and Thailand.

In 2014, WHO revised and simplified its strategy on monitoring early warning indicators of HIVDR that should be implemented over the next five years. Current data suggest low prevalence of transmitted and pre-ART DR in most countries. Partnership and technical support from experts will be crucial to improve capacity to understand the general and molecular epidemiology of HIVDR in the Region. Moreover, integrating HIVDR monitoring and surveillance in national programmes will be necessary. Finally, demonstration projects on test and treat programmes should evaluate if this policy results in increased rate of HIVDR in KP.

Though there has been good progress in the coverage of testing and treatment services for pregnant women, they are still extremely low in many countries in the Region. The expansion of ANC-based combination screening of HIV, syphilis and hepatitis B in China and community-based care in Nepal have been successful in detecting more HIV-positive cases among pregnant women. Active research on HIV testing algorithms to achieve universal testing coverage, use of single test kit for HIV and syphilis,
and scale-up of community-based, decentralized and/or integrated service delivery models is needed to achieve elimination of new paediatric infections. Expansion of EID testing, infant ART and improving retention of mothers after pregnancy are other issues requiring urgent attention.

PreP is now recommended in the WHO 2014 guidelines. Early results from demonstration projects in Thailand suggest encouraging levels of acceptability of PrEP as a part of a combination prevention package for MSM and is now a part of Thailand national guidelines, but other countries in this Region do not have any recommendations on PrEP. Research on PrEP programmes for KP needs to be scaled up by countries in the Asia–Pacific Region. With the use of PrEP, strategies and metrics to monitor ‘HIV prevention cascade’ need to be explored.

A platform was successfully established for collaborative work in the Region. Collaboration between countries to perform landscape/region-level analyses on ISR projects was recognized to be crucial for informing policy in the Region and should be pursued. Several research institutions such as Kirby Institute, Thai Red Cross and NCGM expressed their willingness to collaborate with country programmes on more ISR projects, provide technical support and meet capacity-building needs for ISR at the country-level. Countries also recognized training needs in ISR, and suggested establishing online courses, improving involvement of junior researchers and knowledge-sharing between countries and experts. Countries will also need support and resources in making a case for ISR funding, especially since HIV prevalence is declining in many parts of the Region. HIV, Hepatitis and Health Network will continue communication and meetings to share and discuss experiences and lessons learnt from countries in the Asia–Pacific Region.

Finally, funding organizations have continued to play a central and dynamic role in the HIV/AIDS response and considered increasing their level of involvement in implementation research in Asia. Countries were also encouraged to increasingly consider national funding of key ISR projects and see ISR as a cost-effective exercise in the long run. WHO will continue to play a key role as an advocate for ISR in the Region, in convening key stakeholders to facilitate collaboration and capacity-building in the Region, and provide support to countries for implementing WHO guidelines and planning ISR projects.
5. **Key recommendations on next steps**

*Test and treat studies*

(1) Countries to submit data demonstrating feasibility/impact of immediate ART in key populations to relevant academic meetings and peer reviewed journals in order for WHO systematic reviews to consider the data for the 2015 consolidated ART guidelines.

- Alternatively, a regional meeting on ISR could be planned which will provide platform for the countries to share findings and generate collaborations.

(2) HIV, Hepatitis and Health Network to continue communication and meetings to share and discuss experiences and lessons learnt from countries in the Asia-Pacific. For 2015, one possibility to meet is a 1 and a half day workshop before the Japan National AIDS Conference (Nov 30 – Dec 1, 2015) followed by a research symposium on immediate treatment and PreP in Asia.

(3) WHO to commission a literature review to map ongoing and completed implementation research for the treatment cascade.

(4) WHO to consider the formulation of an implementation science framework in the Region so as to provide overview of ongoing and incoming studies and to facilitate strengthened coordination and collaboration across countries. This could be a journal supplement, which could include ongoing studies and government and donor viewpoints on immediate treatment.

(5) Countries to promote the use of qualitative approaches to advance the local understanding on how to extend the reach to unreached key populations, and facilitate their earlier uptake of HIV testing and treatment services.

*Metrics*

(6) WHO in collaboration with key partners to develop a standardized reporting guideline for use by health facilities and communities to improve data quality and comparability across countries.
(7) Countries to strengthen HIV case reporting and HIV testing data for triangulation with epidemiological data and inform national decision-making.

(8) WHO and partners to explore the development of prevention metrics based on experience gained through the test and treat studies.

**Service delivery**

(9) Explore models of integrated service delivery and innovative interventions to improve uptake of services along the cascade including for HIV/TB co-infection, HIV/hepatitis co-infection and pregnant women.

**HIV viral load**

(10) WHO and partners to support the development plans and metrics for introduction of national viral load monitoring.

(11) Countries to explore mechanisms for better price negotiations to increase affordability and access to VL.

**HIV drug resistance surveillance**

(12) WHO and countries to strengthen capacity of WHO-recommended HIV drug resistance surveillance and monitoring.

**Innovation**

(13) Academic institutions and countries in the region to develop research capacity. This includes incidence assays and phylogenetic studies in the context of prevention research, for example, Japan could help with training and capacity building; Thailand could help with strengthening programme monitoring; KI UNSW Australia could provide technical support and training.
PreP

(14) Countries and partners to explore with community-based organizations how PreP demonstration projects for MSM could be introduced as part of combination prevention.

PPTCT

(15) Countries to explore service delivery models and barriers for scaling up HIV testing and immediate ART for pregnant women on the context of Option B+ and address key research questions, including documentation on high risk pregnant women.

(16) Explore means to improve data quality through the platform of the elimination of parents-to-child transmission of HIV/syphilis and its validation.

Communication and capacity building

(17) WHO to establish a platform to share information across countries and enable dialogue between researchers and policymakers.

(18) WHO to support countries in documenting programme implementation and innovative service delivery models.

(19) Build and strengthen research capacity in countries through existing mechanisms and collaborations in the region.

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(34) Assessment of Prevention of Parent to Child Transmission of HIV (PPTCT) Services Implementation in the States of Andhra Pradesh, Telangana, Karnataka and Tamil Nadu: Assessment


Annex 1

Agenda

(1) Setting the scene
(2) Test and treat
   (a) Ongoing research and interventions
(3) Cascade of HIV testing, care and treatment
   (a) New approach to service delivery
(4) Cascade of HIV testing, care and treatment
   (a) Effective use of programme monitoring for implementation science research
   (b) Effective use of programme monitoring for implementation science research (cont’d)
   (c) HIV drug resistance
(5) Pre-exposure prophylaxis
(6) Elimination of parents-to-child transmission
(7) Capacity development for implementation science research
   (a) Methods in implementation science research
   (b) Experience from Indonesia – national capacity-building
   (c) Opportunities -Thai Red Cross – AIDS Research Centre – Asia Research Collaboration on Health
(8) Next Steps
   (a) Overview of HIV and Health Network
   (b) Identification of key questions, technical and resource needs and capacity strengthening for using implementation science research for national HIV testing and treatment scale up plans and strengthening the cascade
   (c) Conclusions and recommendations
Annex 2

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HIV early diagnosis/treatment: implementation science research to strengthen retention in the cascade

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Implementation Science Research helps countries tackle HIV.

Most countries in the Region are moving towards early initiation of treatment for people living with HIV, however there are major challenges including early diagnosis and linkages to care, reaching key populations, developing robust monitoring and evaluation systems and identifying efficient service delivery models. Implementation science research which translates research findings into real world public health systems can help overcome these challenges.

To strengthen the role of implementation science research in HIV response, the WHO Regional Offices for South-East Asia and the Western Pacific jointly organized an expert consultation on implementation science research on 9-11 December 2014 in New Delhi, India. Participants discussed ongoing research projects and generated key research questions that could be answered in future projects to inform policies and programmes.

HIV early diagnosis/treatment: implementation science research to strengthen retention in the cascade

Report of an expert consultation
New Delhi, India, 9–11 December 2014