

# HEART

HEALTH & EDUCATION ADVICE & RESOURCE TEAM

## Helpdesk Report: Barriers to scaling-up prevention of mother-to-child transmission of syphilis (PMTCT)

Date: 2 October 2015

**Query:** Produce a report identifying the (medical, health service, economic, social and policy) barriers to the scale up of the prevention of mother to child transmission of syphilis among pregnant women in low-income countries.

### Content

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### 1. Overview

The value of syphilis testing in early pregnancy has been gaining recognition in recent years. Mother-to-child transmission (MTCT) of the disease is estimated to be responsible for between 2-4% of all neonatal deaths in sub-Saharan Africa in the 2010 Global Burden of Disease Study.<sup>1</sup> This makes a clear case for strengthening the prevention of MTCT (PMTCT) and addressing the barriers to scale-up. The rapid search for this report identified studies which assessed experience in Zambia of moving from a pilot PMTCT programme to scaling-up (details in section 2). Reviews of experience with different scale projects in different countries are also included as relevant to consideration of barriers to scaling-up (Annotated bibliography sections 3-5).

A successful pilot in **Zambia** led to the adoption of rapid point-of-care syphilis tests (RST) into national policy in 2011. Average cost per woman screened increased from a unit cost of US\$3.19 in the pilot to US\$11.16 in the rollout (Shelley et al., 2015). The increase was attributed in part to higher RST prices. Also, economies of scale were reduced by lower RST coverage during rollout and implementation in rural facilities. Fixed costs for start-up, supervision and quality assurance were spread across a smaller population in rural areas. Transport costs for mobilising supervision were also increased. Reduced training and supervision aimed to reduce costs, but was found to be problematic and likely to reduce

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1 <http://vizhub.healthdata.org/gbd-compare/>

effectiveness of the programme. Some healthcare workers (HCWs) did not find the RST user friendly and the cascaded training model utilised had limitations (Ansbro et al., 2015).

Problems with larger-scale **supply** was an issue in Zambia, and recognised in other cases in the literature. A review of experience from PMTCT programmes in eight countries across Asia, Africa and Latin America identified widespread stockouts (Swartzendruber et al, 2015). See also Mabey et al. (2012), Baker et al. (2015), Bonawitz et al. (2015), Smith et al. (2015) and Fern Terris-Presholt (LSHTM, Comments section 6).

**Low test availability** undermines the importance of syphilis screening – which is not always obviously apparent (Baker et al., 2015). A lack of information at the patient level was found to be a barrier to uptake of PMTCT services in many cases where tests were available. Some women who lacked understanding felt unable to ask nurses for more details (Swartzendruber et al., 2015).

**Lack of information** at the HCW-level is also a barrier to implementing PMTCT of syphilis. Hannah Blencowe (LSHTM, Comments section 6) describes her experience in Africa where neonatologists and obstetricians rarely attribute syphilis as a cause of death in newborn babies. This leads to a lack of recognition for the need of PMTCT. The lack of awareness is also a problem at the policy-/decision-maker level (WHO, 2012). Wu et al. (2015) note that credible indicators showing MTCT of syphilis to be a problem are relatively recent (compared to HIV).

**The quality of testing** is important. Issues with incorrect or inconsistent use of tests were identified in Zambia (Ansbro et al., 2015). Staff turnover can be a barrier to having effectively trained workers to administer tests correctly (Swartzendruber et al., 2015). Staff need sustained supervision after training (Bonawitz et al., 2015).

Effective prevention also relies on **early detection** (Owiredu et al., 2015). Women not attending antenatal care (ANC) services early enough can be a barrier to effective PMTCT of syphilis (WHO, 2012). Hawkes et al. (2011) highlight the importance of gathering evidence on how to increase early attendance in ANC for interventions to be effective. Additionally, staff need training on overcoming fears of communicating positive results (Smith et al., 2015).

An earlier barrier to uptake is the issue of **women not attending ANC services** at all. Many areas do not provide adequate access to services with long distances for women to travel. Otherwise services may be of low quality (Swartzendruber et al., 2015) or there is a perception that services are of limited benefit (Owiredu et al., 2015). Existing services may simply not have the information, training or technology to incorporate syphilis training into their system (WHO, 2012). Further system-level barriers noted in WHO (2012) include the absence of clearly defined roles, responsibilities and accountability for controlling syphilis. ANC service providers also do not have financial incentives to screen, particularly private providers.

At the policy level the **cost-effectiveness of PMTCT of syphilis is not widely known** and external pressure to adopt policies is absent (WHO, 2012). Wu et al. (2015) highlight the relative neglect of PMTCT of syphilis compared to HIV at the global level including absence of financial and technical support.

The **stigma** associated with syphilis as a sexually transmitted disease is a key barrier at policy-level and at community-level (WHO, 2012; Wu et al., 2015).

#### **Summary of barriers to scaling-up PMTCT:**

- **Medical:** Incorrect/inconsistent use of tests; difficulty in interpreting results.
- **Health service:** High turnover of trained staff; availability of tests and coordination of supply; low recognition of importance of syphilis testing; lack of supervision; existing

- ANC services absent or of low-quality; absence of clearly defined roles, responsibilities and accountability for syphilis control.
- **Economic:** Price of tests; patient direct- or opportunity-cost; higher start-up and supervision costs in rural areas; lack of financial incentive to screen (particularly private providers).
  - **Social:** Women not attending ANC early enough or at all; low recognition of importance of syphilis testing; stigma.
  - **Policy:** Low recognition of the cost-effectiveness and importance of syphilis testing; stigma.

## 2. Scale-up in Zambia

### Scaling Down to Scale Up: A Health Economic Analysis of Integrating Point-of-Care Syphilis Testing into Antenatal Care in Zambia during Pilot and National Rollout Implementation

Shelley, K. D., Ansbro, É. M., Ncube, A. T., Sweeney, S., Fleischer, C., Mumba, G. T., e Fleischer, Gill, M.M., Strasser, S., Peeling, R.W. & Terris-Prestholt, F. (2015). PLOS one. DOI: 10.1371/journal.pone.0125675

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0125675>

Despite the existence of national guidelines for antenatal syphilis screening, syphilis testing is often limited by inadequate laboratory and staff services. Recent availability of inexpensive rapid point-of-care syphilis tests (RST) can improve access to antenatal syphilis screening.

A 2010 pilot in Zambia explored the feasibility of integrating RST within PMTCT of HIV services. Following successful demonstration, the Zambian Ministry of Health adopted RST into national policy in 2011. This study explored the cost of integrating RST into antenatal care in pilot and national rollout settings, and highlighted important differences in costs that may be observed when moving from pilot to scale-up.

Cost data from the pilot and 2012 preliminary national rollout were extracted from project records, antenatal registers, clinic staff interviews, and facility observations, with the aim of assessing the cost and quality implications of scaling up a successful pilot into a national rollout. Start-up, capital, and recurrent cost inputs were collected, including costs of extensive supervision and quality monitoring during the pilot. Costs were analysed from a provider's perspective, incremental to existing antenatal services. Total and unit costs were calculated and a multivariate sensitivity analysis was performed.

The average unit cost per woman screened during rollout (US\$11.16) was more than triple the pilot unit cost (US\$3.19). While quality assurance costs were much lower during rollout, the increased unit costs can be attributed to several factors, including higher RST prices (\$1.15 versus \$0.65 during the pilot) and lower RST coverage during rollout, which reduced economies of scale. Economies of scale were noticeable at the high volume urban facilities of the pilot, where the relatively high fixed costs associated with start-up, ongoing supervision, and quality assurance/quality control (QA/QC) were spread across a larger ANC patient population. When summarised by urban versus rural health centres (RHCs), pilot unit costs were US\$2.53 per person screened versus US\$11.49, respectively. Coverage during the pilot was 97% compared to 35% during the rollout. This is partly explained by supply constraints.

Transport costs for supervisory teams increased as rollout facilities were further from Lusaka.

Pilot and rollout cost drivers also differed due to implementation decisions related to training, supervision, and quality assurance. During rollout, project life was lengthened which produced higher training start-up costs.

Challenges identified during the first phase of national roll-out include:

- Reduction in supervision and training during the rollout resulted in cost savings but fewer opportunities to promote testing and treatment, identify gaps in test kit quality, and to identify and remediate poor provider proficiency or non-adherence to guidelines.
- QA/QC activities were included in the rollout but devolution to district level led to challenges. On evaluation, rollout HCWs rarely performed incoming kit inspection; district laboratories performed external QC on their own samples but had not initiated an external QA/QC system for surrounding facilities. This was likely due to ineffective planning and communication, lack of nominated responsible personnel, lack of dedicated budget and logistics, lack of local expertise in this type of activity which is often undertaken by NGOs, or lack of hands-on training for district laboratory staff.
- New RST came with new guideline diagnostic algorithms which were not adhered to. Inaccurate results and interpretation may have contributed to costly repetition.
- RST were delivered by the national pharmacy supply chain during the rollout and stockouts were common.

### **Introduction of Syphilis Point-of-Care Tests, from Pilot Study to National Programme Implementation in Zambia: A Qualitative Study of Healthcare Workers' Perspectives on Testing, Training and Quality Assurance**

Ansbro, É.M., Gill, M.M., Reynolds, J., Shelley, K.D., Strasser, S., Sripipatana, T., Ncube, A.T., Mumba, G.T., Terris-Prestholt, F., Peeling, R.W. & Mabey, D. (2015). PLoS one, 10(6). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4452097/>

This research compares HCW experiences, including challenges encountered in scaling up from a highly supported NGO-led pilot to a large-scale Ministry of Health (MoH)-led national programme. The Zambian MoH adopted RST into policy, integrating them into PMTCT of HIV clinics in four underserved districts.

Implementation can be complex and requires a usable test, acceptance by HCWs and patients, good quality training, ongoing HCW support, quality monitoring systems and robust supply chains, which are more difficult to ensure for large-scale rollout with budget constraints.

Overall, HCWs accepted RST as learnable, suitable, effective tools to improve antenatal services, which were usable in diverse clinical settings. Changes in training, supervision and quality monitoring models between pilot and rollout may have influenced rollout HCW acceptance and compromised testing quality. While quality monitoring was integrated into national policy and training, implementation was limited during rollout despite financial support and mentorship. The authors illustrate that new health technology pilot research can rapidly translate into policy change and scale-up. However, training, supervision and quality assurance models should be reviewed and strengthened as rollout of the Zambian RST programme continues.

The authors identified several aspects of the rollout programme which differed from the pilot, particularly training, testing algorithm, QA/QC, supervision, and supply chain; these may have negatively influenced the end-user experience and therefore the feasibility of the RST rollout programme.

Issues for consideration include:

- Feasibility of scale-up is contingent not only on end-user and technology attributes but also on health system and programmatic factors.
- Both pilot and rollout groups of HCWs found some aspects of RST non-user friendly. Rollout HCWs use was less correct and consistent than pilot HCWs, likely because of

- less training and supervision. The effectiveness of the cascaded training model utilised in the rollout was shown to be limited.
- Rollout HCWs were less satisfied with the additional workload of adding a test to maternal and child health (MCH) services (dependent on their previous role in syphilis testing).
  - Rollout HCWs found lower levels of patient satisfaction, likely due to longer patient waiting times.
  - Difficulties were identified around negotiating patient expectations and understanding of test results.
  - Supervisory visits to rollout HCWs found limited implementation of QA/QC procedures. Possible factors proposed are lack of: effective planning and communication (in that no specific person at facility or district level was nominated to coordinate QA/QC), dedicated budget and logistics, local expertise in this type of activity which is often undertaken by NGOs, or efficacy on the part of local laboratory staff.
  - Supply chain issues may have impacted rollout success. For RST to maximise their potential, supplies of test kits, treatment and other consumables must be consistently available.

### 3. Multi-country research

#### **Introduction of rapid syphilis testing in antenatal care: A systematic review of the impact on HIV and syphilis testing uptake and coverage**

Swartzendruber, A., Steiner, R.J., Adler, M.R., Kamb, M.L., & Newman, L.M. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S15–S21.

<http://www.sciencedirect.com/science/article/pii/S0020729215002052>

Experience from the flowing countries was reviewed: Cambodia, China, India, Peru, Kenya, Tanzania, Uganda, and Zambia. Barriers to effective implementation of rapid syphilis testing and HIV testing in antenatal care settings identified in this review include:

- Patient level: Some women reported not being fully informed about testing and not feeling able to ask nurses for more information.
- Facility level: Frequent staff transfers and turnovers was a training challenge and adversely impacted quality of testing.
- Health systems factors: Widespread test commodity stockouts. And low access to and quality of reproductive health services limited testing coverage.

#### **Point-of-Care Tests to Strengthen Health Systems and Save Newborn Lives: The Case of Syphilis**

Mabey, D.C., Sollis, K.A., Kelly, H.A., Benzaken, A.S., Bitarakwate, E., Chungalucha, J., Chen, X-S., Yin, Y-P., Garcia, P.J., Strasser, S., Chintu, N., Pang, T., Terris-Prestholt, F., Sweeney, S., & Peeling, R.W. (2012). *PLoS medicine*, 9(6).

<http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001233>

Syphilis point-of-care tests (POCTs) were introduced in rural antenatal clinics in Tanzania, Uganda, and China; and in both rural and urban clinics in Peru and Zambia. In Brazil, community-based screening was introduced in remote indigenous populations where there were no fixed health facilities or laboratories, and no screening was previously available.

This project has shown that POCTs for syphilis can be effectively introduced in a range of settings, from cities in China and Peru, to remote villages in East Africa, and even more remote indigenous populations in the Amazon rain forest. By working with the existing health care system to integrate testing, the introduction of POCTs resulted in large numbers of

women being tested and treated for syphilis, averting many stillbirths and reducing neonatal mortality.

In spite of the success of this project in increasing access to syphilis screening in many countries, a number of challenges remain. Point-of-care tests (POCTs) cost a little more than the rapid plasma regain (RPR) test (used for screening in many countries), but are available through the WHO bulk procurement programme for less than US\$1. The cost per woman screened ranged from US\$1.9 to \$6.1 in Tanzanian health facilities, and screening pregnant women for syphilis remains one of the most cost-effective health interventions. HCWs and their supervisors received training in stock management, but problems remain at the national level, and stock outs of tests and treatments still occurred. One visit to Geita District at the end of the project found that ten of 17 facilities had recorded at least one day of stock out of POCTs over a 4-month period.

### **Investment case for eliminating mother-to-child transmission of syphilis, Promoting better maternal and child health and stronger health systems**

WHO (2012)

[http://apps.who.int/iris/bitstream/10665/75480/1/9789241504348\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/75480/1/9789241504348_eng.pdf?ua=1)

The key barriers to elimination cited here include:

- General lack of awareness of the true impact of MTCT of syphilis and the extent of the problem. Lack of awareness about the true toll of maternal syphilis is a significant barrier at all levels – in communities, among service providers and programme managers, and among policy-makers and decision-makers.
- Lack of clarity regarding roles, responsibilities and accountability for measures to control MTCT of syphilis. Efforts involve both STI and maternal and child health (MCH) programme.
- Many existing ANC programmes do not have the information, training and technology they need to incorporate maternal syphilis screening and treatment into their health-care systems.

Further barriers include:

- In local communities: Women not seeking ANC early enough, at all, or through providers who are not trained. Stigma associated with sexually transmitted infections; costs associated with treatment (direct, indirect, opportunity, or stigma related).
- Among health care service providers. Lack of commodities appropriate to the setting; No financial incentives to screen (especially among private providers).
- Among policy-/decision-makers: Lack of awareness of the cost-effectiveness of the intervention; little external pressure to adopt policies; few apparent political rewards for action.

### **Implementation of Point-of-Care Diagnostics Leads to Variable Uptake of Syphilis, Anemia and CD4+ T-Cell Count Testing in Rural Maternal and Child Health Clinics**

De Schacht, C., Lucas, C., Siteo, N., Machezano, R., Chongo, P., Temmerman, M., Tobaiwa, O., Guay, L., Kassaye, S., & Jani, I.V. (2015). PLoS one, 10(8), e0135744.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4550242/>

This study reveals that while POCTs for hemoglobin, syphilis, and CD4+ T-cell counts can greatly improve the delivery of ANC services, having access to these technologies does not mean that this potential is realised. There was significant variability in testing coverage before and after implementation of POCT diagnostics across the four study sites and across the three tests performed. Multiple factors (such as site characteristics, patient volume, patient



flow, staffing) may significantly impact the implementation of POCT services. In general, POCTs performed in MCH are well accepted by health workers. Although there is a shift in perceived decreased workload after its introduction, there is no perception of a potential positive impact on initiation of antiretroviral therapy. Further research is needed to identify optimal health delivery strategies to effectively bring the impact of technological advances to patients that are most at need.

#### **Effectiveness of interventions to improve screening for syphilis in pregnancy: a systematic review and meta-analysis**

Hawkes, S., Matin, N., Broutet, N., & Low, N. (2011). *The Lancet infectious diseases*, 11(9), 684-691.

<http://www.ncbi.nlm.nih.gov/pubmed/21683653/>

This study shows that antenatal syphilis screening interventions can reduce adverse pregnancy outcomes, particularly rates of stillbirth and perinatal death. Taking screening for congenital syphilis programmes to scale will necessitate both a better understanding of the actual interventions that work in a range of settings and contexts, a willingness to address health-financing issues and persuade policy makers of the benefit of eliminating this preventable disease.

It is noted that empirical evidence on how to increase early attendance frequency in ANC is needed to ensure that the first antenatal visit takes place early enough in pregnancy for interventions to be optimally effective. Delayed screening and treatment of syphilis in pregnancy increases the likelihood of congenital syphilis.

#### **Antenatal syphilis control: people, programmes, policies and politics**

Hawkes, S., Miller, S., Reichenbach, L., Nayyar, A., & Buse, K. (2004). *Bulletin of the World Health Organization*, 82(6), 417-423.

[http://www.scielosp.org/scielo.php?pid=S0042-96862004000600006&script=sci\\_arttext&tlng=en](http://www.scielosp.org/scielo.php?pid=S0042-96862004000600006&script=sci_arttext&tlng=en)

Antenatal syphilis control is an integral component of reproductive health policies in most countries. In many of these countries, however, the existence of a health policy does not automatically translate into an effective health programme. The authors argue that neglecting to take into account the perspectives of all stakeholders when planning programmes may be the reason that functional and sustained interventions for antenatal syphilis are lacking. Stakeholders may include health policy decision-makers, programme managers, service delivery personnel (on whom implementation depends), as well as the pregnant women, families, and communities who will most benefit from the intervention. This paper describes how to undertake a multilevel assessment in order to identify stakeholders, identify interlinked perspectives, and analyse these perspectives within the socioeconomic, cultural and political environment within which an intervention is designed to be delivered.

Using this multidisciplinary approach, the authors propose that the barriers to, and opportunities for, turning health policy into effective practice will be identified, and the result will be the formulation of a broad programme response to ensure implementation of the policy. Undertaking a multilevel assessment is the first step in identifying barriers to successful programmes. Currently there is a lack of strong political support for this intervention at national and international levels. Devising strategies to address these potential barriers requires a broad range of skills and approaches some of which are outlined in this paper.

#### 4. Experience in sub-Saharan Africa

##### **Elimination of mother-to-child transmission of HIV and syphilis: A dual approach in the African Region to improve quality of antenatal care and integrated disease control**

Owiredu, M. N., Newman, L., Nzomo, T., Kafando, G. C., Sanni, S., Shaffer, N., Bucagu, M., Peeling, R., Mark, J., Toure, I. D. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S27–S31.

<http://www.sciencedirect.com/science/article/pii/S0020729215002076>

This article reports on a consultation on joint programme planning for elimination of MTCT of HIV and syphilis. Participants were from Central African Republic, Ghana, Madagascar, Mozambique, Tanzania, and Zambia. They were experts from the Ministries of Health, WHO, and other United Nations programmes, as well as from implementing partner agencies.

Participants suggested a number of barriers:

- Demand-side:
  - Inadequate information about services available to the community. And perception that Antenatal Care (ANC) services were of limited quality or benefit.
  - Long distances to health facilities and inability to pay.
  - Late initiation of ANC: missing optimal window for prevention of syphilis or HIV transmission
- Supply-side:
  - Poor quality of testing services (e.g. poorly done, delay in obtaining test results); unavailability of same-day testing and treatment; and prohibitive fees for syphilis tests.
  - Lack of service integration causing delays.
  - Insufficient accountability between community and health care system.

See table 2 in the full article for potential solutions and examples of country progress.

##### **Bottlenecks in the implementation of essential screening tests in antenatal care: Syphilis, HIV, and anemia testing in rural Tanzania and Uganda**

Baker, U., Okuga, M., Waiswa, P., Manzi, F., Peterson, S., Hanson, C., & EQUIP study group. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S43–S50.

<http://www.sciencedirect.com/science/article/pii/S0020729215002143>

This multiple case study analysed data on coverage of screening for syphilis, HIV, and anemia in antenatal care in rural Tanzania and Uganda. Bottlenecks identified include:

- Availability of tests. This was a particular problem for syphilis in both countries, and less so for HIV.
- Determinants of availability and effective coverage. In Tanzania there were stockouts of syphilis tests in the Medical Stores Department (MSD). Procurement of tests in Uganda was district rather than national level which was found to be problematic. In Uganda some mothers did not attend the test because of long-waiting times and a lack of awareness of the importance of syphilis screening.
- Consequences of low test availability. Reported to undermine raising the importance of testing to mothers.

Some solutions suggested for Tanzania:

- Improved reporting from the MSD during test stockouts
- External support for screening and improved integration of antenatal care (ANC)



- Cost sharing has been used where patient fees are used to buy tests from private sources during MSD stockouts.
- Mothers have also been referred to test in facilities in other districts

Suggested solutions in Uganda:

- External support to increase screening coverage
- Extending testing to more health centre levels
- Recruiting additional staff for ANC

### **The need for further integration of services to prevent mother-to-child transmission of HIV and syphilis in Mwanza City, Tanzania**

Balira, R., Mabey, D., Weiss, H., Ross, D.A., Changalucha, J., & Watson-Jones, D. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S51–S57.  
<http://www.sciencedirect.com/science/article/pii/S0020729215002131>

This research investigates the operational integration of maternal HIV testing and syphilis screening in Mwanza, Tanzania through interviews with health workers and women using ANC services.

Evidence of integration was found in some clinics. Scale-up to larger clinics and maternity wards are noted to require joint policy guidelines and training of staff in conjunction with minor reorganisation of services.

The report recommends policy formulation to guide the delivery of services to achieve integration of PMTCT of HIV and syphilis. At the health facility-level training health workers on counselling, testing and treatments would be useful. Availability of trained and motivated health workers is thought to be crucial for service integration.

### **Assessment of the impact of rapid syphilis tests on syphilis screening and treatment of pregnant women in Zambia**

Bonawitz, R.E., Duncan, J., Hammond, E., Hamomba, L., Nambule, J., Sambambi, K., Musondad, V., Calisec, A., Knappa, A., Mwalee, J., McCauley, J., Thea, D. & Herlihy, J.M. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S51–S57.  
<http://www.sciencedirect.com/science/article/pii/S002072921500212X>

This report concludes that the challenge of sustaining new point-of-care technologies is considerable. Variables affecting testing performance include stockouts, trained staff turn-over, lack of sustained supervision after training, and overburdening of staff. Emphasis on sustained staff training, commodity management, and adequate data collection is suggested for scale-up.

### **The costs of accessible quality assured syphilis diagnostics: informing quality systems for rapid syphilis tests in a Tanzanian setting**

Sweeney, S., Moshia, J. F., Terris-Prestholt, F., Sollis, K. A., Kelly, H., Changalucha, J., & Peeling, R. W. (2014). *Health policy and planning*, 29(5), 633-641.  
<http://www.ncbi.nlm.nih.gov/pubmed/23894075>

This research aimed to determine the costs of RSTs as compared with RPR when implemented in a Tanzanian setting, and to determine the relative impact of a quality assurance (QA) system on the cost of RST implementation.

In surveyed facilities, a total of 6362 women were tested with RSTs compared with 224 tested with RPR. The range of unit costs was \$1.76-\$3.13 per woman screened and \$12.88-\$32.67 per woman treated. Unit costs for the QA system came to \$0.51 per woman tested, of which 50% were attributed to salaries and transport for project personnel.

Results suggest that rapid syphilis diagnostics are very inexpensive in this setting and can overcome some critical barriers to ensuring universal access to syphilis testing and treatment. The additional costs for implementation of a quality system were found to be relatively small, and could be reduced through alterations to the programme design. Given the potential for a quality system to improve quality of diagnosis and care, we recommend that QA activities be incorporated into RST roll-out.

## 5. Experience in other regions

### **Prevention of mother-to-child transmission of syphilis and HIV in China: What drives political prioritization and what can this tell us about promoting dual elimination?**

Wu, D., Hawkes, S., & Buse, K. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S32–S36.

<http://www.sciencedirect.com/science/article/pii/S0020729215002027>

This study aims to identify reasons behind the lower political priority of MTCT of syphilis compared with HIV in China. Factors identified include:

- Relative neglect at a global level: PMTCT of HIV was in the MDGs and there was a global reporting instrument.
- Dearth of international financial and technical support: The government received financial support for PMTCT of HIV from the UN and the Global Fund to Fight AIDS, Tuberculosis and Malaria; whilst receiving nothing for PMTCT of syphilis.
- Poorly unified national policy community with weak accountability mechanisms: A group composed of the Division of Women and Children's Health in the Ministry of Health, UNICEF, and the National Center for Women and Children's Health, as well as clinicians and academics, was active in policymaking for PMTCT of HIV. The network was tight and active in influencing national guidelines. No equivalent existed for PMTCT of syphilis.
- Insufficient understanding of the epidemic and policy options: Credible indicators showing the MTCT of syphilis to be a problem are relatively recent. PMTCT of syphilis pilot programmes were not seen as generalizable to less economically developed areas.
- A prevailing negative framing of syphilis that resulted in significant stigmatisation: The return of syphilis from the late 1970's was associated with extramarital sex, commercial sex, homosexuality, and drug use. This led to reluctance to admit and respond to the problem. However, according to one interviewee, AIDS became viewed by the government as infecting "innocent" people, especially 'victims of the blood selling scandal'.

### **Lessons learned from integrating simultaneous triple point-of-care screening for syphilis, hepatitis B, and HIV in prenatal services through rural outreach teams in Guatemala**

Smith, A., Sabidó, M., Camey, E., Batres, A., & Casabona, J. (2015). *International Journal of Gynecology & Obstetrics*. 130(Suppl 1), S70–S72.

<http://www.sciencedirect.com/science/article/pii/S0020729215002064>

Lessons learned showed that, despite the expansion of triple antenatal point-of-care screening in rural Guatemala, a shortage of healthcare workers and poor supply chain management limited screening uptake. Moreover, training is essential to help health workers overcome their fear of communicating positive results and improve partner notification. Engagement of community health workers was essential to build local capacity and facilitate community acceptance.

#### **HIV and syphilis infection in pregnant women in Ecuador: prevalence and characteristics of antenatal care**

Sánchez-Gómez, A., Grijalva, M.J., Silva-Aycaguer, L. C., Tamayo, S., Yumiseva, C. A., Costales, J.A., Jacobson, J.O., Chiriboga, M., Champutiz, E., Mosquera, C., Larrea, M., & Cevallos, W. (2013). Sexually transmitted infections, doi:10.1136/sextrans-2013-051191. <http://sti.bmj.com/content/early/2013/11/26/sextrans-2013-051191>

The concentration of HIV and syphilis infections in the coastal region of Ecuador highlights the need for intensified prevention and a response tailored to local epidemic conditions. Major challenges for the elimination initiative include achieving universal, early access to antenatal care, improving coverage of HIV and syphilis testing, and improving the quality of medical records to support progress monitoring.

### **6. Further resources**

#### **Operations research study to implement HIV and syphilis point-of-care tests and assess client perceptions in a marginalised area of Lima, Peru.**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4406805/>

#### **The impact of integration of rapid syphilis testing during routine antenatal services in rural Kenya**

E. Fleming, J. Oremo, K. O'Connor, A. Odhiambo, T. Ye, S. Oswago, et al. J Sex Transm Dis, 2013 (2013), p. 674584

<http://www.hindawi.com/journals/jstd/2013/674584/>

#### **Simultaneous triple point-of-care testing for HIV, syphilis and hepatitis B virus to prevent mother-to-child transmission in India**

N.P. Pai, J. Kurji, A. Singam, R. Barick, Y. Jafari, M.B. Klein, et al. (2012). Int J STD AIDS, 23, pp. 319–324

<http://www.ncbi.nlm.nih.gov/pubmed/22648884>

#### **Linked response for prevention, care, and treatment of HIV/AIDS, STIs, and reproductive health issues: results after 18 months of implementation in five operational districts in Cambodia**

T. Delvaux, S. Samreth, M. Barr-DiChiara, N. Seguy, K. Guerra, B. Ngauv, et al. (2011). J Acquir Immune Defic Syndr, 57, pp. e47–e55

[http://journals.lww.com/jaids/Fulltext/2011/07010/Linked\\_Response\\_for\\_Prevention,\\_Care,\\_and.14.aspx](http://journals.lww.com/jaids/Fulltext/2011/07010/Linked_Response_for_Prevention,_Care,_and.14.aspx)

#### **The Cost and Cost-Effectiveness of Scaling up Screening and Treatment of Syphilis in Pregnancy: A Model**

Kahn, J. G., Jiwani, A., Gomez, G. B., Hawkes, S. J., Chesson, H. W., Broutet, N., ... & Newman, L. M. (2014). PLOS one. DOI: 10.1371/journal.pone.0087510

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0087510>

**Prenatal transmission of syphilis and HIV in Brazil: Achieving regional targets for elimination**

Cerda, R., Perez, F., Domingues, R. M. S., Luz, P. M., Grinsztejn, B., Veloso, V. G., ... & Ciaranello, A. L. (2015, May). In *Open Forum Infectious Diseases* (p. ofv073). Oxford University Press.

<http://ofid.oxfordjournals.org/content/early/2015/05/22/ofid.ofv073.full.pdf>

**GLOBAL GUIDANCE ON CRITERIA AND PROCESSES FOR VALIDATION: Elimination of Mother-to-Child Transmission of HIV and Syphilis**

World Health Organization. (2014).

[http://apps.who.int/iris/bitstream/10665/112858/1/9789241505888\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/112858/1/9789241505888_eng.pdf)

**Introduction of rapid syphilis testing within prevention of mother-to-child transmission of HIV programs in Uganda and Zambia: a field acceptability and feasibility study**

Strasser, S., Bitarakwate, E., Gill, M., Hoffman, H. J., Musana, O., Phiri, A., ... & Chintu, N. (2012). *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 61(3), e40-e46.

<http://www.ncbi.nlm.nih.gov/pubmed/22820810/>

**7. Additional information**

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