Evaluation of Prevention of HIV Mother to Child Transmission Services in the Republic of Moldova

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Acronyms

AIDS  Acquired Immunodeficiency Syndrome
ART  Anti-Retroviral Treatment
BCC  Behavior Change Communication
HIV  Human Immunodeficiency Virus
HIV-MTCT  HIV Mother-to-Child Transmission
HIV+  HIV-positive
IEC  Information, Education, Communication
IDU  Injecting Drug Users
LB  Left Bank
M&E  Monitoring and Evaluation
MH  Maternity House
MoH  Ministry of Health
OST  Opioid Substitution Treatment
NGO  Non-governmental Organization
PCR  Polymerase Chain Reaction
PEP  Post-Exposure Prophylaxis
PLWH  People Living with HIV
PMTCT  Prevention of Mother-to-Child Transmission
QC  Quality Control
RB  Right Bank
RDVD  Republican Dermato-Venereal Dispensary
SD  Standard Deviation
STI  Sexually Transmitted Infection
TB  Tuberculosis
UNGASS  United Nations General Assembly Special Session
UNICEF  United Nations Fund for Children
UP  Universal Precautions
VCT  Voluntary Counseling and Testing
WHO  World Health Organization
Executive Summary

Republic of Moldova has achieved excellent results in decreasing mother-to-child transmission rate from 10% in 2004 to 1.7% in 2008. The centralized model of provision of PMTCT services, with four institutions providing specific interventions of ARV prophylaxis and care during delivery proved to be effective while the number of cases was low. Yet, as the epidemic is evolving and the number of HIV-positive women that give birth is increasing, this model becomes ineffective and there is a need for gradual decentralization, in order to move services closer to HIV-positive women. The purpose of this evaluation was to assess the quality and comprehensiveness of the PMTCT services in the Republic of Moldova, as well as to evaluate the preparedness of the whole health system to provide quality PMTCT services. The results and recommendations of this evaluation will be used to develop a well-coordinated strategy in the area of PMTCT and build consensus with the major stakeholder about what is needed to improve further the PMTCT services.

The evaluation effort included an internal evaluation performed by a national team under the supervision of a working group established at the Ministry of Health and an external evaluation conducted by an international independent consultant. The objectives of the internal evaluation were to evaluate the quality of tertiary level PMTCT services provided to HIV-positive pregnant women and their babies, to assess the knowledge, attitudes and behaviors of health care workers at secondary and primary levels towards HIV-positive mothers and their babies, to assess the preparedness of secondary and primary levels to provide PMTCT services, to assess the level of client satisfaction with the provided PMTCT services (HIV-negative pregnant women), to explore the level of client satisfaction in HIV-positive pregnant women and their babies and to evaluate the referral system between various services within health care, as well as linkages with other services (harm reduction, self-support groups, social assistance). To achieve the objectives of the evaluation, quantitative and qualitative methods were applied in collecting data from health facility managers, health providers in maternities and primary health care sector, and HIV-negative and HIV-positive women that gave birth in the past two years.

The external evaluation focused on assessing the current status of the PMTCT services in the Republic of Moldova, including policies, leadership and coordination, and legal and M&E framework. Qualitative methods were applied, through desk review of relevant documents, consultations and interviews with relevant stakeholders and main partners, including civil society organizations, spot checks at specialized health institutions and focus group interviews with HIV-positive women.

Conclusions and discussion

This is the first study to evaluate thoroughly the PMTCT services in the Republic of Moldova. The results show that although more than half of health providers have received training in PMTCT, HIV and VCT, their actual knowledge, skills and attitudes are still very low. The areas where health providers score best are antenatal and intranatal care and feeding counseling to HIV-positive women and basic knowledge of HIV transmission and prevention.

Health providers have showed widespread intolerant attitudes to PLWH in both social and professional situations and they often break confidentiality in professional settings. At the same time, they lack basic knowledge about actual risks of HIV transmission and about the effectiveness of timely and comprehensive PMTCT measures. In addition, although most have been trained in infection control, they overrate their risk of getting HIV at workplace, not all know or observe universal precautions, showing a lack of knowledge about seronegative window and leading to differential application of infection control and discriminatory isolation practices.
Finally, no significant difference was noticed between knowledge and skills of district maternity workers compared to specialized maternity workers, in fact district health workers had better knowledge compared to municipal level, and therefore decentralization should be easy to do.

While VCT is a unique opportunity for direct primary prevention of HIV in the population of women of reproductive age, health providers miss to use it at its full potential. Most interviewed pregnant women have been tested twice for HIV during pregnancy, but most did not receive complete or quality counseling from either physician or VCT counselor, showing that the HIV counseling is mostly formal. As a result, their level of basic knowledge of HIV transmission is low and the level of tolerant attitudes towards PLWH is low.

Interviewed HIV-positive women have received adequate care at RDVD level, good antenatal and postnatal care, but the experience of delivering their babies ranged from normal to very bad. Contraception services are provided mostly by RDVD, and when they are provided at other levels, they are sometimes of inadequate quality and incorrect information is provided to them.

These findings call for establishing a comprehensive training process that would include reassessment of the PMTCT curriculum and inclusion of information on HIV-MTCT risks and components of PMTCT, prevention of HIV at workplace, VCT and comprehensive part of decreasing stigma and discrimination. The curriculum should mostly be oriented at changing attitudes and developing skills rather than focusing only on knowledge, therefore it should include adequate time for quality exercises and practices and specific skills in trainers to perform these exercises thoroughly. And lastly, the training process should be a continuous effort, with supervision, evaluation and retraining performed as needed.

In addition, the internal evaluation showed that while medical services are provided to HIV-positive women at different levels, the linkages between the medical system and social services or services provided by NGOs are very weak and not institutionalized. There is a need to develop intersectoral policies that would allow service integration and provision of comprehensive and client-oriented care at local level.

The external evaluation pointed on notable successes in decreasing the PMTCT rate, level of coverage with services for pregnant women, counseling and testing, provision of ARV prophylaxis to pregnant HIV-positive women and newborns as well as supply of milk formula and early detection by PCR. It also found gaps as well as areas for future development such as oversight mechanism, management & coordination, sustainability and continuum of service provision, and access and quality of services.
Key results of the external evaluation

Republic of Moldova has made significant progress in the implementation of PMTCT goals outlined in the Declaration of Commitment of UN General Assembly Special Session on HIV/AIDS (UNGASS)\(^1\) and Dublin Declaration\(^2\). The notable successes were achieved in coverage with services for pregnant women, counseling and testing, provision of ARV prophylaxis to pregnant HIV-positive women and newborns as well as supply of milk formula and early detection by PCR. Outstanding progress has been made in PMTCT, with HIV MTCT rate dropping to 1.7% in 2008, and treatment and care of children living with HIV. However, there are still a number of gaps observed, as well as areas for future developments: oversight mechanism, management & coordination, sustainability and continuum of service provision, access and quality of services.

Four key PMTCT strategy interventions

1. Primary HIV prevention in women of reproductive age

HIV/AIDS awareness among the general population including HIV/AIDS information, education and communication (IEC) is a focus of the national response to HIV epidemic in the Republic of Moldova. However, activities in this area have been insufficiently coordinated and unsystematic; HIV/AIDS awareness should be incorporated into more areas of medical, social and educational activities on a broader scale, especially taking into consideration still low levels of knowledge and inadequate safe practices. There is no overall IEC and BCC strategy in the Republic of Moldova that could be reinforced in all HIV-related programmes and services. The integrated HIV knowledge indicator among youth aged 15-24 years was 40.8% in 2008, still insufficient for effective HIV prevention and only 63.5% of respondents believed in effectiveness of condom use for safe sex.\(^3\) The same report shows evidence more young men who did not have a permanent partner admitted having more than one sexual partner in the past 12 months compared to young women (33.7% men versus 3.4% women). At the same time, the condom use among those young people that do not have a permanent partner and admitted having multiple partners had decreased in 2008 compared to 2006 (75.0% versus 70.8% condom use at last sex).\(^4\) Men’ involvement in sexual and reproductive health services should be promoted, both as an individual and as a partner in a relationship.

2. Family planning and prevention of unwanted pregnancies in HIV-infected women

Dual protection (condoms together with contraceptive pills, Depo-Provera, etc.) is recommended for women with HIV by WHO. However, after field visits it became clear that doctors have not yet accepted these standards and, as a result, do not suggest them to women with HIV. Similarly, understanding of interrelation between HIV and STI is not recognised by majority of the medical personnel and people who approach doctors with complaints about STI symptoms are not referred to HIV clinics and are not counselled about a need to do a HIV test.

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\(^4\) Idem, p. 65
There was also evidence of a lack of knowledge and skills in counselling of discordant couples on family planning and fertility choice, e.g., doctors suggested following outdated recommendations for extracorporeal insemination. Some HIV-infected women in focus groups stated there were cases of forcing HIV-positive women into sterilization or abortion because of their HIV-positive status and use of illegal drugs, which implies lack of knowledge about human rights and relevant legislation and creates a need to establish a monitoring system for registering cases of rights’ violation.

There is also a prospective opportunity to use family planning offices and youth friendly clinics for targeted condom distribution to HIV-positive women.

3. Prevention of Mother-to-Child Transmission of HIV

PMTCT programme is conducted most recent amendments. The continued growth of heterosexual transmission in the Republic of Moldova may cause a continued increase in the number of pregnant women with HIV and growing needs for prevention services. It will be essential to ensure testing and diagnosis for hard-to-reach women, including female IDUs, homeless and sex workers. Much closer collaboration is required between mother and child health services, reproductive health services, NGOs and other international organizations that can provide early access to these women who continue to remain at high risk.

Coverage with HIV testing of pregnant women reaches on average 98% (with a range of 97-99.8% from various sources\(^5\)), however, according to a survey of PLWH conducted by M&E Department of the National Health Management Centre, only 20% of all respondents received the pre-test counselling and only 60% of respondents with positive test result received post-test counselling\(^6\). Therefore, there is a great need to train a number of qualified VCT providers from among medical workers, including midwives and nurses, in VCT skills application, in addition to the new VCT system based on one counsellor per raion.

In the Republic of Moldova, according to MOH Order no. 100, three maternity houses were selected starting with year 2004 as specialized institutions for delivery of HIV+ positive women: mother and child care Centre in Chisinau, maternity houses (MH) in Balti and maternity house in Tiraspol (serving the residents of Transdniestria).\(^7\) Later, in 2007, MH no.1 in Chisinau was added, making it four in total. Medical staff of these institutions was trained. The idea of specialized facilities or special conditions for HIV+ women (specialized rooms where HIV+ women deliver, separate entrance or areas isolated from other patients) outlived itself. Existence of such system in the Republic of Moldova contradicts the principles of universal precautions for health care workers and discriminates the HIV-positive women.

Moreover, secondary level maternity houses which receive women with unknown HIV status mentioned that they are ready to provide specialised medical care to such women and already do so. Thus, challenges which need to be addressed for these MH are training of personnel, supply of ARV drugs and milk formula, since the training efforts have focused on specialized maternities and the supply of ARV drugs and free formula is developed only at centralized level. According to the opinion to the decision-makers from the Mother and Child Department at MOH, they are ready to implement this shift in decentralization.

\(^5\) Annual statistics from National AIDS Center and the National Center of Management in Health
\(^7\) Ministry of Health. Order no. 100 from 01.04.2004. Regarding prevention of mother-to-child transmission and organization of the specific prophylaxis.
According to the data of the Survey of PLWH, an alarming number of 11.6% HIV-positive women breastfed their children, even though the Republic of Moldova has adequate capacity for provision of quality formula feeding. Oftentimes adequate counselling on replacement feeding at the maternity houses to HIV+ women is not available, as MH personnel is convinced that women are supposed to receive this information during the antenatal period. Such situation may cause this situation when small numbers of women to still rely on breastfeeding, posing their babies at risk.

Republic of Moldova faces a paradoxical situation with elective C-section for HIV+ women. At the tertiary level, in Mother and Child Centre, doctors do not accept and do not want to perform this intervention as they lack special equipment/supplies, tools and are not trained to provide elective C-section with hemostatic method. Therefore, C-section is provided only for obstetrical requirements. At the same time, Balti and Tiraspol MH doctors perform such operations, even though they also report a shortage of protective measures, needed tools, etc.

4. Care and Support to HIV positive women, infants and their families

ART treatment for HIV+ mothers is available and accessible in the Republic of Moldova, which ranks first among other countries of Eastern Europe and Central Asia in terms of coverage with ART of those in need of treatment.

According to the Survey of PLWH, 60% of HIV-positive people in the Republic of Moldova have a need for psychosocial support in coping with shock and adapting to a life with HIV. Stigma and discrimination at the medical facilities, weak cooperation of health care facilities with the agencies of the Ministry of Labour, Social Protection and Family and lack of personnel providing counselling and psychological support at the primary level determine an inappropriate access of PLHIV to social support. The same survey demonstrated that more than 80% of families affected by HIV are in need of social help, including financial, social and psychological support.

National standard on palliative care exists in the Republic of Moldova, but has not been implemented yet at the service level. The major gap of this standard is its orientation on medical structures only and a lack of cooperation with other institutions relevant for provision of palliative care such as non-governmental, community-based and faith-based organisations.

Other challenges noted during the country visit were related to absence of referral system between medical, social/community workers and NGOs.

Even though the Republic of Moldova has already identified the prevention of mother to child transmission as a priority, pediatric treatment has yet to be granted a high importance status in the national HIV response. Overall progress in the area of treatment and care for children has been very limited. Care and support services are underdeveloped in the Republic of Moldova and child-focused community-based care and support programmes are lacking. No targets were specified in the area of care and support for children and orphans. Also stigma and discrimination negatively affect access of HIV-affected and infected children to education (kindergarten and school).

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10 Idem
Cross-cutting Issues

Legislation and human rights

Legislation in the HIV/AIDS area received significant attention in the Republic of Moldova and resulted in adoption at the national level of a series of important documents. While largely consistent with the international standards, separate legislative articles contain some discriminatory provisions, which may limit basic freedoms and may violate confidentiality and privacy rights. Thus, Article 14, point 4 specifies that “Any person with HIV shall disclose his/her HIV status and health condition to his/her spouse or sexual partner” and “Healthcare professionals may notify wife/husband or partner(s) of their patient’s HIV status” after certain procedures in case HIV-positive person refuses to notify, or give consent to the notification of his/her wife/husband or partner(s), as per same Article, point 5. Such wording balances on a verge of intruding into private life and breaching confidentiality guaranteeing by other provisions of the same Law. Enforcement of such provisions does not lead to a change of risky behaviour of an individual and does not allow for building of a trust between people living with HIV and medical personnel who are obliged by this Law to put into effect this provision. Also, this article contains vague definitions such as “real risk of HIV transmission” or “reasonable term to notify partner”, which if not explained properly in normative and regulatory documents can give rise to misinterpretations and misuse.

Another illustration relates to adoption of children from/into families affected by HIV/AIDS. At present people with HIV are prohibited from adopting children in the Republic of Moldova, although there is a more recent regulation allowing them to act as “professional parents” for children. Current regulation infringes upon the rights of HIV-infected children to live in a family, as Joint Ordinance No. 47 dated 04.11.1994 prohibits the adoption not only of children with HIV/AIDS, but also of children who have one biological parent infected with HIV. Such provisions are discriminatory and deprive HIV-infected or exposed children of their basic rights. Another challenge is that though existing legislation has been approved by the national authorities, it lacks comprehensive implementation at the direct service provision level.

Besides the national legislative documents, there are numerous Protocols/Guidelines on various aspects of HIV/AIDS services, which were issued and approved by MOH: PMTCT, ARV treatment for adults and children, provision of OST, PEP, Standard for VCT counsellors, palliative care for people living with HIV/AIDS and others. However, the implementation of the new protocols or standards at the local level is slowed down due to lack of capacity of training/education for medical personnel.

Leadership and coordination

Response to HIV/AIDS epidemic was declared a national and social priority, followed by adoption of the third National HIV/AIDS Programme for years 2006-2010 with earmarked funding, which, in its turn, demonstrated a strong commitment of the Government of the Republic of Moldova.

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12 Idem
13 Government Order # 312 dated 25.04.2003
14 Government Order # 1361 dated 12.07.2007
15 Detailed reference
16 National Programme on Prevention and Control of HIV/AIDS and STIs for years 2006-2010
Coordination in HIV/AIDS area was analysed from the point of view of multisectoral relations, considering the regional and local levels, interrelation with other epidemics such as TB, STI, drug use, interaction between governmental and non-governmental organisations, external donors and UN agencies, community and faith-based organisations and private sector. Active leadership both in the governmental and non-governmental sector is crucial for PMTCT programme promotion and effective implementation. On one hand, there is a willingness of MOH and key stakeholders to develop and improve prevention of HIV/AIDS and care & support for PLWH, on the other hand, there is no reliable mechanism for effective coordination supported by government and civil society sectors. Such mechanism should be agreed and approved, including establishment of transparent responsible structure and effective M&E system, where collected data would serve both advocacy and decision making process purposes.

Analysing the existing regulations, it is not clear which central institution is responsible for the overall effective implementation of the National Programme. Existing regulatory framework contains unclear formulations regarding the role and responsibilities of each medical institutions within the objectives of the National Programme. Though roles and responsibilities of these institutions were assigned in Decision no.540 “Regarding the improvement of the management of the prevention and control of HIV/AIDS” dated 28.12.2006, they were not translated into realization of fully coordinated functions. This shortcoming should be addressed by introducing a distinct mechanism of national coordination, with changes in regulatory framework and a particular focus on distinct responsibilities of partners with clear linkages between them.

It is critically important to advance capacity of institutions responsible for HIV Programme implementation, stimulate them to discuss their achievements, challenges and gaps. Therefore, developing a joint plan of coordination and consolidation would be an essential step in the progress of HIV/AIDS national response.

Coordination between partners can be ensured by a functioning system of information flow, with constant two-way exchange and communication. Operation of monitoring and information systems coordinated by one unit in charge of information flow has been proven as the most effective solution; for the Republic of Moldova its role can be taken on by existing M&E Centre, endowed with relevant powers and improved capacity. These changes would create the appropriate conditions for a stronger leadership and ownership at the national level and would, consequently, lead to a more effective channeling of efforts and resources in the national response to HIV/AIDS.

**Advocacy, stigma and discrimination**

At the beginning of 2007, the Parliament of the Republic of Moldova approved the Law on AIDS Prevention and Control, which was developed based on international principles of human rights and universal access. The law includes provisions aiming to exclude discrimination against PLWH and to guarantee the rights to anonymous HIV testing, ARV treatment and care. Yet, access to medical care and treatment remains unequal for persons from different population groups and in different regions.\(^\text{17}\)

Although it has contributed to increase in correct knowledge about HIV transmission, especially in young people, the overall approach to HIV awareness and public education in the Republic of Moldova did not produce changes in public attitudes towards HIV yet.

There are some organizations that provide services for PLWH and advocate for protection of their rights. Recently HIV-service organisations formed a Moldovan League of PLWHA and chose advocacy as one of its key priorities. Unfortunately, this initiative does not include smaller

\(^{17}\) Law on Prevention of HIV/AIDS no. 23-XVI from 16.02.2007
cities where a limited number of local NGOs operate mostly as service providing units and do not consider themselves competent for advocacy campaigns. Therefore, it is important to consider NGO capacity building in advocacy and community-based support aimed at protection of PLHIV rights while in parallel bridging it to current national legislation in this area, with implementation of relevant changes.

**Monitoring and evaluation, including routing data collection and sentinel surveillance**

Following a need to have an evidence-based process of planning and decision making in combating HIV/AIDS epidemic, different governmental and non-governmental organizations, UN agencies and donors implementing activities in the field of HIV/AIDS in the Republic of Moldova established and used various systems of data collections. Still, the process of data collection, analysis and interpretation is in need of improvement and restructuring as, according to the observations during the in-country visit and respondents’ opinions, the Republic of Moldova still faces the challenge of creating one consolidated M&E System to satisfy all information needs.

Lack of consistency of PMTCT data requires urgent revision of PMTCT M&E system. For example, Form 32B developed to collect statistical data in PMTCT appears to contain contradictory data and obvious gaps in information. This form was developed and approved for use in 2005 for PMTCT M&E purposes and now it needs revision and update in order to become an effective tool for M&E in PMTCT. It does not include some important indicators: number of HIV positive women who planned their pregnancy being already infected and knowing their HIV status, number of pregnant women from risk groups, number of pregnant women receiving opioid substitution treatment (OST), number of women who terminated their pregnancy, number of elective C-section performed. Another challenge is the calculation of HIV transmission rate.

Republic of Moldova needs an improvement of M&E system in paediatric care and treatment as well, which should include a case-management approach. There are some indicators related to paediatric care in the statistical form B32: number of children born, including number of children who received ARV prophylaxis; number of children with HIV-positive confirmed status, but in general, statistics on care for HIV exposed children is far from being perfect. Many needed indicators are absent, such as number and percent of children with confirmed AIDS diagnosis, number and percent of children covered with PCR, number and percent of children tested with ELISA test at 18 months, percent of HIV+ children living in families and percent of HIV+ children living in orphanages. The perinatal and infant mortality indicators are not computed correctly.

**Human resource development**

Since 2004 UNICEF provided technical assistance to PMTCT trainings for medical personnel, as well as senior management of facilities responsible for PMTCT provision. Currently six out of 16 trainers continue to conduct refreshing sessions and trainings under GF programs for PMTCT providers and there is a vital need to retrain master-trainers or add new trainers for continuing education interventions with modern BCC approaches.

Incorporation of HIV and PMTCT issues into the curricula of Medical University, colleges and Advanced Education Institution’s is recognised as a great achievement of the Republic of Moldova. It prompts a need to create an on-going educational mechanism for providers working in HIV area, especially training curricula aimed at skills and attitude development. In general, it seems that there is no national system in place to count the current number and skills of professionals involved in HIV/AIDS activities and to assess the needs in training or continuous education in HIV/PMTCT of health care workers at different levels.
It is important to emphasize the need for improvement of knowledge, skills and attitude for VCT providers serving PMTCT clients. It is obvious that more human resources should be trained to cope with expansion of VCT access, especially considering that medical personnel demonstrates lack of counselling skills.

There is a critical need to properly transfer PMTCT training programme and supporting materials that UNICEF used for medical staff education to responsible MOH department with its previous capacity building in monitoring and quality control of training process. It is also important to advise relevant MOH department to integrate training activities into advanced (after-diploma) education system according to Bologna's standards.

**Summary Results of the National Evaluation**

**National PMTCT data**

The results of the analysis of national statistics in the area of PMTCT shows significant progress in MTCT transmission rate, significant coverage with HIV testing during pregnancy and of children born to HIV-positive mothers, ARV prophylaxis of both mothers and children and high proportions of formula feeding. Yet, the national monitoring of PTMCT data is not of a good quality: there are many gaps in the information provided by various agencies, the full list of critical indicators is not collected and the computation of indicators is difficult because of inconsistencies in denominators. Three agencies are partly responsible for a set of indicators, but their coordination and exchange of information is poor and data validation is not possible.

**Health Institutions**

Managers from the district level health facilities and municipal hospital of Balti and Family Medicine Center Buiucani in mun.Chisinau were asked to complete a standard questionnaire that assessed existence of policies and normative documents in the area of HIV in health institutions, institutional decision-making structures, capacity building activities and plans, monitoring and evaluation and current clinical activities in the area of PMTCT.

The results show that most facilities have different experience in providing care to pregnant HIV-positive women. Contrarz to the external assessment, the managers of the facilities have self-evaluated their institutions as having increased preparedness to provide PMTCT services, and they have already established working groups at institutional level, started to train health providers and make plans for future trainings for medical staff.

**Outpatient health providers**

The sample consisted of a total of 495 health providers working in outpatient facilities, of which 40% from rural level, 29% from district level, 17% municipal (Chisinau and Balti) and 14% from Left Bank. Most were female health workers (93.7%), with an average work experience of 23.1 years (SD 11.3 years), the majority were nurses (59.4%), family physicians (26.3%), midwives (6.1%) and specialists (8.2%).

Experience with HIV-positive patients

Less than a half (40.6%) of outpatient health providers has ever provided care to HIV-infected patients. Of those that did provide care the majority have seen less than five HIV-infected patients. Less than a third (29.9%) has provided care to pregnant HIV-positive women, usually during antenatal and postnatal visits or VCT.
Training in HIV and PMTCT areas
Less than half (45.5%) have received training in HIV and PMTCT. Of those that had trainings, a third (33.3%) attended trainings for less than a day, 37.8% for 1-3 days and 28.9% for four days or longer. Most often, the training included basic info on HIV transmission, PMTCT, stigma and discrimination prevention, infection control and VCT.

General level of information of PMTCT and HIV
The majority of respondents (64.2%) assessed their level of PMTCT information as “partially informed” and a quarter (24.2%) as “very informed”. This result does not match the low level of actual PMTCT knowledge: only 10.1% had correct knowledge about basic PMTCT information. The respondents felt their level of information was high regarding modes of HIV transmission (95.4%) and matched by a relatively high level of actual HIV-transmission integrated knowledge indicator (72.1%).

Detailed knowledge of PMTCT
The majority of health care workers overrate the HIV-MTCT rate if no interventions are taken (67.7%), in case ARV prophylaxis is given (52.6%), or during breastfeeding (89.9%). It terms of knowledge about PMTCT outpatient care, only a half (51.4%) have correct knowledge when it is recommended to refer a pregnant HIV-infected patient to initiation of ARV prophylactic treatment and less than half (43.7%) know the correct term for child follow up and HIV diagnostic exclusion.

Feeding counseling
Most outpatient health workers use correctly arguments for the advantages of formula feeding and feel very/ confident about feeding counseling (71.1%), but rarely demonstrate themselves how to prepare formula correctly (41.4% demonstrate “always” or “oftentimes”).

Referral to other health services
While the referral system works well vertically within health care system, such as referrals from primary care level to ID physician (90.1%) and ARV prophylactic treatment (79.5%), there are very few referrals to services regarding drug use treatment (18.7%) or to services outside health system (33.3% for social services). Referrals to services provided by NGOs are very rare: 15.2% outpatient health workers referred to social services provided by NGOs and 6.0% to Harm Reduction projects.

Confidentiality
Only half (49.1%) of health workers thought that confidentiality is always kept in case of an HIV-positive patient. Roughly the same proportion (42.6%) admitted that they personally have disclosed the status of their HIV-positive patient, usually to their colleagues, sometimes to the Center of Preventive Medicine or rarely to patient’s family members.

Stigma and discrimination
Almost half (47.3%) of respondents felt they had high level of knowledge about stigma and discrimination, yet this knowledge did not translate in tolerant attitudes in either day-to-day life or at work. Only 1.4% had social accepting attitudes towards PLWH18 and 7.9% had professional tolerant attitudes towards HIV-positive patients19.

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18 The HIV social tolerant attitudes indicator is a composite indicator recommended by UNAIDS that includes positive answers to four questions in the nominator and the total number of people who answered the four questions as denominator: would take care of a family member with AIDS, would you buy food from an HIV-infected vendor, if a teacher is HIV-infected, he should be allowed to continue working in school, if a family member had HIV, the respondent would not keep it secret.
Besides the general stigma, there were attested some differential attitudes by mode of transmission, when HIV-positive patients perceived as victims (children born to HIV-positive mothers, faithful sexual partners infected by HIV-positive unfaithful partner) were regarded more positively by health workers, compared to HIV-positive clients blamed for their HIV status (IDUs, CSWs, unfaithful sex partners).

**Perception of acquiring HIV at workplace**
The professional discrimination seems to be determined mostly by an overrated perception of risk to acquire HIV at workplace. More than half thought their risk of getting HIV at work was high (24.6%) or average (37%) and the majority (68.6%) outpatient health workers overrate the risk of getting HIV through needle stick injury. At the same time, their current practice is not always safe, a quarter (25.2%) having had a needle stick injury in the past 12 months. While most would know what to do after a needle stick injury, only 28.1% were aware that they could access PEP ARV regimen in their facility in case of a high-risk exposure.

**Infection control knowledge and practices**
Less than half of respondents knew that universal precautions meant treating all patients as potentially infected and most thought UP are mostly about proper biological sample disposal practices. The distribution of practices has shown that while nearly everyone wears white blouses (99.8%) and washes hands after each patient (95.4%), but a quarter (24.7%) do not always use universal precautions, only 50.5% wear gloves, 42.8% change gloves after each patient, while 80.4% wear gloves when disposing biological materials. At the same time, while most felt they had enough syringes (89.3%) or disinfectants (92.1%), less felt they had enough gloves (75.4%) or white blouses (43.6%). This situation of not always observing the UP requirements leads to differential use of protection means towards HIV-infected patients, with most using additional protection measures in case of HIV-infected patients.

Lack of correct knowledge and overrating the risk about might explain the high level of self-perceived risk of acquiring HIV, especially, since most respondents (95.6%) perform invasive procedures in their practice, such as injections, and a quarter of respondents (25.2%) has admitted that they had needle stick injury in the past 12 months. A striking finding was that 1.7% admitted using a syringe more than once.

**Differences between different levels of facilities on the Right Bank**
In general, district level outpatient health workers scored best in PMTCT knowledge and practices, followed by municipal (Chisinau and Balti) health workers and rural health workers scoring the worst. They also had better integrated knowledge indicators for both HIV and outpatient-PMTCT. At the same time, district outpatient health workers felt in higher proportions at risk for acquiring HIV at work, compared to the other groups and had the lowest knowledge about correct transmission risk through needle stick. Although they have stated the lowest proportion of needle stick injuries and the highest coverage with infection control supplies, they use differentially protection methods much more often compared to other groups.

**Outpatient Health Providers on the Left Bank**
Although outpatient health providers on the Left Bank have had significantly higher experience in providing care to HIV-positive and pregnant HIV-positive women, higher

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19 HIV professional tolerant attitudes indicator has been designed by the survey consultant similarly to principles of integrated indicators recommended by UNAIDS and include correct answers to the following four questions in the nominator and the total number of people who answered the four questions as denominator: would provide invasive medical procedures (i.e injections) to HIV-infected patients, would deliver a baby to an HIV-infected woman; HIV-infected patients should not disclose their status to health workers; HIV-infected patients should not be provided care separately form other patients.
proportion have attended trainings for 4 days or more (43.5% compared to total 28.9%) and had a good perception about their level of knowledge in HIV and PMTCT, their actual knowledge, attitudes and practices are worse compared to their colleagues on the Right Bank. Their integrated outpatient-PMTCT indicator was significantly lower (4.9% compared to a total 10.1%). Higher proportions compared to the Right Bank (25.4% left Bank compared to 0% municipal, 4.2% district and 1.5% rural outpatient health workers) thought that although they do provide care to HIV-positive patients, it was not their responsibility. In addition, lower level of knowledge and skills regarding feeding counseling was observed on the Left Bank.

Although 56.7% of health providers on Left Bank that received training said they have information regarding infection control, they had lower correct knowledge about UP than their colleagues on Right Bank. Also, they had lower knowledge about the correct risk of transmission through needle stick (9.0% compared to total 21.2%) and less knowledge about what to do in a case of needle stick injury or PEP ARV regimen. Health providers on Left Bank had less gloves (40.3% compared to total 75.4%), syringes (46.3% compared to 89.3%) and disinfectants (56.7% compared to 92.1%). At the same time, they have stated in higher proportions to wear gloves (71.6% compared to total 50.5%) change gloves after each patient (64.2% compared to total 42.8%), and experienced less needle stick exposures (20.3% compared to total 25.2%). Some 3.4% stated to have used a syringe more than once.

**Maternity Health Providers**

The sample consisted of a total of 287 health providers working in maternities, of which 51.9% from specialized level (Chisinau and Balti), 27.5% from district level, 20.6% from Left Bank (Tiraspol and two district maternities in Grigoriopol and Rybnitsa). Most were female health workers (90.5%), with an average work experience of 22.7 years (SD 10.2 years). Most interviewed health workers were midwives, nurses and OB/GYN physicians, with other specialties receiving smaller numbers.

**Experience with HIV-positive patients**

The majority (69.3%) of maternity health workers have ever provided care to HIV-infected patients. Of those that did provide care the majority have seen less than five HIV-infected patients. The majority (64.3%) have provided care to pregnant HIV-positive women, usually during and after delivery.

**Training in HIV and PMTCT areas**

Over two thirds (70.8%) have received training in HIV and PMTCT. Of those that have been trained, less than a third (27.8%) attended trainings for less than a day, 41.7% for 1-3 days and 29.9% for four days or longer. Most often, the training included basic info on HIV transmission, PMTCT, stigma and discrimination prevention, infection control, VCT and HIV treatment.

**General level of information of PMTCT and HIV**

Half of respondents (55.1%) assessed their level of PMTCT information as “partially informed” and a third (33.4%) as “very informed”. This result does not match the low level of actual PMTCT knowledge: only 25.6% had correct knowledge about basic PMTCT-delivery and 16.0% had correct knowledge of PMTCT-outpatient information.
The respondents felt their level of information was high regarding modes of HIV transmission (93.4%) and matched by a relatively high level of actual HIV-transmission integrated knowledge indicator (73.2%).

**Detailed knowledge of PMTCT**

*More than half health care workers overrate the HIV-MTCT rate* if no interventions are taken (52.3%), in case ARV prophylaxis is given (52.3%), or during breastfeeding (87.4%). In terms of knowledge about PMTCT outpatient care, only a little over half (59.9%) have correct knowledge about the recommended term to refer a pregnant HIV-positive woman to initiation of ARV prophylactic treatment and over half (58.9%) know the correct term for child follow up and HIV diagnostic exclusion.

**Intranatal care**

*Most maternity health workers knew the correct obstetrical management of an HIV-positive woman during delivery*, except for lower proportions in case of indications for C-sections. Also, in case of a woman with unknown status, most maternity health workers would know they need to perform a rapid HIV test.

*As for care provided to pregnant HIV-infected women who inject drugs, the clinical management is in contradiction to WHO recommendations.* The majority would counsel women to terminate pregnancy or to stop using drugs, contrary to the current WHO recommendation to refer in such cases to OST. Less than half would assess and treat abstinence syndrome in newborn.

**Feeding counseling**

*More than half of maternity health workers use correctly arguments for the advantages of formula feeding and feel very/ confident about feeding counseling* (62.4%), but rarely demonstrate themselves how to prepare formula correctly (28.0% demonstrate “always” or “oftentimes”).

**Referral to other health services**

*Maternity health workers refer to other services less than the outpatient health workers.* While the referral system works better within health care system, such as referrals to ID physician (60.8%), contraception counseling (57.5%) and ARV prophylactic treatment (49.5%), there are fewer referrals to services regarding drug use treatment (32.6%) or to services outside health system (32.1% for social services). **Referrals to services provided by NGOs are very rare**: 15.3% maternity health workers referred to social services provided by NGOs and 16.9% to Harm Reduction projects.

**Confidentiality**

*Less than half (42.6%) of maternity health providers admitted that they personally have disclosed the status of their HIV-positive patients,* usually to their colleagues, sometimes to the Center of Preventive Medicine or rarely to patient’s family members.

**Stigma and discrimination**

*Over half (55.7%) of respondents felt they had high level of knowledge about stigma and discrimination,* yet this knowledge did not translate in tolerant attitudes in either day-to-day life or at work. A **total percentage of 0.3% of maternity health workers had social accepting attitudes towards PLWH** and 1.4% had professional tolerant attitudes towards HIV-positive patients.
Besides the general stigma, there were attested some differential attitudes by mode of transmission, when HIV-positive patients perceived as victims (children born to HIV-positive mothers, faithful sexual partners infected by HIV-positive unfaithful partner) were regarded more positively by health workers, compared to HIV-positive clients blamed for their HIV status (IDUs, CSWs, unfaithful sex partners).

Asked about current practices regarding hospitalization for delivery of a pregnant HIV-infected woman, discriminatory practices were observed: around half of the Right Bank and the majority on Left Bank would put the woman in a separate ward, about a third on Right Bank and two thirds on left bank would perform all medical procedures separately, and few on Right bank but over third on Left Bank would even provide food separately. At the same about half of respondents on Right Bank stated no special measures would be taken.

**Perception of acquiring HIV at workplace**
The professional discrimination seems to be determined mostly by an overrated perception of risk to acquire HIV at workplace. More than half thought their risk of getting HIV at work was high (55.7%) or average (27.2%) and the majority (62.3%) of maternity health workers overrate the risk of getting HIV through needle stick injury. At the same time, their current practice is not always safe, less than a third (29.1%) having had a needle stick injury in the past 12 months. While most (90.3%) would know what to do after a needle stick injury, less than a half (41.0%) were aware that they could access PEP ARV regimen in their facility in case of a high-risk exposure.

**Infection control knowledge and practices**
A little over half of respondents knew that universal precautions meant treating all patients as potentially infected and most thought UP are mostly about proper biological sample disposal practices. The distribution of practices has shown that while nearly everyone wears white blouses (99.3%) and washes hands after each patient (98.6%), not everyone (87.5%) always uses universal precautions, only 69.0% always wear gloves, 70.7% always change gloves after each patient. At the same time, while most felt they had enough syringes (83.9%) or disinfectants (91.3%), less felt they had enough gloves (47.2%) or white blouses (42.7%).

This situation of not always observing the UP requirements leads to differential use of protection means towards HIV-infected patients, with most using additional protection measures in case of HIV-infected patients, 56.8% stating they always use additional precautions.

**Differences between specialized and district maternities on the Right Bank**
While the specialized level includes the three facilities in Chisinau and Balti that are designated as delivery centers for all pregnant HIV-positive women, there are no significant differences in knowledge, attitudes and practices between the two levels. In fact, all the integrated knowledge indicators (HIV transmission, PMTCT-delivery and PMTCT-outpatient) were reported to have statistically significant better results in district level health workers compared to specialized maternity health workers. The areas where specialized level maternity health medical staff had somewhat better results were the question regarding intranatal care and infant feeding options. Professional tolerant attitudes were also somewhat better in district health workers compared to specialized level.

At the same time, health workers felt in higher proportions at high risk for acquiring HIV at work, compared to district level, although health workers from specialized level had better correct knowledge about transmission risk through needle stick and about access to PEP ARV. Specialized maternity health workers also considered to have enough gloves in significantly less
proportion compared to district level workers. In addition, specialized maternity staff used additional protection more often compared to district maternity staff.

**Situation on the Left Bank**

More than half (62.8%) of maternity health providers on the Left Bank have provided care to more than six HIV-positive patients, which is significantly more than on the Right Bank. Lower proportions of respondents on the Left Bank have attended trainings for 1-3 days (31.8% LB vs 41.7% total) or 4 days or more (27.3% LB vs 29.9% total). They had worse perception about their level of knowledge in PMTCT and VCT and of normative and regulatory acts in the area of HIV/AIDS than on the Right Bank. **The actual knowledge, attitudes and practices are worse compared to their colleagues on the Right Bank.** Their integrated HIV knowledge indicator was significantly lower (67.8% LB vs total 73.2%), integrated delivery-PMTCT indicator was significantly lower (7.3% LB vs total 25.6%), and PMTCT-outpatient indicator was significantly lower (5.1% LB vs total 16.0%). Higher proportions compared to the Right Bank (39.6% LB vs 5.6% municipal, and 5.1% district maternity health workers) thought that although they do provide care to HIV-positive patients, it was not really their responsibility. In addition, lower level of knowledge and skills regarding feeding counseling was observed on the Left Bank. Maternity health workers referred fewer patients to services outside health system, compared to the Right Bank. Social and professional tolerant attitudes towards PLWH on the Left Bank were not significantly different than on the Right Bank.

Although 61.8% of health providers on Left Bank that received training said they have information regarding infection control, they had lower correct knowledge about UP than their colleagues on Right Bank. Also, they had lower knowledge about the correct risk of transmission through needle stick (5.1% LB vs total 21.6%) and less knowledge about what to do in a case of needle stick injury or PEP ARV regimen (23.7% would not know what to do, compared to total 4.9%). Health providers on Left Bank had less gloves (34.5% compared to total 47.2%), syringes (56.9% compared to 83.9%) and disinfectants (72.4% compared to 91.3%). They have stated in lower proportions to wear gloves (55.9% compared to total 69.0%) change gloves after each patient (59.3% compared to total 70.7%).

**HIV-negative women**

The sample of clients consisted of 419 women that gave birth and were in post-partum wards of maternities. Of them, 39.1% were sampled in the specialized maternities in Chisinau (Republican Mother and Child Center and Municipal Hospital no. 1) and Balti, 44.9% were in maternities of six districts on the Right Bank and 16.0% were from the city of Tiraspol and district maternities of Grigoriopol and Rybnitsa on the Left Bank.

**Pre-test information**

Most interviewed women in post-delivery period have heard about HIV, **but only 71.3% mentioned that medical staff has discussed with them about HIV.** Only a quarter of them (26.5%) have mentioned that discussion included information about modes of HIV transmission and only 2% have mentioned methods of HIV-prevention. **Most often the discussion was provided by family physician (43.6%) twice more often than the VCT counselor (25.6%) and sometimes OB/GYN specialist (18.8%).**

**HIV Testing and result notification**

Most women (93.5%) knew they have been tested for HIV during last pregnancy and the majority knew it was twice (65.8%). Usually, this was a provider-initiated testing (94.4%). **At the same time, only a half of the sample (49.8%) has discussed the test result with their**
physician and only 16.9% received it in a VCT Center. Almost a third (31.9%) have received the result on paper, without discussing it with anyone.

**Post-test counseling**

Of those that received the test result and discussed it with medical staff, most often this discussion was about methods of HIV prevention (38.2%), "partner notification and referral to testing" (27.2%), "reducing risk behaviors" (18.0%) and 12.4% of respondents mentioned that they were just notified they did not have HIV infection. The level of client satisfaction was high, with most feeling the counseling session was comfortable (90.5%), the counselor not feeling embarrassed (92.9%) and that s/he would maintain confidentiality (69.9%). At the same time, only three quarters (73.2%) felt they have received enough information, about two thirds (63.5%) have discussed about condom use and only every sixth (15.5%) have assessed their behaviors during counseling session.

**HIV knowledge stigma and discrimination**

The objective assessment of knowledge about HIV transmission and prevention has showed that less than half (38.9%) respondents have correct knowledge about HIV transmission and prevention, and social tolerant attitudes are very low at 1.9% of the total sample.

**Differences between facility types**

The study has shown that VCT is done better at district level, compared to municipal level (Chisinau and Balti) and that it is basically non-existent on the Left Bank. More women of district level have had a discussion with medical staff about HIV, more often were counseled by a VCT counselor before and after testing, more often have discussed of methods of HIV prevention and reducing risk behaviors during post-test counseling and had a better level of satisfaction about the session than women from specialized level. On the Left Bank, while the HIV testing result is usually given by the physician, it is usually not accompanied by pre- or post-test counseling or any discussion other than giving the actual result.

**HIV-positive women**

Face-to-face interviews with thirteen women from both banks, with children born in the past two years, have shown that mostly these women have low education and are unemployed, thus in a vulnerable situation. Asked about VCT, as is the case of HIV-negative women, they did not receive pre-test counseling and the post-test counseling was performed either by family physician or ID physician with minimal information besides the result notification.

Regarding contraception, very few received actual counseling and most of their information was received at RDVD rather than from OB/GYNs. The majority knew about condom use as the most advised method, and most thought they are easy to obtain, some would need partner counseling regarding condom use. Some women received inaccurate contraception advice, such as abstaining from sex. Pregnancies were wanted and planned for the majority, of note is that the majority learned about their HIV positive status during pregnancy.

The knowledge they have about PMTCT is sufficient for some, but others would like to know more. Very few received informational materials besides physician advice. In general, they knew that the most important measures are ARV prophylaxis for mother and baby and avoiding breastfeeding. Women have all received antenatal care, were timely referred to RDVD and received ARV prophylaxis starting with month 7. Besides health services, most have discussed with the NGO social worker located at RDVD, two women talked to other HIV-positive women and only one was in contact with NGO and received informational and financial support. Delivery was a different experience for each of the women. Four women had general good
feedback, but two had negative experiences. All women were isolated, and experiences differential treatment.

Infant feeding was not an issue for any of the women. **All women used formula feeding that was available immediately in the maternity and then from RDVD and did not feel any pressure from relatives to breastfeed.** Newborn follow up is performed by circumscription family physician in the same terms as for all newborns and mothers bring infants to RDVD for HIV testing and follow-up periodically, when they come after formula.
Recommendations

Legislative and regulatory level

- Revise and further develop national HIV legislation in order to remove several discriminatory provisions and aligning it with the universal human rights approach. To ensure its further implementation at the service level with relevant regulatory systems in place (namely, the law on HIV and the law on adoption).
- Incorporate comprehensive primary HIV/STI prevention component into PMTCT programme and address it in next national National AIDS Program.
- Develop a mechanism of referrals between medical, social care systems and public sector and NGOs that provide care and support to HIV positive mothers and their infants and reflect it in relevant normative documents.
- Revise the current PMTCT guidelines to include the latest WHO recommendations regarding exclusive replacement feeding and revise the clinical protocols for HIV diagnosis exclusion, since the Republic of Moldova has PCR testing that would allow exclusion of HIV status at 4-6 months.
- Introduce a system of human rights violation monitoring in the area of HIV/AIDS.

Leadership and coordination

- Strengthen leadership of coordination and oversight mechanism of the National PMTCT programme implementation (with both state budget and donor funds) by approving an organisational and management structure with clear distribution of functions and responsibilities among stakeholders.
- Develop a strategic plan of decentralization of PMTCT services, including laboratory monitoring of HIV-infection and HAART, for both pregnant women and children.
- Define organisational and managerial structure of the coordination mechanism in provision of psychosocial support at the national level, with clear roles and responsibilities among partners, including introducing licensing and accreditation of NGOs in provision of psychosocial support to PLHIV. Support effective and productive patients’ and beneficiaries involvement into planning, implementation and feedback provision systems.
- Prepare a hand-over plan of programmes financed currently by the Global Fund to MOH and other national structures, starting with needs assessment for all PMTCT components and related expenses (capacity building, system strengthening and needed technical assistance/support). Aiming at sustainability of PMTCT programme and other HIV related services, currently covered by Global Fund, there is a need to conduct a strategic planning of take-over of all services, assuring their continuation, sufficient coverage and uninterrupted provision.
- M&E system for PMTCT programme needs urgent revision, with inclusion of essential, internationally recognized indicators. This process should be also supported by improvement in a mechanism of coordination (clear distribution of roles and responsibilities for collection, analysis and reporting). Revise and approve unified M&E system, adding essential, internationally recognized indicators, including PMTCT cost effectiveness.
• Create a national plan of training/education of health care workers in HIV/PMTCT/VCT issues at various levels of services provision. Including:
  a. Review training curriculum and integrated training module on PMTCT and VCT, and infection control, emphasizing skills development and change of attitude.
  b. Integrate training activities into postgraduate (after-diploma) education system with accordance to Bologne’s standards.
  c. Include a session on counselling of discordant couples into PMTCT/FP training programmes.

• Approve PMTCT training programme, including VCT and supervision system, for the continuous education of health care system personnel. Introduce a system of quality control (QC) of training effectiveness.

• Conduct IEC campaigns on HIV/AIDS prevention, motivating general population to undertake VCT, with provision of further care and support. Develop key messages, taking into account gender and youth-sensitive approach. Utilize high quality IEC materials. In creating new IEC materials use common methodology of IEC materials development, i.e. conduct obligatory pre-testing of materials with target groups.

• Social vulnerability of PLWH should be accounted for in planning resources for social and economic needs and developing a more accessible model of care delivery. Geographical accessibility and affordability should be taken into consideration allowing PLWH living at district/locality levels not to undertake long-distance travelling.

Institutional level. Structure of service provision

• Based on the decentralization plan, build the institutional capacity of secondary level maternities to provide PMTCT services and rearrange strategically a system of outpatient care by infectious diseases doctors and the specialized assistance by RDVD (provision and monitoring of effectiveness of ART and OI treatment) by optimizing the flow of reporting and information exchange.

• Create a national, cross-sectoral comprehensive continuum-of-care system for HIV-positive and exposed children. Ensure universal access and higher quality of paediatric care and psychosocial support for HIV-exposed and positive children and their families.

• Include people outside health institution in the PMTCT working groups at medical institution level, such as social services, NGO representatives and PLWH, by establishing formal referral systems outside health services, by improving the quality of existing services available to women.

• Support integration of family planning component for HIV-positive young women into youth-friendly clinics.

• Create a system of uninterrupted provision of condoms for HIV-positive women according to determined needs at the primary level. Ensure access to condoms for HIV-positive and discordant couples at the primary health care level.
Service providers

- The current high level of stigma and discrimination among general population and health care workers demands implementation of destigmatisation and anti-discrimination activities among medical staff. Initiate activities (campaigns, education and advocacy actions, etc.) for developing tolerance towards HIV-affected children and their families.

- Ensure proper quality of VCT as a preventive tool at the level of service providers. Include a mandatory session on behaviour risk reduction - at working place and in training programmes – according to requirements of behaviour change approaches.

- Raise level of knowledge about STI and HIV co-infections among health care workers and patients, also about a fact that these infections potentiate each other.
Methods

Study goal
To evaluate current Prevention of Mother to Child Transmission (PMTCT) services in the Republic of Moldova

Study objectives
1. To evaluate the PMTCT system at national level, including PMTCT policies, quality, comprehensiveness of the national PMTCT program
2. To evaluate the quality of tertiary level PMTCT services provided to HIV-positive pregnant women and their babies
3. To assess the knowledge, attitudes and behaviors of health care workers at secondary and primary levels towards HIV-positive mothers and their babies
4. To assess the preparedness of secondary and primary levels to provide PMTCT services
5. To assess the level of client satisfaction with the provided PMTCT services (HIV-negative pregnant women)
6. To explore the level of client satisfaction in HIV-positive pregnant women and their babies
7. To evaluate the referral system between various services within health care, as well as linkages with other services (harm reduction, self-support groups, social assistance)

Target groups
1. Health care workers providing specialized intranatal services (Chisinau and Balti)
2. Health care providers at outpatient levels
3. Service users - HIV-negative women who have already delivered in the early postnatal period
4. Service users - HIV-positive women who have delivered in the past two years
5. Key decision-makers involved in PMTCT system at national and regional levels

Study characteristics
The survey is cross-sectional, questionnaire-based (structured questionnaires with open and close-ended questions and semi-structured interviews). The study consisted of the following components:
1. Survey of health care workers at maternity level in selected districts
2. Survey of health care workers at primary and secondary levels (primary health care physicians for antenatal and postnatal care and OB/GYN for PMTCT services during delivery) in selected districts
3. Survey of clients (women in their early postnatal period) in selected districts
4. Semi-structured interviews with HIV-positive women who delivered in the past two years
5. Survey of health facility managers ) in selected districts

Sampling strategy
Health care workers at specialized level
For assessment of PMTCT services at specialized intranatal care level care all the institutions that provide this care will be included:
1. Republican Mother and Child Center (RMCC)
2. Municipal Hospital no. 1 in Chisinau
3. Municipal Hospital in Balti

All health care workers (physicians and nurses) in these specialized departments will be interviewed.
Health care workers at primary and secondary health care levels
A sample of regions was determined based on expert consultations. The selected sample regions reflected different burden of HIV, and consequently different experience of health workers in implementation of PMTCT activities. The regions were selected to also reflect the geographic distribution, by including two districts per North, Center and South regions on the right bank of Dniester and Transnistrian region. The following districts were selected:

Table 1. Geographic sites included in the evaluation study

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<thead>
<tr>
<th>Region</th>
<th>District</th>
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<td>North</td>
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<td>Falesti</td>
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<td>Center</td>
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<td>Rybnitsa</td>
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In each district, the district hospital was included in the sample and physicians from delivery departments were interviewed. In addition, a sample of primary health care physicians from the rayon family medicine center and OB/GYNs from the women consultations affiliated to the rayon hospital were interviewed. The study has also included a sample of rural primary health workers from the villages in Falesti and Causeni districts.

Compared, to the right bank, in the Left Bank there are no specialized maternities for HIV-positive pregnant women, therefore the maternities from the city of Tiraspol and two rayons were included as secondary level of care.

Sample size
Sample size has been determined for both surveyed populations including medical workers and clients. The formula to determine sample size based on an expected outcome of interest.

Sample of medical workers
The sample size of medical workers has been determined based on the following:

- Estimated proportion of medical workers giving correct response to key knowledge of PMTCT indicators = 50%
- Desired confidence interval is 95%
- Desired margin of error 5%

The required sample size for each geographic region is **73 respondents per geographic region**

Clients
The HIV-negative pregnant women were sampled in the same districts included in the survey of health care workers at secondary and tertiary levels. The women were recruited in their early postnatal period while at the maternity.

Sample of clients
The sample size of clients has been determined based on the following:
- Estimated proportion of clients who have been counseled for HIV during the pregnancy = 50%
- Desired confidence interval is 95%
- Desired margin of error 5%

Using the above formula required sample size for each geographic region is **73 respondents per geographic region**

The HIV-positive positive women were not sampled because of their small overall number and confidentiality concerns. Therefore, 6 structured interviews were conducted with HIV+ women that have had a child in the past two years. They were selected from the women that come on an outpatient basis to RDVD.

**Key decision makers**
Standardized questionnaires were filled in by the managers of all the institutions included in the survey (8 district hospitals or Family Medicine Centers, National Mother and Child Center, Municipal Hospitals in Balti and Chisinau).

<table>
<thead>
<tr>
<th>Table 2. Summary Sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample</strong></td>
</tr>
<tr>
<td>Planned</td>
</tr>
<tr>
<td>Actual</td>
</tr>
</tbody>
</table>

**Data collection tools**
Questionnaires that have been developed by PMTCT experts for UNICEF study in Kazakhstan were used as a basis and adapted to the Republic of Moldova needs. The developed questionnaires were discussed and approved by the PMTCT working group. The interview guide for structured interviews for HIV+ pregnant women was developed specifically for this study.
**Detailed Results**

**PMTCT National data in the Republic of Moldova**

*Note on methods:* as part of the evaluation effort, an M&E team has collected information from all agencies responsible to some degree for monitoring certain indicators: the National AIDS Center, the Republican Dermato-Venerale Dispensary (responsible for clinical follow-up of all HIV patients, including pregnant women and their children) and National Center of Management in Health (responsible for data collected from all clinical institutions based on form 32B). Where statistics were not available, the M&E team has collected information directly from various institutions. Some population demographics were collected from the National Bureau of Statistics. The detailed list of indicators is presented in annex 1.

In year 2008, out of a total population of 3.57 mln, a total of 1.99 mln were women of reproductive age. An absolute number of 37,973 births (rate of 10.6 per 1,000 population) and 15,843 abortions (16.0 per 1,000 women of 15-49 years) were registered in year 2007.

**HIV situation:** the prevalence of HIV continues to rise in women accounting for 46.3% in year 2008 compared to 41.1% in year 2005 on the Right Bank and a drastic shift in transmission mode has occurred: heterosexual mode of transmission was responsible for 78.5% of new cases in year 2008, compared to 48.2% in year 2004, showing signs of feminization of the epidemic and creating premises for increased risk of perinatal HIV transmission. The HIV prevalence among pregnant women has doubled in the past four years from 0.08% in year 2004 to 0.16% in 2008.

**HIV testing and case detection:** A total of 51,122 women undertaken the first HIV test during the pregnancy in year 2008 and 78% of them (an absolute number of 38,180 women) of women received a second test, according to the data provided by the National AIDS Center (both banks of Dniester River). According to the data collected from all institutions in the Republic of Moldova (both banks of Dniester River), the numbers are different: some 99.7% of women (a total number of 36,857) who gave birth in year 2008 were tested for HIV at least once during pregnancy and 90.6% were tested twice. No data is collected by any agency regarding the number of rapid HIV tests performed on women at delivery. Of the reported pregnant women none was an active drug user and no data is available regarding pregnant HIV+ women with active TB.

The RDVD reports that they have consulted a total of 96 children born to HIV-positive women in 2007 and 107 children born in 2008.

**Antenatal care:** 60% of women received ARV prophylaxis starting with the weeks 24-28 in year 2007 and 52% in year 2008. Some 7.2% of pregnant women in 2007 and 0.9% in 2008 received ARV prophylaxis during delivery only, according to the RDVD. According to the estimations of the M&E team, some 18.1% of women in 2007 and 6.7% in 2008 did not receive antenatal prophylaxis before hospitalization for delivery.

**Intrapartum care:** according to the NCHM, 18% of women in 2007 and 16.7% in 2008 had a C-section, but it was not possible to disaggregate further if it was planned C-section or for obstetrical reasons. There were 3 still births in 2007 and 1 in 2008 and 15.5% of women in 2007 and 3.7% in 2008 received ARV prophylaxis only during delivery. According to M&E team estimations, 26 women in 2007 and 12 women in 2008 did not receive any ARV prophylaxis.
According to RDVD, some 14 children in 2007 and 2 children in 2008 received ARV prophylaxis after birth (the mother did not receive any ARV prophylaxis).

Children and MTCT transmission rate: A total of 96 children in 2007 and 107 in 2008 were registered at RDVD as been born to HIV-positive mothers. The RDVD has consulted and examined with PCR at 1-2 months and 3-6 months 100% children born to HIV+ mothers. Of them 8 (8.3%) were HIV+ in 2007 and 2 (1.7%) were HIV-positive in 2008 before 12 months. According to the estimations of the M&E team, another 17 children with ages between 12+ months and 15 years were registered HIV-positive in 2008 (born in different years).

Postnatal care of women: according to RDVD, 108 women in 2007 and 111 women in 2008 were examined for indications for ARV treatment. A total of 76.7% in 2007 and 70.0% in 2008 of those who needed ARV treatment got it. Two women who gave births died of AIDS in 2007 and none in 2008.

Data limitations
There are many gaps in national PMTCT statistics, including missing or incomplete data, including lack of some critical indicators, such as number of pregnant women who presented in the maternity services without prior HIV testing during pregnancy (how many received a rapid HIV test), number of HIV-infected pregnant women who had a planned caesarean section, number of neonates born to opioid dependent women; number of neonates who received NAS treatment, number of HIV+ children in children homes, number of HIV+ receiving social assistance from public funds or NGOs.

For some indicators the accuracy or completeness is questionable, oftentimes they lack a denominator or seems to be underreported (e.g. the number of pregnant women who are active IDUs, the number of abortions registered in HIV+ women). Oftentimes, the denominator includes only women and children that were under medical observation and it is not clear how many were lost to follow up. There is no single agency assigned to validate data. Therefore, a lot of data is at best an estimate rather than reliable data, therefore caution in interpretation is needed.

In some instances the same data is collected by several agencies (CNMH and AIDS Center for HIV testing and case-detection and CNMH and RDVD for number of births and children born to HIV+ mothers) and the numbers are significantly different, NCHM having lower numbers compared to the other two agencies. Again, there is no cross check of data performed on either ad-hoc or regular basis.
Institutional level
Managers from the district level health facilities, municipal hospital of Balti and Family Medicine Center Buiucani in Chisinau were asked to complete a standard questionnaire that assessed existence of policies and normative documents in the area of HIV in health institutions, institutional decision-making structures, capacity building activities and plans, monitoring and evaluation and current clinical activities in the area of PMTCT. Hospital managers from Balti, Causeni, Calarasi and Cahul and heads of Family Medicine Centers from Chisinau-Buiucani, Falesti, Soroca and Stefan Voda have filled in the questionnaire.

Policies and guidelines in PMTCT
All institutions have mentioned to have nearly all 13 documents listed in the questionnaire. Exceptions were two institutions that mentioned lacking the order regarding the Diagnostic and Treatment Assistance to HIV-infected and AIDS Patients and two institutions mentioned lacking the Instruction Regarding Lab Investigation of Blood Donors and People with higher Risk. A detailed summary report is presented in Annex 2.

Institutional Decision-Making Processes in the area of PMTCT
All institutions have mentioned to have an institutionalized working group on PMTCT. Usually this group includes the manager of health institution, ID Physician, OB/GYN, family physician, epidemiologist, VCT counselor, sometimes it includes other specialists as well. None of the working groups include any non-medical specialists outside institutions, such as NGO representatives, social services representatives or PLWH. The workgroup has decision-making power in four facilities and consultative role in the other four facilities. None of the facilities have mentioned to have separate budget for PMTCT and no additional financial resources. The facilities form Balti has mentioned that they have received additional resources for PMTCT activities form UNICEF and Chisinau mentioned the National Health Insurance Fund.

Capacity Building at Institutional Level
All managers have mentioned to have been trained in PMTCT. Six facilities (Soroca, Causeni, Cahul and Stefan Voda, Chisinau and Balti) mentioned they have started training for medical staff in PMTCT (Chisinau and Balti did not respond). Six facilities have plans to continue trainings (except Stefan Voda, who already trained staff, and Balti). Six facilities have mentioned to have local teams of trainers.

Monitoring and Evaluation
In 5 facilities the person responsible for data collection in PMTCT is the ID physician, head of maternity in 2 facilities and an OB/GYN specialist in one facility. All facilities report to National Center of Management in Health by using Form 32-B as the standard for data collection.

PMTCT practices and experiences
All the facilities participate to the four-component PMTCT program to some extent. Thus, all facilities provide VCT to all pregnant women, but the experience of providing care to pregnant HIV-positive women vary by site (Annex 1). When asked about the number of pregnant HIV-positive women that accessed care in the past six months, only health facilities from Balti and Falesti saw more than two cases, specifically 15 deliveries in Balti and 4 deliveries in Falesti. Most facilities have mentioned having rapid tests for women with unknown status that come directly to delivery without having accessed antenatal care. Even though the number of cases is low, several conclusions could be drawn from the indicators listed in Annex 1: most women receive antenatal care and are referred to RDVD for ARV prophylaxis (exception in Balti 2/15
and in Falesti 1/4 did not receive antenatal follow up and ARV). Children are born usually through vaginal delivery and they receive all ARV prophylaxis and exclusive formula feeding. No referrals to self-support groups have been made by facilities.

In conclusion, most facilities have already experience providing care to pregnant HIV-positive women to different extent. All facilities have increased preparedness to provide PMTCT services, by establishing working groups at institutional level, undergoing training and making plans for future trainings for medical staff. At the same time, there is opportunity for improving these actions, for example, by including people outside institution in the working group, such as social services, NGO representatives and PLWH, by establishing formal referral systems outside health services, by improving the quality of existing services available to women.
Outpatient Health Providers

General sample information
The sample of health care providers of outpatient care to pregnant women and their children consisted of a total sample of 495 respondents. Of them, a total of 428 were family physicians, nurses, midwives and consulting specialists (that work in Family Medicine Centers (FMC) in the cities of Chisinau and Balti, district centers ("centers of raions") and rural FMCs in the districts of Falesti and Causeni on the right bank of Nistru.

On the left bank of , there are no FMCs and the perinatal care to pregnant women and their children is provided by OB/GYNs and pediatricians working in policlincs and women consultations, therefore the sample included 67 health care workers from the policlincs of the city of Tiraspol, Rybnitsa and Grigoriopol towns. The geographic distribution is presented in Figure 1 below.

Figure 1. Geographic distribution of the outpatient providers

The distribution of the sample by location of the outpatient care facility is unevenly distributed between rural level at 40% (villages from Causeni and Falesti districts), district center level 29%, municipal level (Chisinau and Balti) 17% and the Left Bank of Nistru 14% (Figure 2). Further, data analysis is disaggregated by facility types: City, District, Rural and Left Bank (Transnistria).

Figure 2. Distribution of outpatient health providers by type of residence

The sample consisted of 6.3% male and 93.7% female respondents, without significant differences between comparison groups. The average age of outpatient health workers was 44.6 years (SD 10.9 years). The average number of years worked was 23.1 (SD 11.3 years), with health workers in municipal FMCs with the shortest average work experience (17.3 years, SD
10.9 years), district centers 21.4 years (SD 10.9 years), rural FMCs 26.6 years (SD 10.1 years) and on the Left Bank at 23.5 years (SD 12.8 years). A total of 15.4% of the respondents had some managerial responsibilities in addition to clinical responsibilities, with statistically significant differences between the Right Bank and the Left Bank, where 43.5% of health workers had additional managerial responsibilities (p<0.001). The breakdown by type of health care showed that most interviewed health workers were nurses (59.4%) and family physicians (26.3%), followed by midwives (6.1%), OB/GYN specialists (4.4%) and pediatricians (3.0%). A detailed distribution is presented in Figure 3.

Figure 3. Distribution of outpatient health providers by specialty

![Distribution of outpatient health providers by specialty](image)

Clinical experience with HIV-positive patients

A total of 40.6% of the sample have provided care to any HIV-positive patient, with statistically significant differences between by facility type (p<0.001), higher proportion of health workers from Left Bank providing care to HIV-infected patients (73.1%), compared to 65.15% in municipal MFCs, 30.0% district MFCs and 26.5% in rural MFCs on the Right Bank. The number of HIV-positive patients per health providers also varied significantly (p<0.001) between facility types, with health providers on Left Bank seeing more HIV-infected patients compared to Right Bank and health workers from the rural MFCs having the least experience with HIV-infected patients (Figure 4).

Figure 4. The number of HIV-infected patients to whom the outpatient provider has provided care

![The number of HIV-infected patients to whom the outpatient provider has provided care](image)

In addition, a total of 29.9% of the sample have provided care to HIV-positive pregnant women, with statistically significant differences by facility types (p<0.001): higher proportion of health
workers from Left Bank provided care to HIV-infected pregnant women (68.3%), compared to 39.5% in municipal FMCs, 24.6% district FMCs and 17.5% in rural FMCs on Right Bank.

Asked in which situations medical staff from outpatient care level saw HIV-infected pregnant women, most have mentioned "during antenatal and postnatal follow-up visits" and some during "pre- and post-test counseling" (especially district level). Some 25.4% from Left Bank said that providing care to HIV-infected women was not their responsibility (Figure 5).

Figure 5. Situations in which the outpatient health staff provides care to HIV-positive patients

<table>
<thead>
<tr>
<th>Situation</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is not in my responsibility</td>
<td>2.2%</td>
<td></td>
<td></td>
<td>25.4%</td>
</tr>
<tr>
<td>Other visits after delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antenatal follow-up</td>
<td></td>
<td>4.5%</td>
<td>24.6%</td>
<td></td>
</tr>
<tr>
<td>Post-test counseling</td>
<td></td>
<td>10.4%</td>
<td>66.0%</td>
<td></td>
</tr>
<tr>
<td>Pre-test counseling</td>
<td></td>
<td>4.5%</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>During delivery</td>
<td></td>
<td>4.5%</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>Visits for other purposes</td>
<td></td>
<td>6.5%</td>
<td>33.8%</td>
<td></td>
</tr>
</tbody>
</table>

Training in the areas of HIV and PMTCT

Some 45.5% of the total sample received training in the areas of HIV and PMTCT, with statistically significant differences between the sub-samples (p<0.001), with the following distribution: 50% of municipal level, 68.8% district level, 26.1% rural level and 44.8% on the left bank. A third (33.3%) attended trainings of less than one day, more than one third (37.8%) went to 1-3 day long trainings and less than one third (28.9%) attended trainings for four days or longer. Significant differences were registered between facility types (p<0.001), where the majority on the Left Bank attended longer trainings and the majority of district and rural health workers attended shorter trainings (Figure 6).

Figure 6. Length of training on HIV and PMTCT, outpatient health providers
Of the total number of respondents that have attended trainings (n=222), some 45.2% were satisfied or completely satisfied (40.7%) with the training, with only 14.1% being partially satisfied.

Respondents mentioned that information about HIV transmission and PMTCT was included most often in the curricula, the other topics about universal precautions and PEP, HIV testing and counseling and stigma and discrimination prevention being mentioned by around a third of respondents in all facility types and the other topics being mentioned in even smaller proportions (Table 3).

Table 3. Topics discussed during HIV and PMTCT trainings, outpatient health providers

<table>
<thead>
<tr>
<th>Topics</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTCT</td>
<td>60.5%</td>
<td>65.3%</td>
<td>41.5%</td>
<td>76.8%</td>
</tr>
<tr>
<td>HIV testing and counseling</td>
<td>37.2%</td>
<td>32.7%</td>
<td>18.9%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Universal precautions and post-exposure prophylaxis</td>
<td>23.3%</td>
<td>29.6%</td>
<td>26.4%</td>
<td>30.0%</td>
</tr>
<tr>
<td>HIV transmission modes</td>
<td>62.8%</td>
<td>80.6%</td>
<td>88.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>HIV policies and recommendations</td>
<td>20.9%</td>
<td>18.4%</td>
<td>15.1%</td>
<td>3.3%</td>
</tr>
<tr>
<td>HIV treatment</td>
<td>14.0%</td>
<td>37.8%</td>
<td>9.4%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Stigma and discrimination prevention</td>
<td>32.6%</td>
<td>24.5%</td>
<td>28.3%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Infection control</td>
<td>23.3%</td>
<td>36.7%</td>
<td>26.4%</td>
<td>56.7%</td>
</tr>
</tbody>
</table>

Self-perceived level of information regarding PMTCT

The majority (88.4%) of the sample considered themselves informed about PMTCT, of which a quarter (24.2%) thought they were very informed and 64.2% partially informed, with statistically significant differences between the facility types (p<0.001) (Table 4).

Table 4. Self-perceived level of information regarding PMTCT, outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very informed</td>
<td>20.9%</td>
<td>32.4%</td>
<td>14.5%</td>
<td>40.3%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Partially informed</td>
<td>68.6%</td>
<td>58.5%</td>
<td>72.0%</td>
<td>47.8%</td>
<td>64.2%</td>
</tr>
<tr>
<td>Poorly informed</td>
<td>10.5%</td>
<td>9.2%</td>
<td>13.5%</td>
<td>10.4%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Not at all</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Do not know</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.5%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

Asked about the level of information in different areas of HIV, respondents felt the highest level of information was regarding modes of HIV transmission (94.5%), followed by infection control (73.7%) and stigma and discrimination prevention (47.3%). The areas with lower level of information were pre- and post-test counseling (40.6%), HIV policies and guidelines (22.8%) and HIV treatment (7.3%). Significant differences between facility types were observed in the areas of HIV treatment, HIV policies and guidelines, pre- and post-test counseling and universal precautions (Figure 7).
Figure 7. Proportion of health workers who consider they know well the below listed topics, maternity health workers, outpatient health providers

Knowledge of normative and legislative documents in the area of HIV/AIDS

A list of main documents in the area of HIV/AIDS was read to respondents and they were asked to determine how well they know them. The majority stated they knew very well instructions regarding HIV PEP (75.3%) and infection control guidelines (66.7%), less than half thought they knew very well order on VCT (40.5%), PMTCT guidelines (38.3%), and less than a third stated knowing well HIV surveillance standards (29.3%), the order regarding formula feeding and ARV prophylaxis (26.7%), law on HIV/AIDS (23.4%) and national protocol for HIV care and treatment (15.8%). The differences between the groups were statistically significant (p<0.01 for all documents), with health providers from district level having better knowledge of the normative and regulatory documents, followed by city health providers, rural and the providers on the Left Bank having the lowest level of knowledge (Table 5).

Table 5. Proportion of outpatient health workers who know the following documents very well

<table>
<thead>
<tr>
<th>Document</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left Bank</th>
<th>Total</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law on HIV/AIDS</td>
<td>7.0%</td>
<td>24.6%</td>
<td>30.0%</td>
<td>22.4%</td>
<td>23.4%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>PMTCT guide</td>
<td>43.0%</td>
<td>38.0%</td>
<td>37.2%</td>
<td>35.8%</td>
<td>38.3%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>HIV surveillance standard</td>
<td>24.4%</td>
<td>31.0%</td>
<td>33.5%</td>
<td>19.4%</td>
<td>29.3%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Infection control guidelines</td>
<td>61.6%</td>
<td>75.4%</td>
<td>77.0%</td>
<td>23.9%</td>
<td>66.7%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Order on VCT</td>
<td>48.2%</td>
<td>54.9%</td>
<td>33.7%</td>
<td>20.0%</td>
<td>40.5%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>National protocol on HIV care and treatment</td>
<td>16.3%</td>
<td>18.3%</td>
<td>13.6%</td>
<td>16.4%</td>
<td>15.8%</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Order regarding formula feeding and ARV prophylaxis</td>
<td>31.4%</td>
<td>27.5%</td>
<td>18.1%</td>
<td>44.8%</td>
<td>26.7%</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Instructions regarding HIV PEP</td>
<td>74.4%</td>
<td>81.7%</td>
<td>70.9%</td>
<td>76.1%</td>
<td>75.3%</td>
<td>p=0.001</td>
</tr>
</tbody>
</table>

Basic HIV and PMTCT Knowledge

In order to provide objective assessment of the health care workers about HIV transmission and basic PMTCT indicators, two integrated indicators have been determined:
1. HIV transmission indicator is a composite indicator recommended by UNAIDS that includes correct answers to five questions in the nominator and the total number of people who answered the five questions as denominator:
   a. The risk of HIV transmission can be reduced by consistently using condom at each sexual encounter
   b. The risk of HIV transmission can be reduced by having sex with only one faithful uninfected partner
   c. A healthy looking person could be HIV-infected
   d. HIV cannot be transmitted by sharing food
   e. HIV cannot be transmitted through toilet seat

2. HIV basic PMTCT indicator has been designed by the survey consultant similarly to principles of integrated indicators recommended by UNAIDS and include correct answers to the following four questions in the nominator and the total number of people who answered the four questions as denominator:
   a. There are cases of HIV-MTCT in the Republic of Moldova
   b. The ARV prophylactic treatment is prescribed at week 24 of pregnancy in HIV-infected pregnant women, according to the national guidelines
   c. If a woman receives correctly prophylactic treatment during pregnancy and delivery, the risk of HIV – MTCT is reduced to less than 2%
   d. HIV diagnosis can be excluded in a child born to HIV-infected mother by the age of 19 months

The computation of the integrated indicators showed that while most respondents have correct knowledge about HIV transmission and protection methods against HIV (75.4%), the level of basic knowledge about outpatient-PMTCT is much more reduced, with a total number of 10.1% of the total sample having correct knowledge about PMTCT. There are statistically significant differences between facility types, with respondents from district level FMCs having better HIV (78.9%) and PMTCT knowledge (18.3%) compared to respondents from Left Bank for PMTCT knowledge (4.9%) and respondents from municipal FMCs regarding basic HIV knowledge (72.1%). (Table 6)

Table 6. Integrated HIV and PMTCT knowledge indicators, outpatient health workers

<table>
<thead>
<tr>
<th>Integrated HIV transmission knowledge indicator</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left Bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated outpatient-PMTCT indicator</td>
<td>72.1%</td>
<td>78.9%</td>
<td>74.0%</td>
<td>76.1%</td>
<td>75.4%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>5.8%</td>
<td>18.3%</td>
<td>7.6%</td>
<td>4.9%</td>
<td>10.1%</td>
<td>p=0.001</td>
</tr>
</tbody>
</table>

Knowledge of components of PMTCT program

A comprehensive PMTCT program includes the following components:
1. Primary prevention of HIV (i.e VCT for all women of reproductive age, IEC about HIV prevention)
2. Prevention of unwanted pregnancies (family planning services to HIV-positive women)
3. PMTCT (VCT for all pregnant women, decreasing viral load in HIV-infected women through ARV prophylaxis, safe delivery, safe feeding for newborn, such as formula feeding and avoiding mixed feeding)
4. Care and treatment to HIV-infected women, their babies and families (ARV treatment, palliative care, nutrition support, reproductive health, psycho-social support and STI management).

---

Very few respondents in the sample could name all the elements. The most often mentioned components were HIV testing and counseling for all pregnant women, referral to reproductive health services, prevention of unwanted pregnancies and medical follow-up of women and children, the least mentioned being ARV prophylaxis in mothers, formula feeding, postnatal follow-up of children and abortion counseling. (Figure 8). Of note is that 92.2% health workers on Left Bank mentioned HIV pre-test counseling to all women and post-test counseling to HIV-positive ones as a component, which is in conflict with the current recommendations.

Figure 8. Knowledge of the components of a comprehensive PMTCT program, outpatient health providers

<table>
<thead>
<tr>
<th>Component</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical follow-up of women and children at ID and family physician</td>
<td>7.8%</td>
<td>24.5%</td>
<td>0.0%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Postnatal follow-up of women and their newborn</td>
<td>5.0%</td>
<td>12.0%</td>
<td>4.1%</td>
<td>12.0%</td>
</tr>
<tr>
<td>Formula feeding of the newborn</td>
<td>1.1%</td>
<td>12.5%</td>
<td>19.7%</td>
<td>6.5%</td>
</tr>
<tr>
<td>ARV prophylaxis</td>
<td>12.7%</td>
<td>11.3%</td>
<td>1.5%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Referral to reproductive health centers for contraception counseling</td>
<td>17.6%</td>
<td>35.3%</td>
<td>31.4%</td>
<td>17.6%</td>
</tr>
<tr>
<td>Pre- and posttest counseling and HIV testing to all pregnant women</td>
<td>31.4%</td>
<td>31.4%</td>
<td>31.4%</td>
<td>31.4%</td>
</tr>
<tr>
<td>HIV testing to all pregnant women and counseling to HIV-positive women</td>
<td>4.0%</td>
<td>59.0%</td>
<td>48.6%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Counseling for abortions in HIV-infected women</td>
<td>6.5%</td>
<td>11.6%</td>
<td>14.1%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Prevention of unwanted pregnancies counseling</td>
<td>0.0%</td>
<td>12.0%</td>
<td>20.4%</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

Knowledge of HIV-MTCT rates

The level of knowledge about the HIV mother-to-child transmission (HIV-MTCT) rates in natural HIV evolution and the effectiveness of PMTCT measures were assessed first. The importance of this information is that a health worker should provide this in his discussion with an HIV-pregnant woman during pregnancy and contraception counseling and during her early visits in pregnancy, to help her understand what the risks are and the importance of timely PMTCT measures. The message should be that while the HIV-MTCT is quite high if nothing is done, the modern PMTCT measures (ARV during pregnancy and delivery and formula feeding) allow decreasing this risk to less than 2%.

Health workers were asked about awareness of HIV-MTCT cases in the Republic of Moldova. A total of 84.1% of the sample knew that such cases exist. A total of 12.5% know the correct transmission rate of HIV from mother to child in case no preventive measures are taken, which equals to 30-40%. The majority (67.7%) of health care workers overrate the HIV-MTCT rate, regardless of facility type (Figure 9).

Figure 9. Knowledge of HIV-MTCT risk in case no PMTCT interventions are performed, outpatient health providers
When asked about the HIV-MTCT rate if ARV prophylaxis is given, less than a half (44.5%) know the correct effectiveness of decreasing the transmission rate to less than 2%, with significant differences (p<0.001) between municipal FMCs and the lowest knowledge being registered among health workers from the Left Bank (Figure 10).

Figure 10. Knowledge of HIV-MTCT rate immediately after birth if ARV prophylaxis is given before and during birth, subsample of outpatient health providers

Another important basic piece of information is the term when a primary health care worker needs to refer HIV-infected pregnant women to initiation of prophylactic ARV treatment. Only a half of the sample (51.4%) knew the correct term of 24 weeks of pregnancy, with significant differences between facility types (p<0.000) (Table 7).

Table 7. Knowledge of the term of ARV initiation, outpatient health workers

<table>
<thead>
<tr>
<th>Term of ARV initiation</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 weeks</td>
<td>37.2%</td>
<td>74.6%</td>
<td>44.7%</td>
<td>40.3%</td>
<td>51.4%</td>
</tr>
<tr>
<td>28 weeks</td>
<td>26.7%</td>
<td>12.7%</td>
<td>8.0%</td>
<td>10.4%</td>
<td>13.0%</td>
</tr>
<tr>
<td>32 weeks</td>
<td>11.6%</td>
<td>4.9%</td>
<td>10.6%</td>
<td>1.5%</td>
<td>7.9%</td>
</tr>
<tr>
<td>36 weeks</td>
<td>3.5%</td>
<td>2.8%</td>
<td>1.5%</td>
<td>1.5%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Do not know</td>
<td>20.9%</td>
<td>4.9%</td>
<td>35.2%</td>
<td>46.3%</td>
<td>25.5%</td>
</tr>
</tbody>
</table>

Follow-up of children born to HIV-infected mothers

Most (98-99%) of the children born to HIV-infected mothers will be HIV-negative. At the same time, studies have shown that the delay in excluding HIV-diagnosis in children poses significant stress on mothers and health providers and is associated with additional stigma and discrimination towards the child. Even though in the Republic of Moldova PCR testing of all children at the age of 6 and 12 weeks could allow excluding the diagnosis at the age of 4-6 months, the current recommendation by the national protocol is to exclude the HIV diagnosis at the age of 19 months. When discussing with an HIV-infected woman, it is important for the health worker to set some expectations regarding the duration and the conditions of child follow up. The outpatient health workers were asked about the term when HIV is excluded and only
43.7% knew that HIV diagnosis can be excluded by the age of 19 months, with significant differences between the facility types (p<0.001) (Table 8).

<table>
<thead>
<tr>
<th>Facility</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>DK (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>38.4%</td>
<td>53.5%</td>
<td>8.1%</td>
</tr>
<tr>
<td>District</td>
<td>56.3%</td>
<td>40.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Rural</td>
<td>33.7%</td>
<td>55.8%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Left bank</td>
<td>53.7%</td>
<td>35.8%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Total</td>
<td>43.7%</td>
<td>48.4%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

### Table 8. The HIV status can be excluded at the age of 19 months of the child? Outpatient health workers

#### BCG vaccination in children born to HIV-infected mothers

According to the WHO clinical protocols 2006, in TB high-incidence countries, BCG vaccination should be administered to all newborn to HIV-infected mothers\(^{21}\). Primary care health workers have been asked about BCG vaccination and 66.4% of them consider that children should receive BCG vaccination, with significant differences between facility types (p=0.01) (Table 9).

<table>
<thead>
<tr>
<th>Facility</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>DK (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>64.0%</td>
<td>27.9%</td>
<td>8.1%</td>
</tr>
<tr>
<td>District</td>
<td>78.4%</td>
<td>19.4%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Rural</td>
<td>61.8%</td>
<td>28.1%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Left bank</td>
<td>58.2%</td>
<td>28.4%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Total</td>
<td>66.4%</td>
<td>25.7%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

### Table 9. Children born to HIV-infected mothers receive BCG vaccination if they do not have AIDS symptoms? Outpatient health workers

#### Newborn feeding counseling

Studies show that transmission rate during breastfeeding is at an average of 5-15%. This is basic information that health workers that provide feeding counseling should convey to their clients. Only 6.9% of the sample know the correct transmission rate, the majority of health workers overrating the risk and a total 20.6% considering that breastfeeding always (100%) leads to HIV transmission. The differences by facility types are statistically significant (p<0.001), with rural and Left Bank respondents having the lowest correct knowledge about MTCT in case of breastfeeding (Table 10).

<table>
<thead>
<tr>
<th>Transmission rate</th>
<th>City (%)</th>
<th>District (%)</th>
<th>Rural (%)</th>
<th>Left bank (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15%</td>
<td>10.5%</td>
<td>9.9%</td>
<td>4.0%</td>
<td>4.5%</td>
<td>6.9%</td>
</tr>
<tr>
<td>20-30%</td>
<td>15.1%</td>
<td>7.7%</td>
<td>4.0%</td>
<td>7.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>30-40%</td>
<td>16.3%</td>
<td>6.3%</td>
<td>4.0%</td>
<td>6.0%</td>
<td>7.1%</td>
</tr>
<tr>
<td>50-60%</td>
<td>12.8%</td>
<td>15.5%</td>
<td>8.0%</td>
<td>4.5%</td>
<td>10.5%</td>
</tr>
<tr>
<td>70-80%</td>
<td>19.8%</td>
<td>21.8%</td>
<td>18.5%</td>
<td>25.4%</td>
<td>20.6%</td>
</tr>
<tr>
<td>100%</td>
<td>23.3%</td>
<td>38.0%</td>
<td>56.5%</td>
<td>47.8%</td>
<td>44.2%</td>
</tr>
<tr>
<td>Do not know</td>
<td>2.3%</td>
<td>0.7%</td>
<td>5.0%</td>
<td>4.5%</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

Another question assessed knowledge if women that did not have an established HIV status at delivery should be advised formula feeding. The majority (61.2%) of health workers thought this was true, although significant variations (p<0.01) were registered between facility types (Table 11).

\(^{21}\) WHO Regional Office for Europe, 2006. HIV/AIDS Treatment and Care Clinical Protocols for the WHO European Region. Chapter 12, p. 380.
Table 11. Is it recommended to advise formula feeding to all women with unknown HIV status? Outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>76.7%</td>
<td>23.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>District</td>
<td>45.8%</td>
<td>54.2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Rural</td>
<td>65.5%</td>
<td>33.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Left bank</td>
<td>61.2%</td>
<td>32.8%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Total</td>
<td>61.2%</td>
<td>37.4%</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

When respondents were asked what arguments they use when discussing with an HIV-infected woman regarding feeding options, most have mentioned that this is the only method to decrease HIV transmission and that it is distributed free of charge for the first year, around a quarter, depending on facility types (except Left Bank), but most also use correctly the arguments that family members can also feed the child (Figure 11). The other incorrect statements (risk of diarrhea is high, formula can always be bought, and that formula has all the nutrients and antibodies) received much smaller percentages, showing a good knowledge of advantages and disadvantages of various feeding options. Of note is the difference in responses between Left Bank and Right Bank, health workers form the Left Bank using mostly just the main two arguments of being the only way to decrease transmission and that it is distributed free of charge.

Figure 11. Arguments used about advantages and disadvantages of formula feeding in HIV-infected mothers during feeding counseling, outpatient health providers

The majority (71.1%) of health workers feel confident (37.8%) of very confident (33.3%) regarding newborn feeding counseling, with only 5.1% stating that they do not know how to do it, with significant differences between facility types (p<0.001) (Table 12).

Table 12. Confidence regarding feeding counseling, outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| The majority (71.1%) of health workers feel confident (37.8%) of very confident (33.3%) regarding newborn feeding counseling, with only 5.1% stating that they do not know how to do it, with significant differences between facility types (p<0.001) (Table 12).
I do not now how to do it | 5.8% | 4.2% | 0.5% | 19.4% | 5.1%
Fairly confident | 19.8% | 18.3% | 26.0% | 34.3% | 23.8%
Confident | 53.5% | 37.3% | 35.0% | 26.9% | 37.8%
Very confident | 20.9% | 40.1% | 38.5% | 19.4% | 33.3%

Although the level of confidence is high, of those health workers that have provided care to HIV-infected pregnant women (n=147), almost half (43.3%) have never demonstrated how to prepare correctly formula (Figure 12). This shows that formula preparation demonstration is not a current practice as part of feeding counseling and feeding counseling is discussion-based.

Figure 12. Frequency of demonstration how to prepare correctly formula, outpatient health providers

Referral to other health services and to services provided by social services and NGOs

The results of a survey conducted in 2008 has shown that PLWH in the Republic of Moldova are of lower socio-economic status than the general population and families with children are in even more vulnerable situations. Therefore, in order to help HIV-pregnant women access services that increase their compliance with the PMTCT measures, a well-established referral network is needed across various health services and outside health system referral networks with NGOs providing services to vulnerable populations, as well as social services. The results of this survey show that while the referrals are well-established between primary and specialized services (90.1% referred to ID physician and 79.5% to ARV prophylactic treatment), referral to support services for drug use (drug treatment 18.7%) is least common, and referral to social services is limited (33.3%). Referral to NGO services is very rare, 15.2% having had the experience to provide to social services provided by NGOs and 6.0% to Harm Reduction services. Of note is that in 8 out of 11 locations there are NGOs providing Harm Reduction services (Figure 13).

Figure 13. Services to which outpatient health providers personally have referred HIV-positive patients

Breach of Confidentiality

Respondents were asked how often medical workers maintain confidentiality regarding patient's HIV status and almost half (49.1%) this always happened, with statistically significant differences by facility types (p<0.001) (Table 13).

Table 13. How often do health workers ensure confidentiality? Outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>26.7%</td>
<td>60.6%</td>
<td>46.5%</td>
<td>61.2%</td>
<td>49.1%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>55.8%</td>
<td>36.6%</td>
<td>48.0%</td>
<td>23.9%</td>
<td>42.8%</td>
</tr>
<tr>
<td>Never</td>
<td>11.6%</td>
<td>2.8%</td>
<td>3.5%</td>
<td>1.5%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Do not know</td>
<td>5.8%</td>
<td>0.0%</td>
<td>2.0%</td>
<td>13.4%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Of the total number of health workers that have provided care to HIV-infected patients (n=200), some 42.6% of respondents have admitted disclosing their HIV-infected patient status to anyone, without statistically significant differences by facility types. (Figure 14)

Figure 14. Proportion of outpatient health providers who have disclosed patient's HIV-positive status to anyone

Of those that disclosed HIV status of their patient (n=86), most often this was to colleagues (over 90%), to Center of Preventive Medicine (around 40% in city and district level health workers)
and sometimes to patient's family members (5.3% district level, 13.3% rural level and 8.3% Left Bank health workers) (*Table 14*).

**Table 14. People to whom outpatient health workers usually disclosed their HIV-positive patient status**

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colleagues</td>
<td>92.9%</td>
<td>94.7%</td>
<td>93.3%</td>
<td>95.8%</td>
</tr>
<tr>
<td>Center of Preventive Medicine</td>
<td>39.3%</td>
<td>36.8%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Family members of patient</td>
<td>0.0%</td>
<td>5.3%</td>
<td>13.3%</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

**Stigma and discrimination**

Two integrated indicators related to stigma have been determined:

3. HIV social tolerant attitudes indicator is a composite indicator recommended by UNAIDS that includes positive answers to four questions in the nominator and the total number of people who answered the four questions as denominator:
   a. Would take care of a family member with AIDS
   b. Would you buy food from an HIV-infected vendor
   c. If a teacher is HIV-infected, he should be allowed to continue working in school
   d. If a family member had HIV, the respondent would not keep it secret

4. HIV professional tolerant attitudes indicator has been designed by the survey consultant similarly to principles of integrated indicators recommended by UNAIDS and include correct answers to the following four questions in the nominator and the total number of people who answered the four questions as denominator:
   a. Would provide invasive medical procedures (i.e injections) to HIV-infected patients
   b. Would provide medical assistance in delivering a baby to an HIV-infected woman
   c. HIV-infected patients should not disclose their status to health workers
   d. HIV-infected patients should not be provided care separately form other patients

The results have shown that social tolerant attitudes are lower than professional tolerant attitudes. While the social tolerant attitude indicator is 1.4% in the total outpatient sample, with no significant differences by facility type, the professional tolerant attitudes vary between 4.7% in municipal level health workers and 11.5% in rural health workers, but not statistically significantly (p>0.05) (*Table 15*). No significant differences were noticed by gender or specialty type of physicians.

**Table 15. Integrated tolerant attitudes indicators, outpatient health workers**

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social accepting attitude indicator</td>
<td>1.2%</td>
<td>1.4%</td>
<td>1.5%</td>
<td>1.5%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Professional accepting attitude indicator</td>
<td>4.7%</td>
<td>4.9%</td>
<td>11.5%</td>
<td>7.5%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

The low level of tolerant attitudes cannot be explained by the level of correct knowledge of HIV transmission and methods of protection, which previously in this report was reported to be high, therefore additional factors were examined, such as social attitudes to various modes of HIV transmission, knowledge about infection control at workplace and knowledge about HIV Post Exposure Prophylaxis (PEP).

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Discrimination by HIV mode of transmission

Stigma associated to HIV is partly determined by taboo behaviors related to high-risk sex and drugs that lead to HIV transmission. In most societies, there is a social condemnation of such behaviors as illegal drug use, commercial sex, sex outside marriage. Therefore, the transmission mode could determine different attitudes of society towards PLWH through this prism. Health workers are not an exception and oftentimes, their professional tolerant attitude varies in the same way as that of general population.

Neutral attitudes are those that determine proper professional conduct. The assessment of the attitudes depending on transmission mode has shown that most health workers had either positive or negative feelings towards various categories of PLWH and less than half respondents held neutral attitude towards patients with HIV transmission through commercial sex (30.7%), injecting drug use (29.4%), or sex outside marriage (47.5%) or for children infected vertically (16.6%) and faithful sexual partners of unfaithful-HIV-infected partners (30.3%) (Figure 15).

Figure 15. Proportion of outpatient health providers who have a neutral attitude to PLWH depending on the mode of HIV transmission

At the same time, the phenomenon of social condemnation by health workers was clearly observed: most workers (80.2%) had positive attitudes towards children born to HIV-infected mothers and faithful permanent partners that got HIV from an unfaithful HIV-positive partner (63.8%), the "innocent victims". The other transmission modes had a clear negative connotation (negative attitudes towards those infected through sex outside marriage (42.8%), for injecting drug use (64.2%) and for commercial sex (65.4%)), - "they did it to themselves". Thus, clearly, a human aspect is involved in the low professional tolerant attitude.

Self-perceived risk of HIV transmission at workplace

Low tolerant attitudes might be caused by a perceived high-risk of acquiring HIV from patient during medical procedures. The results of assessment of self-perceived risk are quite controversial. When asked to determine how protected are health workers from acquiring HIV at workplace, the majority (78.6%) of respondents felt staff is well protected, with significant differences by facility types, the highest protection level (88.7%) being perceived by district health workers and the lowest (47.8%) by Left Bank health workers (p<0.001) (Table 16).
Table 16. Perception about the level of protection of medical staff from acquiring HIV at workplace, outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level</td>
<td>73.3%</td>
<td>88.7%</td>
<td>84.0%</td>
<td>47.8%</td>
<td>78.6%</td>
</tr>
<tr>
<td>Low level</td>
<td>25.6%</td>
<td>11.3%</td>
<td>15.0%</td>
<td>38.8%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Not protected</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.0%</td>
<td>11.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>DK</td>
<td>1.2%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.5%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

At the same time, when the respondents were asked to assess their own risk of acquiring HIV at workplace, quite high proportion of respondents felt their risk was high (24.6%) or average (37%). Significant differences were observed between facility types, (p<0.001) with the highest (55.8%) proportion of municipal health workers and the lowest (21.0%) proportion of rural health workers feeling at low risk (Figure 16). This finding is in contradiction with the results regarding the perceived level of protection.

Figure 16. Level of risk perception of acquiring HIV at workplace, outpatient health providers

Questions regarding the risk of HIV transmission rate through needle stick injury were asked next. The finding was that less than a quarter of respondents (21.2%) knew the correct risk of HIV transmission through needle stick, which is 0.3%. The majority (68.6%) overrated this risk to 10% or more. There were significant differences between the groups, the respondents from Left Bank knowing the least (9.0%) the correct risk of transmission and considering most (61.2%) the risk higher than 50% (p=0.004) (Table 17).

Table 17. Risk of HIV transmission through needle stick, outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0.3%</td>
<td>24.4%</td>
<td>16.2%</td>
<td>27.5%</td>
<td>9.0%</td>
<td>21.2%</td>
</tr>
<tr>
<td>1%</td>
<td>8.1%</td>
<td>10.6%</td>
<td>11.0%</td>
<td>6.0%</td>
<td>9.7%</td>
</tr>
<tr>
<td>10%</td>
<td>20.9%</td>
<td>15.5%</td>
<td>15.0%</td>
<td>13.4%</td>
<td>16.0%</td>
</tr>
<tr>
<td>30%</td>
<td>16.3%</td>
<td>19.0%</td>
<td>15.0%</td>
<td>9.0%</td>
<td>15.6%</td>
</tr>
<tr>
<td>more than 50%</td>
<td>29.1%</td>
<td>38.7%</td>
<td>31.0%</td>
<td>61.2%</td>
<td>37.0%</td>
</tr>
<tr>
<td>DK</td>
<td>1.2%</td>
<td>0.0%</td>
<td>0.5%</td>
<td>1.5%</td>
<td>60.0%</td>
</tr>
</tbody>
</table>

Lack of correct knowledge and overrating the risk about might explain the high level of self-perceived risk of acquiring HIV, especially, since most respondents (95.6%) perform invasive procedures in their practice, such as injections, and a quarter of respondents (25.2%) has admitted that they had needle stick injury in the past 12 months. A striking finding was that 1.7% admitted using a syringe more than once (Table 18).
Table 18. Experience with needle stick injuries, outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs injections</td>
<td>94.2%</td>
<td>95.1%</td>
<td>99.0%</td>
<td>88.1%</td>
<td>95.6%</td>
<td>0.002</td>
</tr>
<tr>
<td>Has experienced needle stick</td>
<td>33.3%</td>
<td>13.3%</td>
<td>31.3%</td>
<td>20.3%</td>
<td>25.2%</td>
<td>0.001</td>
</tr>
<tr>
<td>injury in the past 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has used a syringe more than</td>
<td>1.2%</td>
<td>0.7%</td>
<td>2.0%</td>
<td>3.4%</td>
<td>1.7%</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>once in the past 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Protection and Infection control supplies
Infection control supplies are also an important factor in ensuring proper infection control measures and decreasing the perception of being at risk for HIV-infection transmission. The results show that a total of 75.4% thought they had enough gloves, 43.6% enough white blouses, 89.3% enough syringes, 92.1% enough disinfectants in their facilities, with statistically significant differences by facility types (p<0.001). As for supply with formula feeding for HIV-infected mothers, only 30.2% thought there were enough supply in their facility (Table 19).

Table 19. Proportion of outpatient health workers who feel they have enough infection control supplies

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have enough gloves in</td>
<td>75.6%</td>
<td>91.5%</td>
<td>75.5%</td>
<td>40.3%</td>
<td>75.4%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>your institution?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have enough white</td>
<td>29.1%</td>
<td>73.2%</td>
<td>29.0%</td>
<td>43.3%</td>
<td>43.6%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>blouses in your institution?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have enough syringes in</td>
<td>97.7%</td>
<td>97.2%</td>
<td>94.5%</td>
<td>46.3%</td>
<td>89.3%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>your institution?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have enough disinfectants?</td>
<td>96.5%</td>
<td>99.3%</td>
<td>97.0%</td>
<td>56.7%</td>
<td>92.1%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Do you have enough formula in</td>
<td>27.9%</td>
<td>52.8%</td>
<td>18.0%</td>
<td>21.2%</td>
<td>30.2%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>your institution?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Knowledge and practice of universal precautions
Respondents thought universal precautions (UP) related more to proper disposal practices (95.5% rural, 91.9% municipal, 91.4% district and 47.7% Left Bank health workers) than treating all patients and all biological samples as potentially infected (Figure 17). Of note is that health workers on Left Bank had the lowest level of knowledge about UP.

Figure 17. Knowledge of universal precautions, outpatient health providers
The distribution of practices has shown that while nearly everyone wears white blouses (99.8%) and washes hands after each patient (95.4%), a quarter (24.7%) do not always use universal precautions, only 50.5% wear gloves, 42.8% change gloves after each patient, while 80.4% wear gloves when disposing biological materials. Significant variation was observed regarding the practice of putting the cap back on a used syringe. The current recommendation is to dispose the syringe without putting the cap back because of high risk of injuries by needle stick, yet 62.7% medical staff on Left Bank, 46.5% municipal, 29.6% district and 22.0% rural health workers still use this practice. (Table 20)

Table 20. Infection control practices, outpatient health workers

<table>
<thead>
<tr>
<th>Always…</th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use universal precautions</td>
<td>69.4%</td>
<td>82.4%</td>
<td>70.0%</td>
<td>83.6%</td>
<td>75.3%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Wear white blouse</td>
<td>100.0%</td>
<td>100.0%</td>
<td>99.5%</td>
<td>100.0%</td>
<td>99.8%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Wear gloves</td>
<td>32.6%</td>
<td>45.1%</td>
<td>55.0%</td>
<td>71.6%</td>
<td>50.5%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Change gloves after each patient</td>
<td>30.2%</td>
<td>38.7%</td>
<td>44.0%</td>
<td>64.2%</td>
<td>42.8%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Wash hands after each patient</td>
<td>94.2%</td>
<td>96.5%</td>
<td>94.0%</td>
<td>98.5%</td>
<td>95.4%</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Put bandaid on hand injuries</td>
<td>83.7%</td>
<td>90.1%</td>
<td>70.0%</td>
<td>80.6%</td>
<td>79.6%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Put the cap back on a used syringe</td>
<td>46.5%</td>
<td>29.6%</td>
<td>22.0%</td>
<td>62.7%</td>
<td>33.9%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Wear gloves when disposing biological materials</td>
<td>74.4%</td>
<td>83.1%</td>
<td>78.5%</td>
<td>87.9%</td>
<td>80.4%</td>
<td>p&lt;0.01</td>
</tr>
</tbody>
</table>

Knowledge of Post-Exposure Prophylaxis

The new national HIV guidelines have taken into account the WHO recommendations about PEP and recommend to let the wound bleed, wash under running water, not to use strong disinfectants, put a new bandage and new gloves. At the same time, the current Infection Control Guidelines recommends to use strong disinfectants. This variation has translated into variations in responses regarding PEP after needle stick injury. Some 60.8% of respondents would use disinfectants and 34.5% would not use. Insignificant numbers would do nothing (0.4%) or would no know what to do (2.6%). Of note is statistically significant difference (p<0.001) between groups, especially for Left Bank health workers, of which 19.4% would not know what to do (Table 21).

Table 21. If you would have a needle stick, what would you do? Outpatient health providers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
<td>0.0%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>0.0%</td>
<td>0.40%</td>
<td></td>
</tr>
<tr>
<td>I would put a bandaid on the injury and change gloves</td>
<td>4.7%</td>
<td>2.1%</td>
<td>0.5%</td>
<td>0.0%</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>I would wash, put disinfectant, put a water-resistant bandage and new gloves</td>
<td>68.6%</td>
<td>56.3%</td>
<td>68.0%</td>
<td>38.8%</td>
<td>60.8%</td>
<td></td>
</tr>
<tr>
<td>I would let it bleed, wash under running water, put a bandage, new gloves</td>
<td>26.7%</td>
<td>40.8%</td>
<td>31.0%</td>
<td>41.8%</td>
<td>34.5%</td>
<td></td>
</tr>
<tr>
<td>DK</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>19.4%</td>
<td>2.6%</td>
<td></td>
</tr>
</tbody>
</table>

Two thirds (67.3%) of respondents knew the correct time to start PEP ARV prophylactic treatment of 2-72 hours after a high-risk exposure, with significant differences (p<0.001) between facility types (Table 22).

Table 22. Knowledge of the optimal time to start ARV PEP, outpatient health workers

<table>
<thead>
<tr>
<th></th>
<th>City</th>
<th>District</th>
<th>Rural</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 2-72 hours</td>
<td>64.7%</td>
<td>83.1%</td>
<td>62.5%</td>
<td>51.5%</td>
<td>67.3%</td>
</tr>
<tr>
<td>First 24-96 hours</td>
<td>11.8%</td>
<td>4.2%</td>
<td>10.0%</td>
<td>0.0%</td>
<td>7.3%</td>
</tr>
<tr>
<td>First week</td>
<td>2.4%</td>
<td>2.8%</td>
<td>3.5%</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>First month</td>
<td>11.8%</td>
<td>7.7%</td>
<td>4.5%</td>
<td>9.1%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Do not know</td>
<td>9.4%</td>
<td>2.1%</td>
<td>19.5%</td>
<td>36.4%</td>
<td>15.0%</td>
</tr>
</tbody>
</table>

At the same time, when they were asked if they have access to PEP ARV in their facility, only 28.1% thought they did, with significant differences by facility type (p<0.001) (Figure 18).

Figure 18. Knowledge about access to PEP ARV in the facility, outpatient health providers

Differential use of protection means

Lack of knowledge about treating all patients and blood samples as potentially infected leads to differential attitude depending on HIV status. The practice of differential use of protection indicates a lack of awareness about sero-negative window of HIV-infection, when the patient tests negative and is highly infectious. Respondents that have provided care to HIV-positive patients (n=200) have been asked how often they have used additional protection measures. Only 17.8% of the subsample never used any additional measures (42.9% on Left Bank), all the rest uses additional measures to different extent (Figure 19).
Conclusions

1. Almost a third of outpatient health providers have already provided care to pregnant HIV-positive women, yet less than half having received any training in HIV or PMTCT. Lack of training explains to some extent the low level of PMTCT basic knowledge. Outpatient health providers lack correct basic knowledge, e.g. at what term they need to refer pregnant women to ARV prophylactic treatment or at what age the HIV diagnosis is excluded in children born to HIV-infected mothers.

2. The primary health providers overrate the risks associated to HIV-MTCT in both situations when no interventions are done, as well as the effectiveness of PMTCT interventions. These shortcomings lead to providing incorrect information to pregnant HIV-infected women, therefore might cause incorrect clinical decisions and distrust of patients in their health providers.

3. Feeding counseling is one of the few areas where health providers have good knowledge and skills, where most identify correctly the advantages of formula feeding and feel confident about feeding counseling. Yet, demonstration of formula preparation is not part of the feeding counseling.

4. Referrals work well from primary to specialized care, but are not customary in the case of drug treatment services or social services, and occur rarely in case of services provided by NGOs.

5. Very few outpatient health workers know about the timeline of exclusion of HIV status in children exposed to HIV.

6. Almost half of outpatient health care workers admitted they have broken patient confidentiality, usually by telling to colleagues. While this practice might be determined by the desire to protect staff from a perceived high risk of getting HIV, it is obviously not a good practice and medical personnel should rely on universal precautions instead.

7. While the knowledge about modes of HIV transmission is good in primary health care workers, this did not lead to better professional or social attitude towards PLWH. In fact, widespread stigma characterizes the health care system at both primary and specialized levels. The discrepancy between good knowledge and bad attitudes need to be explained by factors other than knowledge. Some stigma is explained by overrating the professional risk of acquiring HIV at work and some by emotions beyond knowledge, e.g. differential attitudes towards PLWH based on transmission mode, based on moral judgments.

8. The outpatient health workers have an overrated perceived risk of acquiring HIV at work and incorrect knowledge about actual risk of HIV transmission through needle stick injury. In addition, they lack sufficient knowledge about PEP procedures and further
management, including access to ARV drugs. At the same time, they have a high prevalence of needle stick injuries that might explain the general fear of getting HIV.

9. There are singular cases of repeated syringe use by health providers on both banks of Nistru, which is very concerning in times of the current infection control recommendations and universal access to single use syringes.

10. Outpatient health workers have poor knowledge about universal precautions and the fact that they should treat all patients as potentially infected. This leads to differential treatment of HIV-positive patient and use of additional protection measures, which are grounds for professional discrimination.

11. Compared to the Right Bank, the Left Bank is less ensured with adequate supply of gloves, sterile syringes and other infection control supplies, which might pose them at greater professional risk. In addition, health professionals in Transnistria are less knowledgeable on infection control, as significantly more provided uncertain answers to the questions in this chapter.
Maternity Health Service Providers

General information

The sample of maternity health providers consisted of a total sample of 287 respondents, of which 149 respondents (51.9%) were from specialized level (Republican Center of Mother and Child Care, Municipal Hospitals of Chisinau and Balti), 70 (27.5%) from district level and 59 respondents (20.6%) were from maternities on Left Bank (Tiraspol, Rybnitsa and Grigoriopol). Further, data analysis is disaggregated by maternity type: Specialized, District and Left Bank (Table 23).

Table 23. Distribution of the sample by facility type, maternity health workers

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized maternities</td>
<td>149</td>
<td>51.9%</td>
</tr>
<tr>
<td>ICSOMC</td>
<td>56</td>
<td>37.5%</td>
</tr>
<tr>
<td>MH 1 Chisinau</td>
<td>38</td>
<td>25.7%</td>
</tr>
<tr>
<td>MH Balti</td>
<td>55</td>
<td>36.8%</td>
</tr>
<tr>
<td>District maternities</td>
<td>79</td>
<td>27.5%</td>
</tr>
<tr>
<td>Left Bank</td>
<td>59</td>
<td>20.6%</td>
</tr>
<tr>
<td>Total</td>
<td>287</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

More than half of respondents were from cities of Chisinau (38.0%), Balti (13.9%) and Tiraspol (13.2%). The detailed geographic distribution is presented in Figure 20 below.

Figure 20. Geographic distribution of the sample of maternity health workers

The sample consisted of 9.5% male and 90.5% female respondents, without significant differences between comparison groups. The average age of maternity health workers was 43.1 years (SD 12.0 years). The average number of years worked was 21.2 (SD 11.0 years), with health workers on Left Bank with the shortest average work experience (15.8 years, SD 13.0 years), specialized maternities with an average 22.4 years (SD 10.2 years), and district maternities with an average 22.7 years (SD 10.1 years). A total of 28.4% of the respondents had some managerial responsibilities in addition to clinical responsibilities, with statistically significant differences between the Right Bank and the Left Bank (P<0.001), where 63.2% of health workers had additional managerial responsibilities.

The breakdown by specialty type showed that most interviewed health workers were midwives, nurses and OB/GYN physicians, with other specialties receiving smaller numbers. A detailed distribution is presented in Figure 21.
Clinical experience with HIV-positive patients

A total of 69.3% of the sample have provided care to any HIV-positive person, without statistically significant differences by maternity type (p>0.05). The number of HIV-positive patients per health providers also varied significantly (p<0.001) between maternity types, with health providers on Left Bank seeing more HIV-infected patients compared to Right Bank (Figure 22).

Figure 22. Number of HIV-positive patients to whom maternity health staff provided care

In addition, a total of 64.3% of the sample have provided care to HIV-positive pregnant women, without statistically significant differences by facility types (p>0.05), higher proportion of health workers from Left Bank provided care to HIV-infected pregnant women (70.7%), compared to 65.8% in specialized maternities and 57.0% in district maternities on Right Bank.

Asked in which situations maternity workers provided care to HIV-infected pregnant women, most have mentioned "during delivery" and "after delivery" some "during antenatal follow-up" and "other visits after delivery" and very few mentioned "visits by referral from other physicians". Some 39.6% from Left Bank said that providing care to HIV-infected women was not their responsibility, compared to an average 5% on Right Bank (Figure 23).
Figure 23. Situations in which the maternity health staff provides care to HIV-positive patients

<table>
<thead>
<tr>
<th>Situation</th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test counseling</td>
<td>39.6%</td>
<td>36.9%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Post-test counseling</td>
<td>39.6%</td>
<td>36.9%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Antenatal follow-up</td>
<td>60.8%</td>
<td>68.2%</td>
<td>64.7%</td>
</tr>
<tr>
<td>Visits by referral from other physicians</td>
<td>72.2%</td>
<td>72.0%</td>
<td>72.2%</td>
</tr>
<tr>
<td>During delivery</td>
<td>42.4%</td>
<td>42.6%</td>
<td>42.0%</td>
</tr>
<tr>
<td>After delivery</td>
<td>56.9%</td>
<td>55.6%</td>
<td>57.1%</td>
</tr>
<tr>
<td>Other visits after delivery</td>
<td>19.0%</td>
<td>23.7%</td>
<td>19.9%</td>
</tr>
</tbody>
</table>

Training in the areas of HIV and PMTCT

Some 70.8% of the total sample received training in the areas of HIV and PMTCT, without statistically significant differences between the sub-samples (p>0.05), with the following distribution: 74.5% specialized level, 72.4% district level, and 59.3% on the Left Bank. Of the total number of respondents that have attended trainings (n=201), less than a third (27.8%) attended trainings of less than one day, some 41.7% went to 1-3 day long trainings and 29.9% attended trainings four fours days or longer. Significant differences were registered between facility types (p=0.03), where the majority from districts and the Left Bank attended shorter trainings and the majority of specialized health workers attended longer trainings (Figure 24).

Figure 24. Length of training on HIV and PMTCT, maternity health providers

Of the total number of respondents that have attended trainings (n=201), most were "completely satisfied" (52.8%) or "satisfied" (18.8%) with the training, with only 4.2% being "partially satisfied" and none were unsatisfied.

Respondents mentioned that information about HIV transmission and PMTCT was included most often in the curricula, the topics of Universal Precautions and PEP, Infection Control and HIV Treatment being mentioned by around 40% of respondents in all maternity types and the other topics being mentioned in smaller proportions. (Table 24).
Table 24. Topics discussed during HIV and PMTCT trainings, maternity health providers

<table>
<thead>
<tr>
<th>Topics</th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTCT</td>
<td>70.3%</td>
<td>75.9%</td>
<td>64.7%</td>
</tr>
<tr>
<td>HIV testing and counseling</td>
<td>37.8%</td>
<td>44.8%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Universal precautions and post-exposure prophylaxis</td>
<td>45.9%</td>
<td>44.8%</td>
<td>38.2%</td>
</tr>
<tr>
<td>HIV transmission modes</td>
<td>82.9%</td>
<td>87.9%</td>
<td>97.1%</td>
</tr>
<tr>
<td>HIV policies and recommendations</td>
<td>28.8%</td>
<td>36.2%</td>
<td>5.9%</td>
</tr>
<tr>
<td>HIV treatment</td>
<td>43.2%</td>
<td>39.7%</td>
<td>41.2%</td>
</tr>
<tr>
<td>Stigma and discrimination prevention</td>
<td>29.7%</td>
<td>34.5%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Infection control</td>
<td>43.2%</td>
<td>31.0%</td>
<td>61.8%</td>
</tr>
</tbody>
</table>

Self-perceived level of information regarding PMTCT

The majority (88.5%) of the sample considered themselves informed about PMTCT, of which a third (33.4%) thought they were very informed and 55.1% partially informed, with statistically significant differences between the facility types (p<0.001) (Table 25).

Table 25. Self-perceived level of information regarding PMTCT, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very informed</td>
<td>33.6%</td>
<td>35.4%</td>
<td>30.5%</td>
<td>33.4%</td>
</tr>
<tr>
<td>Partially informed</td>
<td>57.7%</td>
<td>53.2%</td>
<td>50.8%</td>
<td>55.1%</td>
</tr>
<tr>
<td>Poorly informed</td>
<td>8.7%</td>
<td>11.4%</td>
<td>18.6%</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

Asked about the level of information in different areas of HIV, respondents felt the highest level of information was regarding modes of HIV transmission (93.4%), followed by infection control (84.7%) and stigma and discrimination prevention (55.7%). The areas with lower level of information were pre- and post-test counseling (36.1%), HIV policies and guidelines (13.9%) and HIV treatment (10.5%). Significant differences between facility types were observed in the areas of HIV treatment, HIV policies and guidelines, pre- and post-test counseling and universal precautions (Figure 25).

Figure 25. Proportion of health workers who consider they know well the below listed topics, maternity health workers
Knowledge of normative and legislative documents in the area of HIV/AIDS

A list of main documents in the area of HIV/AIDS was read to respondents and they were asked to determine how well they know them. The majority of maternity respondents stated they knew very well instructions regarding HIV PEP (81.2%) and infection control guidelines (65.9%), less than half thought they knew very well PMTCT guidelines (44.3%), the order regarding formula feeding and ARV prophylaxis (33.1%) and HIV surveillance standards (33.2%) and less than a third stated knowing well order on VCT (28.9%), law on HIV/AIDS (17.8%) and national protocol for HIV care and treatment (17.1%). The differences between the groups were statistically significant (p<0.01 for all documents), with health providers from district level having better knowledge of the normative and regulatory documents and the providers on the Left Bank having the lowest level of knowledge (Table 26).

Table 26. Proportion of maternity health workers who know the following documents very well

<table>
<thead>
<tr>
<th>Document</th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law on HIV/AIDS</td>
<td>15.4%</td>
<td>22.8%</td>
<td>16.9%</td>
<td>17.8%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>PMTCT guidelines</td>
<td>44.3%</td>
<td>57.0%</td>
<td>27.1%</td>
<td>44.3%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>HIV surveillance standard</td>
<td>37.6%</td>
<td>43.0%</td>
<td>8.6%</td>
<td>33.2%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Infection control guidelines</td>
<td>81.2%</td>
<td>69.6%</td>
<td>22.0%</td>
<td>65.9%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Order on VCT</td>
<td>35.6%</td>
<td>31.6%</td>
<td>8.5%</td>
<td>28.9%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>National protocol on HIV care and treatment</td>
<td>19.5%</td>
<td>20.3%</td>
<td>6.8%</td>
<td>17.1%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Order regarding formula feeding and ARV prophylaxis</td>
<td>32.2%</td>
<td>32.9%</td>
<td>35.6%</td>
<td>33.1%</td>
<td>p=0.004</td>
</tr>
<tr>
<td>Instructions regarding HIV PEP</td>
<td>81.9%</td>
<td>81.0%</td>
<td>79.7%</td>
<td>81.2%</td>
<td>p=0.001</td>
</tr>
</tbody>
</table>

Basic HIV and PMTCT Knowledge

In order to provide objective assessment of the health care workers about HIV transmission and basic PMTCT indicators, three integrated indicators have been determined: HIV transmission knowledge indicator, integrated PMTCT-delivery knowledge indicator and integrated PMTCT-outpatient knowledge indicator. The method of calculating the HIV-transmission and PMTCT-outpatient indicators has been provided in the chapter on outpatient care level (p. 41).

The PMTCT-Outpatient indicator has been computed for maternities for comparison purpose of knowledge level of maternity health workers with that of outpatient care level, as well as for clinical reasons: sometimes HIV-positive pregnant women show up only at delivery and then it is the role of these health providers to provide counseling about the benefits of PMTCT interventions.

HIV basic PMTCT-Delivery indicator has been designed by the survey consultant similarly to principles of integrated indicators recommended by UNAIDS and include correct answers to the following four questions in the nominator and the total number of people who answered all four questions as denominator:

a. If a woman receives correctly prophylactic treatment during pregnancy and delivery, the risk of HIV – MTCT is reduced to less than 2%
b. According to the national protocols, it is not recommended planned C-sections to all HIV-infected pregnant women
c. Avoiding invasive procedures during delivery decreases risk of HIV-MTCT
d. Ensuring a period less than 4 hours since membrane rupture decreases risk of HIV-MTCT.

The three questions are different than in the PMTCT-outpatient integrated indicator, because the care provided by maternities and outpatient level differs.
The computation of the integrated indicators showed that while most respondents have correct knowledge about HIV transmission and protection methods against HIV (73.2%), the level of basic knowledge about PMTCT—Delivery is much more reduced, with a total number of 25.6% of the total sample having correct knowledge about PMTCT. There are statistically significant differences between facility types, with respondents from district level having better HIV (86.1%) both PMTCT-delivery (30.6%) and PMTCT-outpatient knowledge (24.1%) compared to respondents from specialized maternities for HIV-transmission indicator (68.8%), PMTCT-delivery (30.2%) and PMTCT-outpatient (16.1%) indicators. Left Bank maternities scored lowest for all three indicators (Table 27).

Table 27. Integrated HIV and PMTCT knowledge indicators, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated knowledge indicator</td>
<td>68.5%</td>
<td>86.1%</td>
<td>67.8%</td>
<td>73.2%</td>
<td>p=0.01</td>
</tr>
<tr>
<td>Integrated basic PMTCT-delivery knowledge indicator</td>
<td>30.2%</td>
<td>30.6%</td>
<td>7.3%</td>
<td>25.6%</td>
<td>p=0.002</td>
</tr>
<tr>
<td>Integrated basic PMTCT-outpatient knowledge indicator</td>
<td>16.1%</td>
<td>24.1%</td>
<td>5.1%</td>
<td>16.0%</td>
<td>p=0.01</td>
</tr>
</tbody>
</table>

Knowledge of PMTCT program components

Very few respondents in the sample could name all the elements of a comprehensive PMTCT program (Figure 26). The most often mentioned components were HIV testing and counseling for all pregnant women, referral to reproductive health services, prevention of unwanted pregnancies and medical follow-up of women and children, the least mentioned being ARV prophylaxis in mothers, formula feeding, postnatal follow-up of children and abortion counseling. Of note is that high percentages (31.3% to 67.1%) health workers mentioned HIV pre-test counseling to all women and post-test counseling only to HIV-positive ones as a component, which is not in line with the current recommendations.

Figure 26. Knowledge of the components of a comprehensive PMTCT program, maternity health providers
Knowledge of HIV-MTCT rates

Health workers were asked about awareness of HIV-MTCT cases in the Republic of Moldova. A total of 76.0% respondents of the sample knew that such cases exist. A total of 13.2% know the correct transmission rate of HIV from mother to child in case no preventive measures are taken, which equals to 30-40%. More than half (52.3%) of maternity health workers overrate the HIV-MTCT rate, regardless of maternity type. Significant differences (p=0.02) were observed between maternity types (Figure 27).

Figure 27. Knowledge of HIV-MTCT risk in case no PMTCT interventions are performed, maternity health providers

When asked about the HIV-MTCT rate if ARV prophylaxis is given, less than a half (43.9%) knew the correct effectiveness of decreasing the HIV transmission rate to less than 2%, with significant differences (p<0.001) between maternity types (Figure 28).

Figure 28. Knowledge of HIV-MTCT rate immediately after birth if ARV prophylaxis is given before and during birth, maternity health providers

Over a half of the sample (59.9%) knew the correct term of 24 weeks of pregnancy, with significant differences between maternity types (p<0.001) (Table 28).

Table 28. Knowledge of the term of ARV initiation, maternity health workers

<table>
<thead>
<tr>
<th>Term of ARV initiation</th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 weeks</td>
<td>62.4%</td>
<td>69.6%</td>
<td>40.7%</td>
<td>59.9%</td>
</tr>
<tr>
<td>28 weeks</td>
<td>18.1%</td>
<td>13.9%</td>
<td>15.3%</td>
<td>16.4%</td>
</tr>
<tr>
<td>32 weeks</td>
<td>5.4%</td>
<td>5.1%</td>
<td>0.0%</td>
<td>4.2%</td>
</tr>
<tr>
<td>36 weeks</td>
<td>9.4%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>5.6%</td>
</tr>
<tr>
<td>At birth</td>
<td>0.0%</td>
<td>1.3%</td>
<td>0.0%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

Intranatal care

Several questions were asked regarding the clinical management of HIV-infected pregnant women during delivery. The majority of respondents in the total maternity sample knew the
correct management of an HIV-infected woman during delivery, such as avoiding invasive procedures (91.4%), stopping cord blood circulation immediately after birth (95.1%), ensuring a time shorter than four hours after membrane rupture (81.6%) and provision of feeding counseling (97.8%), with significantly better results at specialized level and lowest level of knowledge on Left Bank (Table 29). At the same time, about a third (30.3%) of respondents thought planned C-sections are recommended to all HIV-pregnant women, which is not correct for the Republic of Moldova, where C-section recommendation depends on viral load.

Table 29. Knowledge of correct management of an HIV-infected pregnant women in the delivery ward, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>To avoid unnecessary invasive procedures</td>
<td>96.6%</td>
<td>83.9%</td>
<td>86.0%</td>
<td>91.4%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>To indicate planned C-section to all HIV-infected women</td>
<td>24.2%</td>
<td>33.9%</td>
<td>42.9%</td>
<td>30.3%</td>
<td>p=0.001</td>
</tr>
<tr>
<td>To stop cord blood circulation immediately after birth</td>
<td>96.0%</td>
<td>96.8%</td>
<td>91.2%</td>
<td>95.1%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>To ensure a time less than 4 hours after membrane rupture</td>
<td>90.6%</td>
<td>79.0%</td>
<td>60.7%</td>
<td>81.6%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>To check if mother has the ARV drugs for the newborn</td>
<td>98.7%</td>
<td>90.3%</td>
<td>87.7%</td>
<td>94.4%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Provide feeding counseling</td>
<td>98.0%</td>
<td>96.8%</td>
<td>98.2%</td>
<td>97.8%</td>
<td>p&gt;0.05</td>
</tr>
</tbody>
</table>

In case a woman with unknown status comes to delivery ward, most would perform rapid HIV testing (95.3% specialized, 93.5% district and 81.8% Left Bank maternity workers). Only very few would check if ARV drugs were available in the facility in case the HIV tests shows positive and would be more concerned about additional protection measures and isolation of the woman and the newborn (Table 30).

Table 30. Knowledge of correct management of a pregnant woman with unknown HIV status, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid HIV testing</td>
<td>95.3%</td>
<td>93.5%</td>
<td>81.8%</td>
</tr>
<tr>
<td>Check if ARV drugs are available in maternity</td>
<td>11.4%</td>
<td>21.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Additional protection measures</td>
<td>50.3%</td>
<td>66.1%</td>
<td>49.1%</td>
</tr>
<tr>
<td>Isolation of woman and newborn</td>
<td>15.4%</td>
<td>30.6%</td>
<td>36.4%</td>
</tr>
<tr>
<td>Consultation of HIV specialist</td>
<td>40.3%</td>
<td>53.2%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Management of pregnant HIV-positive women who inject drugs

The WHO clinical protocols recommend that pregnant HIV-positive IDUs should be persuaded to utilize health care services as early in pregnancy as possible, assessment of drug dependency, and referral to methadone substitution treatment (MMT). MMT, combined with prenatal services, promotes fetal growth, while continued use of opioids during pregnancy may result in infant morbidity. No advice about sudden termination of drug use should be given, as withdrawal increases risk of intrauterine death.27

The current practices of health workers in the Republic of Moldova are not in line with WHO recommendations. More than half of health care workers would counsel pregnant HIV-positive IDUs to terminate pregnancy and about half would counsel to stop immediately using drugs, with very few proportions (1.9%-5.4%) referring their patients to MMT (Table 31).

Table 31. Knowledge of correct antenatal management of a pregnant HIV-infected woman who injects drugs, maternity health workers

27 WHO protocols on HIV Care and Treatment, pp 374-375
The majority of drug-using women do not attend ANC and only arrive at the maternity ward around the time of labour. In such cases, maternity wards should be prepared to:

- assess drug use dependence and inform the neonatologist;
- offer rapid HIV testing if status is unknown or was negative during pregnancy;
- provide relevant treatment for withdrawal symptoms;
- initiate MMT as necessary; and
- counsel about the effects of drugs on pregnancy outcome, on the newborn infant and on treatment approaches.  

Neonatal withdrawal or abstinence syndrome (NAS) occurs in 50–80% of infants exposed to opioids in-utero, usually within the first 24–72 hours after birth. However, only 5–20% of these infants have severe symptoms and need pharmacotherapy.

In the sample, the majority of respondents would advice to stop using drugs on Right Bank and only 20.9% on Left Bank, less than half would assess and treat abstinence in woman and newborn (Table 32).

**Table 32. Knowledge of correct intranatal management of an HIV-pregnant woman who uses drugs, maternity health workers**

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narcologist consultation</td>
<td>70.5%</td>
<td>80.0%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Advice to immediately stop using drugs</td>
<td>52.1%</td>
<td>53.3%</td>
<td>74.4%</td>
</tr>
<tr>
<td>Treatment of abstinence syndrome in woman</td>
<td>31.5%</td>
<td>48.3%</td>
<td>14.0%</td>
</tr>
<tr>
<td>Evaluation and treatment of abstinence syndrome in newborn</td>
<td>39.7%</td>
<td>51.7%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Check if woman has ARV drugs for baby</td>
<td>46.6%</td>
<td>55.0%</td>
<td>32.6%</td>
</tr>
</tbody>
</table>

**Management of a pregnant HIV-positive woman who has active TB**

According to the WHO clinical protocols, the first priority should be to treat the TB. Most first-line anti-TB are safe for use during pregnancy, except streptomycin. ARV PMTCT regimen is different, in order to avoid drug interactions. In the sub-sample of specialized maternity staff, a half would make the decision of management case-by-case and the majority would counsel the woman to terminate pregnancy (Table 33).

**Table 33. Knowledge about correct management of a pregnant HIV-infected woman who has active TB in the first trimester, specialized maternity health workers**

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling to terminate pregnancy</td>
<td>73.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Initiate TB treatment first</strong></td>
<td><strong>25.5%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate ARV treatment first</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case-by-case decision</td>
<td>44.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refer to TB and HIV specialists</td>
<td>4.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

28 WHO protocols, page 378.
29 WHO protocols, page 379
Follow-up of children born to HIV-infected mothers

In the Republic of Moldova, PCR testing of all children at the age of 6 and 12 weeks could allow excluding the diagnosis at the age of 4-6 months, the current recommendation by the national protocol is to exclude the HIV diagnosis at the age of 19 months. Health workers from specialized maternities were asked about PCR testing in newborns and some 45.8% of them did not know the terms when newborn PCR testing is recommended.

When HIV-pregnant women show up only at delivery, it is important for the health worker to set some expectations regarding the duration and the conditions of child follow up. The maternity health workers were asked about the term when HIV is excluded and only 58.9% knew that HIV diagnosis can be excluded by the age of 19 months, without significant differences between the maternity types (p>0.05) (Table 34).

Table 34. The HIV status can be excluded at the age of 19 months of the child?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized</td>
<td>55.7%</td>
<td>38.9%</td>
<td>5.4%</td>
</tr>
<tr>
<td>District</td>
<td>59.5%</td>
<td>34.2%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Left Bank</td>
<td>66.1%</td>
<td>23.7%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Total</td>
<td>58.9%</td>
<td>34.5%</td>
<td>6.6%</td>
</tr>
</tbody>
</table>

BCG vaccination in children born to HIV-infected mothers

BCG vaccination is usually done in maternities in the first days after birth. According to WHO clinical protocols, in countries with high TB incidence children born to HIV-infected woman should be vaccinated according to the schedule. Maternity health workers have been asked about BCG vaccination and 66.4% of them consider that children should receive BCG vaccination, with significant differences between facility types (p=0.04)(Table 35).

Table 35. Children born to HIV-infected mothers receive BCG vaccination if they do not have AIDS symptoms, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized</td>
<td>74.5%</td>
<td>17.4%</td>
<td>8.1%</td>
</tr>
<tr>
<td>District</td>
<td>56.4%</td>
<td>29.5%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Left Bank</td>
<td>64.4%</td>
<td>18.6%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Total</td>
<td>67.5%</td>
<td>21.0%</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

Newborn feeding counseling

Only 7.3% of the sample knew the correct transmission rate during breastfeeding of 5-15%, the majority of health workers overrating the risk and a total 44.6% considering that breastfeeding always (100%) leads to HIV transmission. The differences by facility types are statistically significant (p=0.04), with respondents from specialized maternities having the lowest correct knowledge about HIV-MTCT rate during breastfeeding (Table 36).

Table 36. What is the transmission rate in children up to age of 18 months if mothers breastfeed? Maternity health workers

<table>
<thead>
<tr>
<th>Transmission rate</th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15%</td>
<td>6.0%</td>
<td>8.9%</td>
<td>8.5%</td>
<td>7.3%</td>
</tr>
<tr>
<td>20-30%</td>
<td>4.0%</td>
<td>7.6%</td>
<td>1.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>30-40%</td>
<td>8.7%</td>
<td>2.5%</td>
<td>3.4%</td>
<td>5.9%</td>
</tr>
<tr>
<td>50-60%</td>
<td>14.8%</td>
<td>17.7%</td>
<td>3.4%</td>
<td>13.2%</td>
</tr>
<tr>
<td>70-80%</td>
<td>21.5%</td>
<td>15.2%</td>
<td>18.6%</td>
<td>19.2%</td>
</tr>
<tr>
<td>100%</td>
<td>41.6%</td>
<td>44.3%</td>
<td>52.5%</td>
<td>44.6%</td>
</tr>
<tr>
<td>Do not know</td>
<td>3.4%</td>
<td>3.8%</td>
<td>11.9%</td>
<td>5.2%</td>
</tr>
</tbody>
</table>

31 WHO clinical protocols, page 380
Another question assessed knowledge if women with unknown HIV status at delivery should be advised formula feeding. The majority (59.2%) of health workers thought this was true, although significant variations (p<0.01) were registered between maternity types (Table 37).

Table 37. It is recommended to advise formula feeding to all women with unknown HIV status? Maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized</td>
<td>60.4%</td>
<td>37.6%</td>
<td>2.0%</td>
</tr>
<tr>
<td>District</td>
<td>53.2%</td>
<td>46.8%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Left Bank</td>
<td>64.4%</td>
<td>27.1%</td>
<td>8.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59.2%</td>
<td>38.0%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

When respondents were asked what arguments they use when discussing with an HIV-infected woman regarding feeding options, most have mentioned that this is the only method to decrease HIV transmission and that it is distributed free of charge for the first year, around a quarter, depending on maternity types (except Left Bank) also use correctly the arguments that family members can also feed the child (Figure 29).

The other incorrect statements (risk of diarrhea is high, formula can always be bought, and that formula has all the nutrients and antibodies) received much smaller percentages, showing a good knowledge of advantages and disadvantages of various feeding options. Of note is the difference in responses between Left Bank and Right Bank, health workers from the Left Bank using mostly just the main two arguments of being the only way to decrease transmission and that it is distributed free of charge.

Figure 29. Arguments used about advantages and disadvantages of formula feeding in HIV-infected mothers during feeding counseling, maternity health providers

The majority of health workers feel confident (37.3%) of very confident (25.1%) regarding newborn feeding counseling, with only 8.7 % stating that they do not know how to do it, with significant differences between maternity types (p<0.001) (Table 38).
Table 38. Level of Confidence regarding feeding counseling, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not now how to do it</td>
<td>7.4%</td>
<td>7.6%</td>
<td>13.6%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Fairly confident</td>
<td>28.9%</td>
<td>19.0%</td>
<td>33.9%</td>
<td>27.2%</td>
</tr>
<tr>
<td>Confident</td>
<td>40.3%</td>
<td>39.2%</td>
<td>27.1%</td>
<td>37.3%</td>
</tr>
<tr>
<td>Very confident</td>
<td>23.5%</td>
<td>34.2%</td>
<td>16.9%</td>
<td>25.1%</td>
</tr>
</tbody>
</table>

Although the level of confidence regarding feeding counseling is high, of those health workers that have provided care to HIV-infected pregnant women (n=186), more than half (55.4%) have never demonstrated how to prepare correctly formula (Figure 30). This shows that formula preparation demonstration is not a current practice as part of feeding counseling and feeding counseling is discussion-based.

Figure 30. Frequency of demonstration how to prepare correctly formula, outpatient health providers

Referral to other health services and to services provided by social services and NGOs

Of the respondents that have provided care to HIV-infected pregnant women (n=186), the majority usually refer patients to other specialized services (60.8% referred to ID physician consultation, 57.5% to contraception counseling and 49.5% to ARV prophylactic treatment). Referrals to treatment services for drug use (32.6%) and to social services (32.1%) have been made by a third of respondents. Referral to NGO services is rare, 15.3% having had the experience to provide to social services provided by NGOs and 16.9% to Harm Reduction services (Figure 31).

Figure 31. Services to which maternity health providers personally have referred HIV-positive patients
Breech of Confidentiality

Respondents were asked how often medical workers keep confidentiality regarding patient's HIV status and almost half (49.7%) thought this always happened, with statistically significant differences by maternity types (p<0.001) (Table 39).

Table 39. How often do health workers ensure confidentiality? Maternity health workers

<table>
<thead>
<tr>
<th>Always</th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>47.7%</td>
<td>49.4%</td>
<td>55.2%</td>
<td>49.7%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>51.0%</td>
<td>50.6%</td>
<td>22.4%</td>
<td>45.1%</td>
</tr>
<tr>
<td>Never</td>
<td>0.0%</td>
<td>0.0%</td>
<td>5.2%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Do not know</td>
<td>1.3%</td>
<td>0.0%</td>
<td>17.2%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Of the total number of health workers that have provided care to HIV-infected patients (n=199), some 42.6% of respondents have admitted disclosing their HIV-infected patient status to anyone, without statistically significant differences by maternity types (Figure 32).

Figure 32. Proportion of maternity health providers who have disclosed patient's HIV-positive status to anyone

Of those that disclosed HIV status of their patient (n=101), most often this was to colleagues (85%-96%), to Center of Preventive Medicine (27.8% in specialized, 35% in district and 7.4% Left Bank health workers) and sometimes to patient's family members (5.0% district level, 3.7% Left Bank and 1.9% specialized level health workers) (Table 40).

Table 40. People to whom maternity health workers usually disclosed their HIV-positive patient status

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colleagues</td>
<td>96.3%</td>
<td>85.0%</td>
<td>96.3%</td>
</tr>
<tr>
<td>Center of Preventive Medicine</td>
<td>27.8%</td>
<td>35.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Family members of patient</td>
<td>1.9%</td>
<td>5.0%</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

Stigma and discrimination

Two integrated indicators related to stigma have been determined: HIV social tolerant attitudes indicator and HIV professional tolerant attitudes indicator, as outlined previously on page 48. The results have shown that both social and professional tolerant attitudes are alarmingly low in maternity health workers. The social tolerant attitude indicator is 0.3% in the total maternity sample, with no significant differences by maternity type. The professional tolerant attitudes vary between 0% in health workers from specialized maternities and 3.8% in district maternity health workers, but not statistically significantly (p>0.05) (Table 41).
Table 41. Integrated indicators for tolerant attitudes, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social accepting attitude indicator</td>
<td>0.7%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.3%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Professional accepting attitude indicator</td>
<td>0.0%</td>
<td>3.8%</td>
<td>1.7%</td>
<td>1.4%</td>
<td>p&gt;0.05</td>
</tr>
</tbody>
</table>

The low level of tolerant attitudes cannot be explained by the level of correct knowledge of HIV transmission, which previously in this report was reported to be quite high, therefore additional factors were examined, such as social attitudes to various modes of HIV transmission, knowledge about infection control at workplace and knowledge about HIV PEP.

**Differential attitudes by mode of HIV transmission**

The assessment of the differential attitudes depending on transmission mode has shown that most health workers had either positive or negative attitudes towards various categories of PLWH and few respondents held neutral attitude towards patients with HIV transmission through commercial sex (24.7%), injecting drug use (31.4%), or for children infected vertically (20.2%) and faithful sexual partners of unfaithful-HIV-infected partners (31.4%) (Figure 33).

Figure 33. Proportion of maternity health providers who have a neutral attitude to PLWH depending on the mode of HIV transmission

At the same time, the phenomenon of social condemnation by health workers was clearly observed: most workers (74.9%) had positive attitudes towards children born to HIV-infected mothers and faithful permanent partners that got HIV from an unfaithful HIV-positive partner (62.0%) - the "innocent victims". The other transmission modes had a clear negative connotation, thus high proportions of health workers had a negative attitude towards those infected through for sex outside marriage (42.2%), for injecting drug use (67.9%) and for commercial sex (74.2%), - "they did it to themselves". Thus, clearly, a human aspect is involved in the low professional tolerant attitude.

**Self-perceived risk of HIV transmission at workplace**

The results of assessment of self-perceived risk are in line with the hypothesis that professional stigma is associated with high self-perceived level of risk of workplace HIV transmission. Thus, when asked to determine how protected health workers are from acquiring HIV at workplace, only a little over half (53.1%) of respondents felt staff was well protected, with significant differences by maternity types, the highest protection level (69.6%) being perceived by health
workers from district maternities and the lowest (35.6%) by Left Bank health workers (p<0.001) (Table 42).

Table 42. Perception about the level of protection of medical staff from acquiring HIV at workplace, maternity health workers

<table>
<thead>
<tr>
<th>Level of Protection</th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level</td>
<td>51.4%</td>
<td>69.6%</td>
<td>35.6%</td>
<td>53.1%</td>
</tr>
<tr>
<td>Low level</td>
<td>45.3%</td>
<td>27.8%</td>
<td>47.5%</td>
<td>40.9%</td>
</tr>
<tr>
<td>Not protected</td>
<td>2.7%</td>
<td>2.5%</td>
<td>11.9%</td>
<td>4.5%</td>
</tr>
<tr>
<td>DK</td>
<td>0.7%</td>
<td>0.7%</td>
<td>5.1%</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Next, when the respondents were asked to assess their own risk of acquiring HIV at workplace, quite high proportion of respondents felt their risk was high (55.7%) or average (27.2%). Significant differences were observed between maternity types (p=0.012) (Figure 34).

Figure 34. Level of risk perception of acquiring HIV at workplace, maternity health providers

Knowledge about the actual HIV transmission rate through needle stick injury was assessed next. The finding was that less than a quarter of respondents (21.6%) know the correct risk of HIV transmission through needle stick, which is 0.3%. The majority (62.3%) overrated this risk to 10% or more. There were significant differences between the groups (p<0.001), the respondents from Left Bank knowing the least (5.1%) the correct risk of transmission. (Figure 35).

Figure 35. Knowledge of the risk of HIV transmission through needle stick, maternity health providers
Lack of correct knowledge and overrating the risk of HIV transmission through needle stick injury might explain the high level of self-perceived risk of acquiring HIV. At the same time, most respondents (95.3%) perform invasive procedures in their practice, such as injections, and a little less than a third of respondents (29.1%) have admitted that they had needle stick injury in the past 12 months (Table 43).

Table 43. Experience with needle stick injuries, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs injections</td>
<td>95.3%</td>
<td>92.4%</td>
<td>89.8%</td>
<td>93.4%</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Has experienced needle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stick injury in the past</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 months</td>
<td>27.5%</td>
<td>31.5%</td>
<td>30.2%</td>
<td>29.1%</td>
<td>p&gt;0.05</td>
</tr>
</tbody>
</table>

knowledge of Post-Exposure Prophylaxis

In general, nearly all respondents would take the necessary steps after a needle stick injury: most (90.3%) would let the wound bleed, wash under running water, put a bandage and change gloves, of which 48.8% of respondents would use mild disinfectants and 41.5% would not use disinfectants. Insignificant numbers would do nothing (0.7%) or would no know what to do (4.9%). Of note is statistically significant difference (p<0.001) between groups, especially Left Bank health workers, of which 23.7% would not know what to do.

Table 44. If you would have a needle stick, what would you do? Maternity health providers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
<td>0.7%</td>
<td>1.3%</td>
<td>0.0%</td>
<td>0.7%</td>
</tr>
<tr>
<td>I would put a bandaid on</td>
<td>5.4%</td>
<td>3.8%</td>
<td>1.7%</td>
<td>4.2%</td>
</tr>
<tr>
<td>the injury and change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gloves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would wash, put</td>
<td>48.3%</td>
<td>64.6%</td>
<td>28.8%</td>
<td>48.8%</td>
</tr>
<tr>
<td>disinfectant, put a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>water-resistant bandage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and new gloves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would let it bleed,</td>
<td>45.6%</td>
<td>30.4%</td>
<td>45.8%</td>
<td>41.5%</td>
</tr>
<tr>
<td>wash under running water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>put a bandage, new</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gloves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DK</td>
<td>0.0%</td>
<td>0.0%</td>
<td>23.7%</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

More than two thirds (74.6%) of respondents knew the correct time to start PEP ARV prophylactic treatment of 2-72 hours after a high-risk exposure, with significant differences (p<0.001) between maternity types (Table 45).

Table 45. Knowledge of the optimal time to start ARV PEP, maternity health workers

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 2-72 hours</td>
<td>76.5%</td>
<td>78.5%</td>
<td>64.4%</td>
<td>74.6%</td>
</tr>
<tr>
<td>First 24-96 hours</td>
<td>13.4%</td>
<td>7.6%</td>
<td>1.7%</td>
<td>9.4%</td>
</tr>
<tr>
<td>First week</td>
<td>3.4%</td>
<td>3.8%</td>
<td>0.0%</td>
<td>2.8%</td>
</tr>
<tr>
<td>First month</td>
<td>4.0%</td>
<td>6.3%</td>
<td>5.1%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Do not know</td>
<td>2.7%</td>
<td>3.8%</td>
<td>28.8%</td>
<td>8.4%</td>
</tr>
</tbody>
</table>

At the same time, when they were asked if they have access to PEP ARV in their facility, less than a half (41.0%) thought they did, with significant differences by maternity type (p<0.001), when about half (47.5%) of Left Bank health providers not knowing about access to PEP ARV (Figure 36).
In conclusion, the high prevalence of needle stick injuries experienced by maternity health workers, combined with an over-appreciation of the risk of HIV through needle stick and low level of knowledge about access to PEP ARV might be important factors in creating the perception of high-risk workplace settings and explain partly the low professional tolerant attitudes.

**Infection control supplies**

Infection control supplies are also an important factor in ensuring proper infection control measures and decreasing the perception of being at risk for HIV-infection transmission. The results show that a only 47.2% thought they had enough gloves, 42.7% enough white blouses, 83.9% enough syringes, 91.3% enough disinfectants in their facilities, with statistically significant differences by maternity types (p<0.001). As for supply with formula feeding for HIV-infected mothers, half (51.7%) thought there was enough supply of formula in their facility (Table 46).

**Table 46. Proportion of maternity health workers who feel they have enough infection control supplies**

<table>
<thead>
<tr>
<th></th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have enough gloves in your institution?</td>
<td>38.9%</td>
<td>72.2%</td>
<td>34.5%</td>
<td>47.2%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Do you have enough white blouses in your institution?</td>
<td>36.2%</td>
<td>44.3%</td>
<td>56.9%</td>
<td>42.7%</td>
<td>p=0.018</td>
</tr>
<tr>
<td>Do you have enough syringes in your institution?</td>
<td>93.3%</td>
<td>86.1%</td>
<td>56.9%</td>
<td>83.9%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Do you have enough disinfectants?</td>
<td>95.3%</td>
<td>97.5%</td>
<td>72.4%</td>
<td>91.3%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Do you have enough formula in your institution?</td>
<td>59.1%</td>
<td>53.2%</td>
<td>31.0%</td>
<td>51.7%</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
</table>

**Knowledge and practice of universal precautions**

Respondents thought UP related more to proper disposal practices (83.2% specialized, 89.9% district, and 25.0% Left Bank health workers) than treating all patients and all biological samples as potentially infected (Figure 37). Of note is that health workers on Left Bank had the lowest level of knowledge about UP.
The distribution of practices has shown that nearly everyone wears white blouses (99.3%) and washes hands after each patient (98.6%), most (87.5%) always use universal precautions, 82.6% always wear gloves when disposing biological materials 69.0% always wear gloves during clinical procedures, 70.7% always change gloves after each patient and. (Table X). Significant variation was observed regarding the practice of putting the cap back on used syringes, when 64.4% medical staff on Left Bank, 56.4% specialized level and 38.0% district level health workers still use this practice (Table 47).

**Table 47. Infection control practices, maternity health workers**

<table>
<thead>
<tr>
<th>Always…</th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use universal precautions</td>
<td>91.3%</td>
<td>82.3%</td>
<td>84.7%</td>
<td>87.5%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Wear white blouse</td>
<td>100.0%</td>
<td>97.5%</td>
<td>100.0%</td>
<td>99.3%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Wear gloves</td>
<td>71.8%</td>
<td>73.4%</td>
<td>55.9%</td>
<td>69.0%</td>
<td>p=0.009</td>
</tr>
<tr>
<td>Change gloves after each patient</td>
<td>80.5%</td>
<td>60.8%</td>
<td>59.3%</td>
<td>70.7%</td>
<td>p=0.003</td>
</tr>
<tr>
<td>Wash hands after each patient</td>
<td>98.7%</td>
<td>97.4%</td>
<td>100.0%</td>
<td>98.6%</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Put bandaid on hand injuries</td>
<td>89.2%</td>
<td>93.7%</td>
<td>74.6%</td>
<td>87.4%</td>
<td>p=0.006</td>
</tr>
<tr>
<td>Put the cap back on a used syringe</td>
<td>56.4%</td>
<td>38.0%</td>
<td>64.4%</td>
<td>53.0%</td>
<td>p=0.002</td>
</tr>
<tr>
<td>Wear gloves when disposing biological materials</td>
<td>84.6%</td>
<td>84.8%</td>
<td>80.4%</td>
<td>82.6%</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
</table>

**Differential use of protection means**

Lack of knowledge about treating all patients and blood samples as potentially infected leads to differential attitude depending on HIV status. Respondents that have provided care to patients with HIV (n=199) have been asked how often they have used additional protection measures. Only 5.5% of the subsample never used any additional measures, while more than half (56.8%) always use additional precautions measures (Figure 38).
Figure 38. How often do you use additional precautions when you provide care to HIV-infected persons?
(maternity health providers)

As asked about current practices regarding hospitalization for delivery of a pregnant HIV-infected woman, discriminatory practices were observed: around half of the Right Bank and the majority on Left Bank would put the woman in a separate ward, about a third on Right Bank and two thirds on left bank would perform all medical procedures separately, and few on Right bank but over third on Left Bank would even provide food separately. At the same about half of respondents on Right Bank stated no special measures would be taken (Table 48).

Table 48. Current practices in case a pregnant HIV-positive women enters into delivery ward

<table>
<thead>
<tr>
<th>Practice</th>
<th>Specialized</th>
<th>District</th>
<th>Left Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>She is put in a separate ward</td>
<td>53.0%</td>
<td>51.6%</td>
<td>88.9%</td>
</tr>
<tr>
<td>She receives food separately from other women</td>
<td>6.0%</td>
<td>17.7%</td>
<td>35.2%</td>
</tr>
<tr>
<td>All medical procedures are performed separately</td>
<td>30.9%</td>
<td>37.1%</td>
<td>61.1%</td>
</tr>
<tr>
<td>All medical staff uses additional protection measures</td>
<td>71.1%</td>
<td>67.7%</td>
<td>53.7%</td>
</tr>
<tr>
<td>Medical staff ensures confidentiality</td>
<td>78.5%</td>
<td>77.4%</td>
<td>18.5%</td>
</tr>
<tr>
<td>No special measures are taken</td>
<td>55.0%</td>
<td>53.2%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

Conclusions

1. More than two thirds of maternity health workers have provided care to HIV-positive women, regardless of the maternity level (both specialized and district levels) and more than two thirds maternity health workers have already been trained in the area of PMTCT, with a significant part attending trainings for 1-3 days or longer. At the same time, the knowledge assessment showed that half of maternity respondents thought they had partial knowledge on PMTCT and the actual level of correct knowledge matched this perception – only every fourth had correct knowledge about PMTCT during delivery and every sixth about PMTCT in outpatient settings. This finding calls for a revision of the existing PMTCT curriculum and to conduct a follow-up training to reinforce correct knowledge.

2. The maternity health providers overrate the risks associated to HIV-MTCT in both situations when no interventions are done, as well as the effectiveness of PMTCT interventions. These shortcomings lead to providing incorrect information to pregnant HIV-infected women, therefore might cause incorrect clinical decisions and distrust of patients in their health providers.
3. Most maternity health workers knew the correct obstetrical management of an HIV-positive woman during delivery, with significantly lower proportions of respondents from the Left Bank answering correctly to these questions. The curriculum for Left Bank should reinforce the area of obstetrical care as well.

4. Knowledge of specific clinical situations, such as pregnant HIV-positive women who use drugs or who have active TB, is low; therefore additional modules on these areas should be part of the PMTCT curriculum.

5. Maternity health workers refer patients more rarely to other health services compared to primary health workers and rarely to services outside health system, such as social services or services provided by NGOs. An institutionalized referral system would enable more effective referrals in case of vulnerable HIV-infected women, since maternity is the only institution where all women enter into the sight of the public system, even if they were not in the follow-up during antenatal care.

6. Half of maternity health care workers admitted they have broken patient confidentiality, usually by telling about patient’s HIV status to colleagues. While this practice might be determined by the desire to protect staff from a perceived high risk of getting HIV, it is obviously not a good practice and medical personnel should rely on universal precautions instead.

7. While the knowledge about modes of HIV transmission is good in maternity health care workers, this did not lead to better professional or social attitude towards PLWH. On the contrary, absolute stigma is characteristic maternity health workers even more compared to primary care level. The discrepancy between good knowledge and bad attitudes should be explained by factors other than knowledge. Some stigma is explained by overrating the professional risk of acquiring HIV at work and some by emotions beyond knowledge. Change of attitudes needs behavior change interventions and stigma decreasing exercises to be built into the PMTCT curriculum.

8. The maternity health workers have an overrated perceived risk of acquiring HIV at work and incorrect knowledge about actual risk of HIV transmission through needle stick injury. In addition, they lack sufficient knowledge about PEP procedures and further management, including access to ARV drugs. At the same time, they have a high prevalence of needle stick injuries that might explain the general fear of getting HIV.

9. Maternity health workers have poor knowledge about universal precautions and the fact that they should treat all patients as potentially infected. This leads to differential treatment of HIV-positive patient and use of additional protection measures, which are grounds for professional discrimination.

10. The maternity health workers on the Left Bank felt that caring for HIV pregnant women was not their responsibility, 39.6% LB compared to 5% RB.
HIV-negative clients of PMTCT program

General sample information

The sample of clients consisted of 419 women that gave birth and were in post-partum wards of maternities. Of them, 39.1% were sampled in the specialized maternities in Chisinau (Republican Mother and Child Center and Municipal Hospital no. 1) and Balti, 44.9% were in maternities of six districts on the Right Bank and 16.0% were from the city of Tiraspol and district maternities of Grigoriopol and Rybnitsa on the Left Bank. The fact that they gave birth in the listed maternities does not always translate in being from the catchment area around a specific maternity, as some would give birth in a different maternity, based on the complexity of anticipated birth and based on choice. Nevertheless, further analysis is disaggregated by facility types: Specialized (Chisinau and Balti), District (the six districts) and Left Bank (Tiraspol and two districts from Transdniester region). The detailed geographic distribution is presented in Figure 39 below.

Figure 39. Geographic distribution of the sample of HIV-negative women

Basic socio-demographics

The average age of women was 25.5 years (SD 5.6 years, range 15-42 years). The distribution by type of residence showed that 48.7% were from villages, 30.1% from large cities (Chisinau, Balti, Tiraspol) and 21.2% lived in district centers. Most respondents were married (77.9%), another 17.5% were in a live-in partnership, 2.9% were divorced or separated and 1.7% were single.

The distribution by level of education showed that most had college level (39.6%) or have completed general school (31.3%) and a quarter (25.5%) has completed higher level education. A detailed distribution is presented in Figure 40 below.
General Voluntary Counseling and Testing Experience

A total of 97.8% have heard about HIV/AIDS, without significant differences between comparison groups. A total of 71.3% mentioned that medical staff have discussed with them about HIV/AIDS in their lifetime, with statistically significant differences between the groups (p<0.001), with highest proportion being registered among district level clients (87.5%), followed by specialized level clients (75.6%) and much less (16.4%) of clients on Left Bank.

Asked what were the topics discussed, most mentioned "general info about HIV" (68.2%), "modes of HIV transmission" (26.5%) and 2% or less for "prevention methods" (1.7%), "the importance to get tested" (2.0%) and "where to take the test" (1.7%). Most often, this discussion was provided by family physician (43.2%), VCT counselor (25.6%) or OB/GYN specialist (18.8%), with much lower proportions for midwives (4.8%), nurses (4.8%), psychologist (2.0%) or ID physician (0.9%). Of note is that on Left Bank there were no VCT counselors and the OB/GYN specialists were usually the main providers of HIV counseling (Figure 41).

Figure 41. The type of health provider that counseled for HIV, HIV-negative women
HIV testing experience during last pregnancy

A total of 93.5% mentioned being tested for HIV during the last pregnancy, with significant differences between comparison groups: 96.3% specialized level, 96.2% district level and 79.1% Left Bank (p<0.001). Of those that have been tested (n=388), the majority (65.8%) mentioned being tested twice, 20.2% once, 10.5% more than two times and 3.6% did not know, with significant differences between groups (p<0.001). (Figure 42)

Figure 42. Number of HIV tests during pregnancy, HIV-negative women

![Figure 42: Number of HIV tests during pregnancy, HIV-negative women](image)

As for the reasons to get tested, most mentioned that this was a provider-initiated testing, in either more authoritative “I was told it was a requirement” (63.9%) or in a form of recommendation “Physician has advised me” (30.5%) (Figure 43).

Figure 43. Reasons to get tested for HIV, HIV-negative women

![Figure 43: Reasons to get tested for HIV, HIV-negative women](image)

Experience of post-test counseling

A total of 88.2% knew the test results, without significant differences between the groups. Only a half mentioned that their physician has discussed the test result with them (49.8%), but about a third (31.9%) mentioned receiving the result on paper and only 16.9% has received the result in a VCT Center (Figure 44).
Of those that have received the test result (n=345), a little over half (51.6%) mentioned that the physician has discussed the test results, with significant differences between the groups (p<0.001), where district level ranked highest (66.3%), specialized middle (43.9%) and Left Bank with the lowest proportion (23.9%). Regarding the topics of post-test counseling, most often were mentioned "methods of HIV prevention" (38.2%), "partner notification and referral to testing" (27.2%), "reducing risk behaviors" (18.0%) and 12.4% of respondents mentioned that they were just notified they did not have HIV (45.5% on Left Bank), with significant differences between the groups (p<0.001) (Figure 45).

Respondents were asked to assess the quality of post-test counseling session in terms of comfort level, confidentiality, and the content. Of those that have answered these questions (n=177), most (95.5%) felt the post-test counseling session was comfortable, with significant differences between the groups (90.2% specialized level, 90.9% on Left Bank versus 99.0% at district level, p<0.001). Only 7.1% of the sample answering the question (n=240) stated the counselor felt
embarrassed during post-test counseling discussion. Of those that have answered next question (n=342), the majority (69.9%) of respondents felt the counselor would maintain confidentiality, with significant differences between the groups (19.6% positive answer on Left Bank, although 73.9% would not know, 70.6% specialized level and 83.9% at district level, p<0.001) (Figure 46).

Figure 46. Do you feel that the counselor would maintain confidentiality?

Of the total number that have answered the question about how much information they have received during post-test counseling session (n=339), some 73.2% felt they have received all the necessary information, with significant differences (p<0.001) between the Right Bank (79.3% specialized level and 86.7% district level) and the Left Bank (8.7% positive answers, 30.5% negative and 60.9% indeterminate).

Further, the content of the session was assessed. The majority (63.5%) of the sample mentioned discussing about condom use, with significant differences between the groups (p<0.001): Right Bank (64.7% specialized and 77.5% district) compared to Left Bank (10.9% positive answer, 47.8% negative and 41.3% indeterminate answer).

Only 15.5% have mentioned to have assessed their risk behaviors during counseling session, with significant differences between the groups (p<0.001) (Figure 47).

Figure 47. Did you assess your individual risk behaviors during the post-test counseling session?

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Basic HIV Knowledge and Stigma Indicators

In order to determine the standard level of HIV knowledge and stigma towards PLWH, two integrated indicators have been determined: HIV transmission integrated knowledge and HIV social tolerant attitudes indicator, according to the UNAIDS guidelines (REFERENCE).

The computation of the integrated knowledge indicator showed that less than half (38.9%) respondents have correct knowledge about HIV transmission and prevention, with no statistically significant differences between comparison groups. The results have also shown that social tolerant attitudes are very low at 1.9% of the total sample, without significant differences between the comparison groups (p>0.05) (Table 49).

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There is no statistically significant effect of going through pre- and post-test counseling on the values of the knowledge and stigma indicators (p>0.05). Thus, among those that stated to have ever discussed about HIV with medical staff, a total of 38.5% had correct knowledge, compared to 37.8% having correct knowledge among those that have not discussed about HIV with medical staff. As for social tolerant attitudes indicator, a level of 1.7% was registered among those that have discussed compared with 2.5% among those that have not discussed about HIV/AIDS (p>0.05).

Conclusions

1. As reported by the national data, most pregnant women are tested for HIV during pregnancy twice. The results of the survey conducted in women in post-delivery wards confirm it. Usually this is a provider-initiated testing, but not always perceived as “opt-out approach” by clients, since the majority of women thought it was a requirement rather than a recommendation.

2. Although VCT centers exist in every district and large cities of Chisinau and Balti, the results of the survey show that only a quarter of women have discussed about HIV with a VCT counselor and only every sixth woman has received the test result in a VCT Center. Therefore, primary care physicians on the Right Bank and OB/GYN specialists on the Left Bank are still the main providers of VCT services to pregnant women.

3. HIV testing is not always preceded or followed by counseling, since a quarter of clients have not discussed about HIV at all with medical staff.

4. Not all women receive the HIV test result and when they do, still about a third receives it on paper, without discussing it. Therefore, the opportunity to provide correct information about HIV transmission and methods of prevention is lost for at least a third of pregnant women.

5. Even when post-test counseling discussion occurs, not all the necessary information is provided, with very few women having had an individual assessment of risk behaviors and mostly receiving general information about HIV transmission and prevention. Therefore, the opportunity of individual risk reduction is lost.

6. The quality of the HIV transmission and prevention information provided is questionable, since less than half of women could correctly identify basic modes of transmission and prevention methods, and there is a very low level of social tolerant attitudes towards PLWH, regardless if pre-and post-testing counseling occurred.
7. There are variations in the VCT services provided by facility type, where the district level provides better VCT services than specialized and municipal level in Chisinau and Balti. There is no VCT per se on the Left Bank.

**Interviews with HIV-positive women**

**Notes on methods:**
A face-to-face in-depth interview with six HIV-positive women that come to RDVD for child follow-up visits and seven HIV-positive women from Tiraspol.

**General background**
The women were with age comprised between 22 and 37 years, most had low educational status, were unemployed, and were taking care of their children, from Chisinau, Balti, Tiraspol and villages. Some women had two children and some had one child. The gave birth either in 2008 or 2009. Many women learned about their HIV status during last pregnancy, one learned during her previous pregnancy and one learned before pregnancy.

**VCT**
In general all women received their HIV-result after 2005, with only one being HIV-positive since 1998. None of the interviewed women had any discussion regarding HIV before the test. After the test, none of them have discussed with a VCT counselor, there were notified either by the family physician or ID physician. There were usually just provided the result and only one mentioned she was told about protection means. A woman was advised to terminate pregnancy during post-test counseling. The discussion was mostly comfortable and confidential and even pleasant, although three women mentioned that it was in the presence of the nurse as well. Several women had really bad experiences of result notification.

"In that period (year 1998) there was no discussion about confidentiality, immediately the relatives, neighbors and everyone around were announced (because of that my parents do not talk to me even at present and I lost home)", 37 yrs, Chisinau

"The (HIV test) result was given by my OB/GYN in a terrible way. Knowing that I am pregnant she could have prepared me somehow and not provide the diagnostic so brutally. She told my child will have Down syndrome. She lives in the same region as me, so all neighbors knew about my status. I wanted to sue her" 27 yrs, Tiraspol

**Knowledge of PMTCT**
Women thought they knew a lot or average about HIV but less about PMTCT. Everyone knew they know that it transmits form mother to child, they need to take ARVs during pregnancy and not breastfeed the child, several mentioned about C-section as well. Some has interesting info as well:
"I know that the child cannot be breastfed or I should not give food from my mouth", 31 years, village

Asked about HIV-MTCT risks, they all knew it was high, but could not give a percentage and only one mentioned a risk of 50%. Asked about how effective are PMTCT interventions, the answers ranged from not being very effective "the risk is reduced only a little" and "up to 50%" to "up to 0%" and several did not know.
**Contraception**

Most mentioned that the best contraception is condom use, but there were two different answers:

"To not have sex" 27 years, Balti
"Condom use, I do not think it is normal to live in a discordant couple" 31 yrs, village

Women thought condom is acceptable for their couple, most would get condoms easily, one could get condoms from policlinic, but mostly they would buy. Two women thought that counseling their partner for contraception would be useful for them. One respondent from village thought it might be difficult for her to get condoms if she needed.

"I am alone I do not need it I do not think I would ever need it. But I would accept, although it is not very easy to get for me", 31 years, village

Most received most information about contraception from RDVD, or AIDS Center in Tiraspol, but some from the AIDS Center, and from NGOs. Most information about contraception was received from physicians, only one mentioned other PLWH.

**Desire to have children**

For many women the pregnancies were wanted and planned but there some women did not plan or want their pregnancy. For several women the pregnancy was neither planned nor wanted and the physicians refused to perform abortion, asking for a lot of money.

**Antenatal care**

Women were in general happy to hear about their pregnancy. One woman (26 years, Chisinau) mentioned "I thought not to go to doctor immediately, so that they do not make me to make abortion". The term to start antenatal follow-up ranged from 9 weeks to 6 months. All women were followed-up by circumscription and the attitude of medical staff during antenatal care was normal or good. For many the physician has maintained confidentiality, except for a few cases, who mentioned the physician told to people in the community.

On the Right Bank usually women got to RDVD immediately after final confirmation of HIV status, by referral from ID physician. The care at RDVD was good to excellent and the attitudes were good. Everyone mentioned being told about ARV prophylactic treatment and avoiding breastfeeding. For out-of-town pregnant women it was difficult to get to RDVD because of pregnancy, they felt sick in transportation, because of transportation cost or because they needed to take time off work. On the Left Bank some women went to RDVD and some to the AIDS Center in Tiraspol. All were very pleased with services in both centers.

**ARV prophylactic treatment**

All women from the Right Bank started ARV at 7 months, and came once or twice for medication to RDVD, everyone had no adverse reactions. Women from Tiraspol started ARV later(week 33-37) and two women from Tiraspol started ARV prophylaxis but did not complete because of adverse reactions.

**Social services and peer-support**

Most have discussed with the NGO social worker that is located at RDVD. She helped them accept their diagnosis, but also gave PMTCT advice. Two women talked to other pregnant HIV-positive women:

"I attended once a meeting with other HIV+ women. It is clear they have a stain on their souls. But I understood I am not alone and I feel more confident since." 27 years, Balti
Only one from the Right Bank has had contact with self-support NGOs and received financial support and informational materials. On the Left Bank contact with other HIV-positive women or NGOs was lower.

**Intranatal care**

Women had different experiences regarding the place of delivery: at Republican Mother and Child Center, Hospital no. 1, in Balti and Tiraspol. The delivery experiences varied, some had easy deliveries, some long deliveries, one mentioned a situation that should not occur in the case of HIV-positive women:

"**Difficult, long time between membrane rupture and the actual delivery**" 22 years, Balti

The feedback about the care was different: four had good opinions and one had very bad experience:

"**Minus 10. I gave birth late at night and until the morning when they brought everything I needed from home I warmed the baby with my blouse, without any blankets, or pampers, nothing.**", 37 years, Chisinau

Asked if they have received the same care as HIV-negative women, the responses were different: most were positive or neutral with only one woman experiencing very bad attitude from the Right Bank:

"**Far from it. They forgot to feed me. They did not have with what to feed the baby, because formula is released after the head nurse comes at 9 AM in the morning, so my baby was not fed until after the work day started.**" 37 years, Chisinau

On the Left Bank more women have experienced bad attitudes around delivery. Some differentiated between the attitudes of physicians and nurses and lower personnel who had the worst attitude and did not keep confidentiality.

"**When they learned in the department I had HIV, they banned me from putting my food in the common fridge. I came to the AIDS Center and got many leaflets about HIV transmits and how it DOES NOT transmit and gave them to the personnel**" 33 years, Tiraspol

All of them were isolated after delivery, one stayed with other HIV-infected women. Most did not see a difference in attitudes of other women towards the and some mentioned that physicians I maternity did not maintain confidentiality. Asked about attitudes of maternity personnel, about half mentioned bad attitudes.

"**During delivery the midwife offended me constantly. For many hours all the materials infected with my blood etc have not been disposed.**" 37 years, Chisinau

"**I stayed in the exam alone like a dog. Before delivery I stayed in an isolation room, then they put a woman that probably had TB, she was coughing and spitting, I cried for a full day at the door of the head of department and they took her away from the isolation room**". 27 years, Tiraspol

**Infant feeding**

All women did not breastfeed and started formula feeding in the maternity. Most were given formula in the maternity and then women started getting formula form RDVD by coming after it. Four women were prescribed lactation suppression. In one case it did not work and the woman does no know how to stop milk, two use traditional methods of bandaging the breasts. Women did not feel it was difficult to explain family members and social network why they did not breastfeed, except one whose mother was insisting on breastfeeding because she did not know her daughter was HIV-positive. Most on the Right Bank said they had enough formula, except
one woman who stated she finished the planned quantity from RDVD earlier and then she had to buy. On the Left Bank most women had to buy additionally formula.

**Postnatal follow-up and care**

Only two women said they discussed contraception with their family physician and OB/GYN in maternity. The maternity pediatrician explained to four women how to take care of the child and one even demonstrated how to prepare formula, how to hold the bottle and talked about bottle sterilization.

Five women were visited by family physician and nurse home and explained how to take of the baby and all thought the primary care health workers had normal or good attitudes.

Two women mentioned being in contact with other HIV-infected women. None has been referred by medical staff to social services and two have been in contact with self-support NGOs for legal and financial help.

**Additional needs**

Most women on the Right Bank thought they would need help with the kindergarten, since they do not take children exposed to HIV. One woman thought that perhaps even separate kindergardens and schools for HIV-positive children might be a good idea. Also, the idea to get children earlier to kindergarten came up:

"To extend the social insurance, they give it until 18 months, but they take children at kindergarden at 24 months and I do not know what to do with him for 6 months", 37 years, Chisinau

One woman thought she needed a place to work because she cannot get hired because of HIV status and another woman mentioned she needed to stay in good health, to be able to work. The most extreme case was of a woman in really poor financial state:

"I need financial support. I live alone with 2 babies on 150 lei/month. This year Christians helped us with feeding, because we are starving", 37 years, Chisinau

Asked what should change in the health system, one woman mentioned that attitudes need to change.

"People should be more kind and all the others are solvable. Those that work with HIV-infected understand the situation and have a good attitude, but those from maternities and other services where they do to know very well what HIV is have bad attitudes", 27 years, Balti.

On the Left Bank women could not identify their additional needs, except for several mentions about a need of better attitudes of medical personnel.

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