UNITE FOR CHILDREN  UNITE AGAINST AIDS

PREVENTION OF HIV INFECTION IN INFANTS:

DOCUMENTING AND LEARNING FROM THE UKRAINE EXPERIENCE

Kyiv - 2007

Foreword

Eastern Europe and the Commonwealth of Independent States Region has one of the fastest growing HIV/AIDS epidemics in the world. The spread of HIV infection among children is of great concern. The number of HIV-infected women is steadily increasing, as is the risk of transmission to newborns.

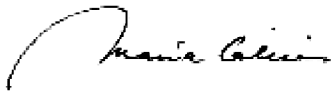
In 2004, the Regional Offices of WHO, UNICEF UNAIDS and UNFPA jointly developed the Strategic Framework for the Prevention of HIV Infection in Infants in the Region. The aim is, by 2010, to virtually eliminate HIV infection among children by reducing mother-to-child transmission (MTCT) rates to 2 per cent, and the number of HIV-infected infants per 100,000 births to less than one.

Most countries in this region have a high level of antenatal care coverage, extensive healthcare infrastructure, high literacy rates and a relatively low number of infections, which make these ambitious targets achievable.

Ukraine has made substantial progress and reduced the MTCT rate from above 27 per cent in 2000, to 8 per cent in 2004 - a remarkable achievement. With 90 per cent coverage of antenatal care with PMTCT services, Ukraine is one of eight countries in the world on track to achieve the UN General Assembly Special Session goal on HIV/AIDS (June 2001) - over 80 per cent access coverage by 2010.

While there is room to improve the Ukraine PMTCT programme, there are many important lessons to be learned from its successes. I therefore commend this publication and recommend it for wider distribution.

I would like to congratulate Dr. Claire Thorne and Prof. Marie-Louise Newell from the Institute of Child Health at University College, London, and Dr. Nadiya Zhylka from the Maternal and Child Health Department at the Ukraine Ministry of Health, on carrying out this review. I also greatly appreciate the valuable contributions of Dr. Sanjiv Kumar, Anthony Lisle, Nicola Bull, Diane Widdus, Dr. Tetyana Tarasova. Finally, I would like to thank those government officials and experts from Ukraine who contributed with their experience and insights.



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Contents

Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral therapy
ARV	Antiretroviral
CI	Confidence interval
CS	Caesarean section
FSW	Female sex worker
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HAART	Highly active antiretroviral therapy
HIV	Human Immunodeficiency Virus
IDU	Injecting drug use
IDUs	Injecting drug users
JSI	John Snow Inc
MoES	Ministry of Education and Science
MoH	Ministry of Health
MoJ	Ministry of Justice
MoLSP	Ministry of Labour and Social Policy
MSF	Medecins Sans Frontieres
MTCT	Mother-to-child transmission
NVP	Nevirapine
OI	Opportunistic infection
PCR	Polymerase chain reaction
PEP	Post-exposure prophylaxis
PMTCT	Prevention of mother-to-child transmission
UNGASS	UN General Assembly Special Session on HIV/AIDS
VCT	Voluntary counselling and testing
WHO	World Health Organization
STI	Sexually transmitted infection(s)
SW	Sex workers
ZDV	Zidovudine
PLWHA	People living with HIV/AIDS

Executive Summary

The aim of this review is to document the experience of PMTCT in Ukraine to date, highlighting the strengths and weaknesses of lessons learned within the current PMTCT programme.

The report is structured around the four pillars of PMTCT:

- Primary prevention of HIV infection within the context of MTCT;
- Prevention of unintended pregnancies among HIV positive women;
- Prevention of transmission from HIV positive women to their child;
- Providing care and support to HIV positive women, their infants and their family.

Since the initiation of the first national PMTCT programme in Ukraine in 2001, Ukraine has made substantial progress towards prevention of HIV infection in infants.

Evaluation of the first programme in 2003 by a national and international team, including WHO and UNICEF, allowed consolidation of effort and the development of the next phase of the PMTCT programme. Furthermore, the findings facilitated the development of 'The Strategic Framework for the Prevention of HIV Infection in Infants in Europe' (2004). This outlined strategies for the implementation of the prevention of HIV infection in infants at a national level, with the aim of achieving the Dublin Declaration PMTCT goals.

The first national PMTCT programme in Ukraine was focused on the third pillar, but the currently developed new programme (2005-2011), encompasses all three pillars: 'Comprehensive Additional Measures for Prevention of HIV Transmission from Mother to Child', and "Medical and Social Support to Children Born to HIV Positive Mothers", which is part of the "National Programme to Ensure HIV Prevention, Care and Treatment for HIV-infected and AIDS Patients for 2004 - 2008".

Primary prevention in women

Reducing the number of HIV-infected women of childbearing age will have a profound effect in reducing the number of infants at risk of infection in Ukraine.

Harm reduction and primary prevention activities to date have largely focused on specific groups (IDUs, FSW, and youth) and tend to be concentrated in urban areas in the most affected regions. Sentinel surveillance suggests that as many as nearly 4 in 10 IDUs may be HIV-infected in the most affected regions of Ukraine.

Coverage of IDU by HIV prevention programmes is at a substantially lower level than that needed to impact significantly on the further development of the epidemic. However,

harm reduction programmes for established IDUs have been effective where these have been implemented and evaluated, showing reductions in risky injecting behaviour, and some indications of reduced sexual risk-taking.

There is no epidemiological evidence to suggest a stabilization or decline in HIV incidence among women of childbearing age in Ukraine. Indeed, the evidence suggests that the HIV epidemic is maturing from a concentrated to a generalised epidemic. Although the epidemic to date in pregnant women has been concentrated in specific risk groups and bridging populations, there is a concerning increase in the numbers of HIV-infected pregnant women without specific risk factors. This underscores the need to scale-up primary prevention activities, particularly those targeted at young people and to develop a comprehensive national HIV prevention strategy.

Success in changing sexual behaviour cannot be achieved through a single approach and a variety of strategies have been used in Ukraine to date.

Current good practices regarding primary prevention among youth include:

- Introduction of life-skills teaching into secondary schools curricula;
- Provision of youth friendly clinics and peer-to-peer counselling;
- Targeted primary prevention activities in big cities for highly vulnerable groups of children and adolescents, such as street children.

A shift in perception at the policy-making level is essential regarding PMTCT and primary prevention.

Advocacy and education are needed to ensure that primary prevention in women of childbearing age is understood to be the most cost-effective form of prevention of HIV infection in infants.

Greater integration between PMTCT and primary prevention activities is vital, and the currently missed opportunity for primary prevention among pregnant women with negative antenatal HIV tests must be addressed.

Key Recommendations

- Establish a comprehensive national HIV prevention programme;
- Establish age and gender specific approaches to primary prevention and harm reduction;
- Promote use of condoms among young people through skills based education;
- Facilitate peer-to-peer preventive counselling and education in prevention programmes;

- Fully integrate family planning counselling and services into the existing youth services and programmes, incorporating "dual protection" against HIV infection and unintended pregnancy;

- Scale-up harm reduction and prevention projects directed at specific risk groups (IDUs and SWs), particularly in areas outside the most affected regions;

- Adopt a long-term approach to expanding harm reduction among IDUs incorporating drug substitution therapy;

- Develop prevention activities directed at young people at risk of initiating IDU or those who are "recreational" but not yet established IDUs;

- Exploit potential role of treatment centres in harm reduction and STI testing, as centres providing information on the sexual acquisition of HIV;

- Urgently address the currently missed opportunity for primary prevention among pregnant women with a negative HIV test through PMTCT;

- Tap the potential for communicating primary prevention messages to women undergoing induced abortions and attending STI clinics;

- Survey second generation HIV to monitor epidemiological trends with particular application to those indicating spread from ‘traditional’ risk groups to bridging populations and beyond;

- Facilitate the development of preventive strategies by applying behavioural surveillance to IDUs and SWs;

- Use mass media to increase public awareness of HIV, how it is transmitted and to promote attitudinal changes, particularly concerning stigma.

Prevention of unwanted pregnancies

Access to effective contraception is necessary for a woman with HIV infection if she wishes to avoid pregnancy. This requires integration of services for HIV infected women and general reproductive health services.

Prevention of undesired pregnancy in Ukraine is generally a problem, with over 200,000 unintended pregnancies in 2004. This situation is likely to escalate in the case of HIV-infected women, particularly those from specific groups such as IDUs and sex workers.

There is limited available information on the use of and unmet need for contraceptives among HIV-infected women in Ukraine, including whether or not provision of appropriate

postnatal family planning counselling for HIV-infected women is currently occurring on a national basis.

The lack of specific guidelines on the care and management of HIV-infected women is a likely contributing factor, with regard to the current lack of integration between family planning services and clinical management of HIV-infected women. The specific contraception needs of women on HAART will become increasingly relevant with the roll-out of ARVs, and this issue needs to be addressed.

Key recommendations

- Advocate for better reproductive health and family planning services for women at risk of, or already infested with HIV;
- Provide free contraceptives to HIV-infected women;
- Systematically offer family planning services to HIV-infected women identified through antenatal testing in the antenatal or postnatal period;
- Set clear guidelines indicating which health care providers and/or settings have responsibility for providing family planning services to HIV infected women;
- Provide contraception as an integral component of the clinical management of HIV-infected women on HAART.

Prevention of mother-to-child transmission of HIV

The dramatic decline in the MTCT rate from levels above 25 per cent in 2000 to 8 per cent in 2004 has been a major indicator of success in the third pillar in Ukraine. Successful identification of HIV-infected women at a sufficiently early stage of pregnancy is crucial to the success of a PMTCT strategy. The antenatal HIV testing protocol, on the basis of an 'opt-out' strategy, supplemented with rapid testing during labour for untested women, has resulted in a reported coverage of 99 percent in 2004.

The current national strategy for use of prophylactic antiretrovirals for PMTCT includes the use of short-course zidovudine prophylaxis and/or single dose nevirapine for mother and infant, depending on the timing of identification of the mother. In 2005, 90 percent of infected women received antiretroviral prophylaxis for PMTCT.

The use of elective caesarean section as a PMTCT intervention remains under-developed, with an elective caesarean section rate among HIV-infected women of 14 percent, similar to the rate in the general population.

Formula feeding is recommended for all HIV-infected women. There are reports of a lack of support regarding alternative feeding for infected women, including poor access to free breast milk substitutes.

Ukraine is currently undergoing a transition regarding diagnosis of infants born to HIV-infected mothers. At the time of this review, with HIV DNA PCR testing not widely available, most HIV-exposed infants were diagnosed on the basis of antibody tests, which cannot give a definitive diagnosis of infection until the child is 18 months old. PCR equipment has since been procured for 7 regions, with finance from the GFATM and the World Bank. In some regions, PCR diagnostics for infants has started, and it is planned to introduce this on a national scale from early 2006. PCR diagnosis will facilitate the planning of services, particularly with regard to the antiretroviral treatment of infected children, as well as allowing a more timely and accurate evaluation of the effectiveness of the PMTCT programme.

PMTCT training initiatives need to be scaled-up to achieve national coverage; several are currently underway, carried out by a variety of national and international organizations.

The third pillar of the PMTCT strategy in Ukraine has been an undisputed success.

Factors contributing to the success in reducing MTCT in Ukraine include:

- A strong political commitment to PMTCT;
- The important role of international donors, NGOs and other international organizations;
- The development of the PMTCT programme from a strategic base within MCH services, including the integration of HIV testing within existing antenatal screening infrastructure;
- Ongoing evaluation and modification of the national PMTCT programme;
- High levels of antenatal coverage;
- Good access to antiretroviral drugs for prophylaxis, procured with GFATM funding.

Key Recommendations

- Voluntary HIV testing free of coercion;
- Dissemination of new national guidelines on VCT of pregnant women. Provide appropriate training giving particular attention to information and the need for appropriate referrals to other services (NGOs, harm reduction programmes etc);
- Update protocols for antiretroviral prophylaxis for PMTCT and mode of delivery in line with current WHO guidelines;
- Ensure an uninterrupted supply of antiretroviral drugs for PMTCT;

- Access to free breast-milk substitute formula for all HIV-infected women. Provision of this should be consistent with the principles and aim of the International Code of Marketing of Breast-milk Substitutes;

- Counselling on infant feeding, practical information and support for all infected women;

- Research to assess compliance with infant feeding recommendations among HIV-infected mothers; identification of risk factors for non-compliance;

- Health care providers to receive training in optimal infant feeding practices;

- Establishment of a national protocol for the follow-up and PCR and antibody testing of HIV-exposed infants;

- Adequately monitor the epidemiology of the HIV epidemic in pregnant women and infants, the effectiveness of different combinations of PMTCT interventions, programme services and quality, by updating the PMRCT monitoring/evaluation system;

- Scale up training and information provision, especially at curriculum-level, for obstetricians-gynaecologists, paediatricians, neonatologists, midwives and other appropriate health care professionals working with HIV-infected pregnant women and their infants;

- Establishment of strong working partnerships between the Ministry of Health and NGOs to include VCT, outreach services, harm reduction, promotion of maternal and child health and PMTCT.

Providing care and support to HIV positive women, their infants and their family

A national protocol on antiretroviral treatment for women and children has recently been developed. However, guidelines on management of HIV-infected women and children, including the issues of social care and support for PLWHA have yet to be developed and/or disseminated.

Guidelines on the general management of HIV-infected children are needed to supplement the existing training manual on OIs and ARVs in children developed by UNICEF and the Ministry of Health. Medical care for HIV-infected women and children is usually highly centralised, focused around the services provided by AIDS Centres.

Good and innovative models of care have been developed in Ukraine, including satellite clinics, integrated care for infected women and their children provided by medical providers and NGOs and day care centres for HIV-infected children; but these have yet to be widely implemented.

The pressing issue of abandonment of infants born to HIV-infected mothers must be considered in the context of abandonment in the country in general. The HIV epidemic has placed huge demands on an already over-burdened child welfare system, and a better understanding of the incidence and risk factors for infant abandonment among HIV-infected women is needed. Provision of alternative social care of HIV-infected social orphans is a critical issue, which will increase in importance. There will be an increasing number of older, infected children as the MTCT epidemic matures. Consensus needs to be reached regarding the optimum approach for their care, with close co-operation required between the Ministries of Health and of Education.

Ukrain is facing some substantial challenges with regard to the provision of care and support for HIV-infected mothers and their children. This is in common with other CIS countries with health systems affected by economic transition.

Challenges and goals:

- Guaranteeing access to free medical and psychosocial care for HIV infected women and children, wherever they live;
- Providing HAART to those women and children who need it;
- Scaling-up medical and laboratory capacity-building with regard to treatment of HIV/AIDS;
- The need to move from vertical to horizontal structures for care of HIV-infected women and their children;

- Ensuring confidentiality for HIV-infected women and their families;
- De-stigmatising PLWHA, both within the general public but particularly for the medical community.

Key Recommendations

- Develop and disseminate comprehensive national guidelines on the clinical management and treatment of HIV-infected adults, including pregnant women;
- Develop a comprehensive strategy for the care and support of HIV-infected children and their carers, with input from all stakeholders, together with international organisations, such as WHO, UN agencies and donor organisations;
- Increase the availability of CD4 count monitoring to guide therapeutic decision-making and facilitate monitoring of HIV disease progression;
- Implement community-based HIV comprehensive care, using satellite clinics for the care of HIV-infected women and their families, following the model used in Odessa;
- Increase capacity-building concerning care and support of HIV-infected women and their families, also health care professionals, psychosocial professionals, NGOs, educators, etc;
- Scale-up implementation of multi-sectoral psychosocial support for HIV-infected mothers, involving governmental and non-governmental organisations;
- Facilitate the provision of psychosocial support to HIV-infected women and their families and promotion of linkages and co-operation between medical service providers and NGOs, especially those run by PLWHA;
- Research to gain a better understanding of the incidence and risk factors for infant abandonment among HIV-infected women, and to facilitate the development of specific targeted interventions;
- Undertake awareness raising on HIV/AIDS among educators to overcome stigma and discrimination in schools and pre-schools;
- Development of clear inter-departmental guidelines on the education of HIV-infected children, including recommendations for training pre-schoolers and school staff.

Conclusions

Ukraine has made considerable progress towards achieving the PMTCT targets proposed in the UNGASS Declaration of Commitment on HIV/AIDS and the Dublin Declaration. However, major challenges to reducing the MTCT rate still remain. These include reducing the proportion (currently around 13 percent) of HIV infected pregnant women who do not receive any ARV prophylaxis, and maintaining the level of ARV prophylactic coverage needed in the face of increasing numbers of HIV infected women being identified.

Monitoring and evaluating what has been achieved to date and improving the quality of services will further strengthen the PMTCT strategy in Ukraine.

The focus now is on sustainability of the PMTCT programme, the achievements of even larger reductions in MTCT, addressing the needs of vulnerable groups with poor access to PMTCT services and strengthening the comprehensive approach across all four pillars.

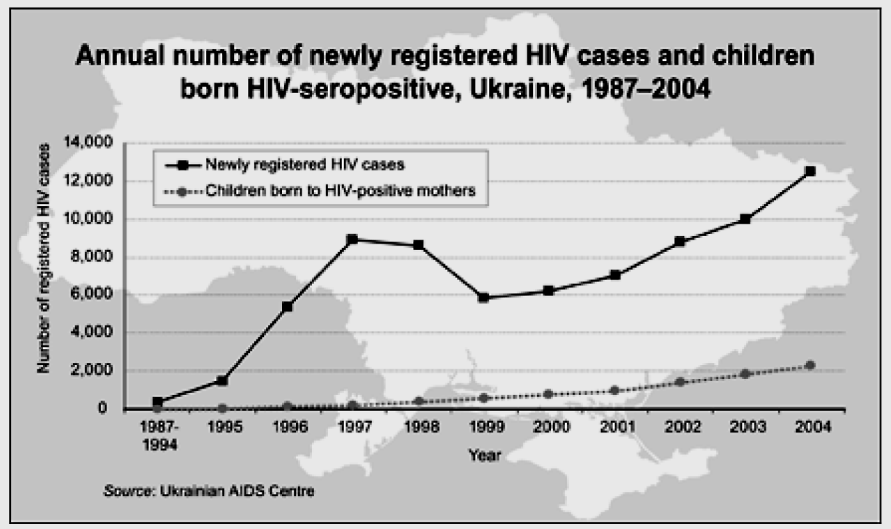
1. Introduction

1.1 The evolving HIV epidemic in Ukraine

At least 1.3 million people are living with HIV in Eastern Europe and Central Asia, which are experiencing the most rapidly growing HIV epidemic worldwide (UNAIDS 2004). The HIV epidemic became established in Eastern Europe in the mid to late-1990s, and two countries, the Russian Federation and Ukraine are bearing the brunt of the epidemic (Hamers & Downs 2003; Kelly & Amirkhanian 2003).

In Eastern Europe, an estimated 34 per cent of the total HIV-infected population are women of childbearing age, compared with 26 per cent in Western Europe (Coker et al 2005).

Figure 1



(From: UNAIDS 2004, Report on the Global AIDS Epidemic)

The HIV epidemic in Ukraine has been fuelled by IDU, with more than three-quarters of all HIV-infected individuals in the late 1990s estimated to be IDUs (Ukrainian AIDS Centre). The Spread among this population has been accelerated by:

- High IDU prevalence in Ukraine (with just over one per 100 people injecting drugs (Aceijas et al. 2004));
- Young age at IDU initiation;
- High-risk methods of drug use and sexual behaviour;
- Low awareness of HIV prevention;
- The intersecting epidemics of IDU and commercial sex work.

Results of HIV surveillance of sentinel groups has revealed very high seroprevalence among IDU and FSW, with lower but still concerning seroprevalence among STI patients

(Box 1); surveys were carried out in 2004 in eight of the most affected oblasts, in Donetsk, Lutsk, Odessa, Poltava, Simferopol, Sumy, Kharkov and Kherson.

Although, IDU remains the main transmission group to date, the contribution of IDU has declined over time, while the proportion of adults infected through sexual transmission has increased from 14 per cent in 1999-2003 to 32 per cent in 2004 (Ukrainian AIDS Centre, 2005). There have been concurrent increases in the proportion of women affected, with women accounting for 42 per cent of people newly diagnosed with HIV in 2004. Although the HIV epidemic has largely been concentrated in the southern and eastern parts of the country, which are also the regions with the highest prevalence of IDU, there is now evidence of sharp increases in regions in the centre of the country which were previously thought of as minimally affected by the HIV epidemic (UNAIDS 2005). Furthermore, there is increasing evidence of HIV spreading to bridging populations (i.e. sexual partners of IDU and SW clients), which then facilitates more rapid transmission to the general heterosexual population.

The role and impact of bridging populations is critical in the evolution of HIV epidemics. In Ukraine where there is a high prevalence of IDU in the general population, especially among the young and sexually active, these bridging populations may be relatively large compared with settings with much lower IDU prevalence, such as in much of Western Europe (Aceijas et al. 2004). The rising incidence of STIs associated with transition (Rhodes and Simic 2005), indicates an increase in prevalence of risky sexual behaviours, which is also likely to be concentrated among young people. These factors have most likely been instrumental in the evolution from a concentrated to a generalised epidemic in Ukraine.

Box 1: HIV seroprevalence in risk groups: sentinel survey results (WHO/UNAIDS 2004)

Risk group	**Prevalence**	**(range across surveys)**
IDU	38.6 per cent	(12-59 per cent)
FSW	20.9 per cent	(10-31 per cent)
- FSW and IDU	43.1 per cent	(23-67 per cent)
- FSW non-IDU	10.5 per cent	(4-17 per cent)
STI patients	3.7 per cent	(1-9 per cent)
Pregnant women attending ANC	0.5 percent*	

** MOH data, 2005*

There was cause for concern in the consensus estimates reached by the MoH, WHO, UNAIDS and the International HIV/AIDS Alliance in Ukraine, regarding figures relating to the maturation of the HIV epidemic. These estimated 4,217 people newly diagnosed with AIDS and 2,188 people dying with AIDS in 2005 - both substantial increases over 2004 fig-

ures. The prevalence of HIV infection in adults aged 15-49 was estimated to be 1.46 per-cent with 377,600 people estimated to be living with HIV at the end of 2005.

1.2 The UNGASS goals

In June 2001, Heads of State and Representatives of Governments met at the United Nations General Assembly Special Session dedicated to HIV/AIDS. At the meeting, a Declaration of Commitment on HIV/AIDS was issued (UN 2001).

The main priorities of this Declaration are:

- To ensure that people, and particularly young people, everywhere, are aware of what to do to avoid becoming infected with HIV;
- To prevent MTCT;
- To provide treatment to all those infected;
- To scale-up the search for a vaccine;
- To care for all whose lives have been devastated by HIV/AIDS, particularly orphans.

The specific goal with regard to PMTCT was as follows:

- By 2005: to reduce the proportion of infants infected with HIV by 20 per cent; and 50 per cent by 2010;
- This will be done by ensuring that 80 percent of pregnant women accessing antena-tal care have information, counselling and other HIV-prevention services available to them;
- Increasing the availability of and access to effective treatment to reduce MTCT;
- Effective interventions for infected women;
- These will including VCT, access to treatment, especially ART;
- Free breast-milk substitutes where appropriate;
- Provision of a continuum of care.

Additional goals with relevance for PMTCT include:

- Ensuring that by 2005, at least 90 per cent, and by 2010 at least 95 per cent of young men and women, aged 15-24, have access to the information, education, youth-specific HIV education, peer education, and services necessary to develop the life skills

required to reduce their vulnerability to HIV infection;

- National policies and strategies to strengthen governmental, family and community capacity to provide a supportive environment for orphans, and girls and boys infected and affected by HIV; to be implemented by 2005.

These strategies should make provision for:

- Appropriate counselling and psychosocial support, ensure school enrolment, access to shelter, good nutrition, and health and social services on an equal basis with other children.

The Dublin Declaration on Partnership to fight HIV/AIDS in Europe and Central Asia, which was adopted at the Irish EU Presidency Conference: ' Breaking the Barriers - Partnership to Fight HIV/AIDS in Europe and Central Asia', in February 2004, issued the most stringent PMTCT goal to date - by 2010 to "eliminate" (i.e. reduce the MTCT rate to <2 per cent) vertically acquired HIV infection in infants.

The Strategic Framework for the Prevention of HIV Infection in Infants in Europe, was published in 2004, and developed by UNAIDS, UNICEF and UNFPA under the leadership of WHO. It outlined strategies for the implementation of the prevention of HIV infection in infants at a national level, with the aim of achieving the Dublin Declaration goals (WHO 2004).

1.3 The Purpose of this Review

This report is structured around the four pillars of PMTCT as outlined in the Strategic Framework for the Prevention of HIV Infection in Infants in Europe:

1. Primary prevention of HIV infection within the context of MTCT.
2. Prevention of unintended pregnancies among HIV positive women.
3. Prevention of transmission from HIV positive women to their child.
4. Providing care and support to HIV positive women, their infants and their family.

The aim of this review is to document the experience of PMTCT in Ukraine to date, in order to provide concrete recommendations as to what is required to strengthen the programme around the four pillars of PMTCT.

It will highlight the lessons learned and examine the weaknesses and strengths of the programme.

2. Primary prevention in women

2.1 Introduction

Reducing the number of HIV infected women of childbearing age will have a profound effect in reducing the number of infants at risk of infection. For every avoided HIV infection in a woman of childbearing age there is an avoided infection in any child she might have. Primary prevention will also have an indirect impact on the well-being of children, because preventing HIV infections in parents decreases the potential for orphanhood.

Reducing the incidence of HIV infection in women of childbearing age is seen as the key to prevention of HIV infection in infants, and is one of the four approaches delineated in the Ukrainian national PMTCT programme (MoH 2003).

Young women are well recognised as facing higher risks of HIV infection than their male peers. Young women world-wide aged 15-24 years are estimated to be 1.6 times more likely than young men to be HIV-infected (UNFPA 2005). This not only reflects women's increased biological susceptibility to acquisition of HIV, but also greater vulnerability, due to a variety of complex socio-cultural and behavioural factors.

The cornerstone of primary prevention should be to change or maintain behaviours directed at avoiding or minimizing risk (Halperin et al. 2004).

Primary prevention includes:

- Provision of information;
- Education and communication campaigns;
- Condom promotion;
- STI treatment;
- Harm reduction activities.

Harm reduction among IDUs aims at preventing the transmission of HIV and other infections that occur through the sharing of non-sterile injecting equipment and drug preparations. Harm reduction may consist of a variety of approaches including needle and syringe exchange programmes, condom provision, substitution therapy and psychosocial counselling. Such approaches have been found to be very effective in prevention of HIV infection.

UNAIDS carried out a review of needle and syringe exchange programmes implemented between 1993 and 1998 in 29 cities worldwide, which demonstrated a highly significant and substantial decline in seroprevalence among IDUs (more than 50 percent on average annually) and with no increase in IDU prevalence itself.

Lurie and Drucker estimated the number of HIV infections that could have been avoided if a national needle exchange programme in the USA had been implemented between 1987 and 1995: this estimate ranged from a 15 percent to a 33 percent incidence reduction (Lurie & Drucker 1997).

Harm reduction and targeted prevention activities usually have the greatest impact on the rate of spread of HIV in the early phases of an HIV epidemic, where it remains concentrated in specific risk groups.

There is growing literature regarding the effectiveness of primary prevention strategies of sexually acquired HIV infection. The need has been highlighted for a range of approaches to tackle primary prevention of heterosexually acquired HIV infection, especially among youth.

Different approaches are needed depending on the setting but should include:

- Helping adolescents delay sexual intercourse;
- Encouraging partner reduction among the sexually active;
- Promotion of condom use (Stammers 2005).

A recent Cochrane review of the effectiveness of condom use in reducing heterosexual transmission of HIV concluded that consistent use of condoms results in 80 per cent reduction in HIV incidence (Weller & Davis 2002). Among groups with high risk behaviours, such as SWs or individuals with multiple partners, priority should be given to promoting consistent and correct condom use (Halperin et al 2004).

2.2 Target Populations in Ukraine

Injecting drug users

The "IDU epidemic" in Ukraine is relatively recent, with a low prevalence of IDU until the late 1980s and early 1990s (UNDP 2004), although non-injected opiate use has been traditional in some areas for many years.

Increases in prevalence of all drug use among young people partly reflects the increased accessibility of illicit drugs, as a result of increased trafficking from South West Asia and domestic opiate production; in addition to the socio-economic changes which accompanied Ukraine's political transition (Rhodes and Simic 2005). This has contributed to an increasing prevalence of illicit, and largely injecting, drug use in the country, since the early 1990s (Layne 2001).

The estimated current prevalence of IDU in Ukrainian adults aged >15 years is 1.19 per

cent (which is a mid-estimate, rising to 1.8 percent for the high estimate), compared to an average of 0.3 percent in Western Europe and 0.6 percent in North America (Aceijas et al 2004).

On the basis of current estimates, there are at least 120,000 to 140,000 female IDUs in Ukraine, most of who will be of child-bearing age. However, it is uncertain what definition of IDU has been used in such estimates - for example, whether lighter, 'recreational' users have been included or not.

With regard to PMTCT, preventing female IDUs from becoming HIV infected is important, because there is evidence to suggest that they may be more likely to transmit infection to their infants.

The reasons for this are:

- Late presentation to antenatal care and thus an incomplete prophylactic regimen;
- Poorer adherence to antiretroviral drugs, etc.;
- Also, women in this group are at increased risk of abandoning their babies after delivery.

Considerable research into risk behaviours is being carried out currently with input from UNICEF Ukraine, the Ukrainian Institute for Social Research and the Addiction Research Centre, Rotterdam (Box 2).

Box 2: Summary of findings and recommendations from the UNAIDS Ukraine 2003 report, 'Prospects for development of HIV Prevention Programmes among Injecting Drug Users'

Injecting drug use statistics

Total number of IDUs are 5 to 7 times higher than indicated by official data:

- there are at least 560 000 IDUs living in urban areas;
- lowering of age at initiation of drug use (lowest reported age was 7 years);
- male:female ratio was 3:1 and the trend is towards increasing numbers of young drug users;
- 29 per cent IDUs had shared a syringe in the past month overall, only 28 percent reported consistent condom use overall (range, 2-62 per cent), 50 per cent had random or commercial sex;
- on average IDUs had 4 random sex partners per month.

Harm Reduction:

- by 2003, there were 36 harm reduction projects covering 18 of the 27 Ukrainian oblasts, in 14 cities and towns;
- supported by the International Renaissance Foundation, the IMF and the International Alliance on HIV/AIDS;
- by 2003 no more than 15 per cent of the IDU population in Ukraine were covered by HIV prevention projects. This is substantially lower than the 60 per cent identified by experts as the coverage required if there is to be a beneficial impact on the HIV epidemic;
- positive results of harm reduction programmes have become apparent, including an increased level of awareness of risk of HIV infection, a decline in certain injecting risk behaviours such as syringe sharing;
- however, there was less evidence of a decline in risky sexual behaviours.

Recommendations

- The report confirmed, "the urgent need for the continuation and expansion of preventive programmes among IDUs";
- Recommendations for scaling-up IDU-targeted HIV prevention activities included: expansion of needle exchange points, information/education campaigns, introduction of substitution therapy and more research.

In a recent survey of young (aged <24 years) IDUs and their non-IDU friends in Kyiv, Odesa, Poltava and Pavlograd, the average age at initiation of IDU was 17.7 years and substantial

HIV risk behaviours were identified.

The survey identified some important gender differences regarding IDU initiation It reported that females tended to be initiated more often by sex partners, and that usually they had not planned initiation of IDU.

The group have recommended that to be effective, preventive strategies (demand-and-harm-reduction) should be targeted at specific groups. These groups would include adolescents and young people at risk of starting IDU; people who have recently started IDU but have not yet made the transition to regular use and become established IDUs.

Booth and colleagues carried out a research project in 2002 among IDUs from Kyiv, Odesa, and Makeevka/Donetsk, to explore behaviours associated with self-reported HIV infection. Their findings revealed that HIV-infected IDUs were more likely to engage in risky injecting behaviours than non-infected IDUs, despite knowledge of their infection status. Interestingly, among those who were sexually active, HIV-infected individuals were more likely to have used a condom in the preceding month than those not infected (Booth et al. 2004). This illustrates that some harm reduction messages are getting across.

In Ukraine, as in many other settings, IDU contributes to the expansion of the HIV epidemic far beyond the group of IDUs themselves. Although only an estimated 25 per cent of IDUs in Ukraine are thought to be female, the impact of IDU on the acquisition of HIV among women in the country is considerable as a result of sexual contact with male IDUs. Estimates of the size of the IDU population in Ukraine vary and are likely to underestimate the problem. However, recent estimates suggest that there are around half a million people who are sexual partners of the 324,000 to 425,000 IDUs (MoH, UNAIDS 2006); the vast majority of this "bridging population" will be women.

As the findings in Box 2 demonstrate, high- risk sexual behaviours are common among IDUs in Ukraine, highlighting the need for comprehensive HIV preventive interventions in this group - and going beyond those focusing on reducing injection-related risk.

Sex workers

Kyrychenko and Polonets (2004) assessed HIV risk behaviour among 58 FSWs in Vinnitsa in 2003, in association with the NGO Stalist. Nearly 80 per cent believed they were not at risk of HIV infection, despite the fact that 71 per cent had injected drugs; 59 per cent were regular IDUs and only half had consistent condom use in the past month. The main reasons for not using condoms were: client refusal and higher payment for condom-free sex.

In a larger survey of 636 FSWs in 12 major cities in Ukraine, Galustyan and colleagues (2002) identified drug addiction, and limited access to health care and sources of information, as among the key problems faced by this group of women. Sentinel surveillance has identified that sex workers who also inject drugs are, at 43 percent, the group with the highest HIV seroprevalence in Ukraine.

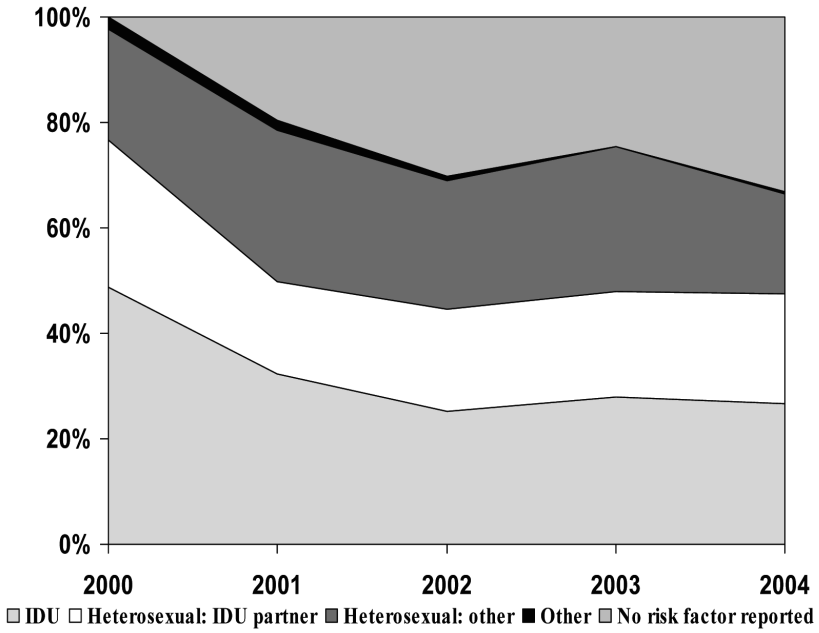
Pregnant women

Information from the European Collaborative Study (ECS), an epidemiological MTCT cohort study, provides useful information on the modes of acquisition of HIV infection among pregnant HIV-infected women enrolling in the study centres in Odessa, Simferopol and Micolaiev. Key results from an analysis of mode of acquisition and other characteristics of 1251 pregnant HIV-infected women enrolling in the study in Ukraine between 2000 and the end of 2004 are presented in Box 3.

BOX 3: Characteristics of HIV-infected pregnant women enrolling in ECS centres in Ukraine

- Median age at delivery was 25.4 years;
- Nearly one in ten were aged less than 20 years;
- 58 per cent were nulliparous and 57 per cent had no history of pregnancy termination;
- 39 per cent were married and 42 per cent were cohabiting;
- 28 per cent reported being current or ex IDUs (10 per cent current users), 25 per cent reported heterosexual risk factors for acquisition of infection and 46 per cent did not report any specific risk factors;
- Since 2000, IDU has gradually declined, with an increase in women reporting no risk factors.

Figure 1: Trends in mode of acquisition of HIV infection in pregnant women enrolling in the Ukrainian centres of the ECS, 2000-2004



(Ref: European Collaborative Study 2006a)

Over the past five years in the ECS, IDU as a risk factor has gradually declined. The proportion of women reporting heterosexual acquisition (of whom half had an IDU sexual partner) has remained relatively stable and there has been an increase in women reporting no risk factors (Figure 1). This latter group was very similar age to those reporting heterosexual acquisition and were significantly younger than IDUs, suggesting that they acquired infection heterosexually.

Although the epidemic to date in Ukraine in pregnant women has been concentrated in specific risk groups and bridging populations, these findings illustrate a concerning increase in the numbers of pregnant women without specific risk factors for acquisition. This is supported by anecdotal evidence from NGOs and health care professionals working in specific settings in Ukraine.

Prevalence of STI was estimated, and risk factors for STI acquisition identified, in a recent nested study of the ECS involving 520 pregnant HIV-infected women from Southern Ukraine. There was a high prevalence of bacterial STI (26.4 per cent [95 per cent CI 22.2-29.7], with prevalence's of Trichomonis vaginalis and syphilis 22.7 percent and 3.3 per cent respectively. Of note, this overall prevalence was 11 times higher than that among pregnant HIV-infected women enrolling in Western European centres. Risk factors for acquisition of a bacterial STI included being single and reporting a history of an IDU sexual partner (European Collaborative Study, 2006b).

Sexually active young women

A population-based, nationwide reproductive health survey in Ukraine took place in 1999, sponsored by USAID (Goldberg et al. 2001). The survey documented that age at sexual debut has declined over recent years, with median age of 18.4 in 1999 - although subsequent research has suggested that this has substantially declined [see below]).

Only 47 per cent of women with pre-marital sexual experience reported using contraception at their first sexual experience, of whom half used condoms. Ukrainian women were found to generally underestimate the protection given by use of barrier methods regarding acquisition of HIV and other STI, with only a third believing that condoms provide excellent or good protection.

Although the survey identified widespread knowledge of certain STI (with 91-99 per cent having knowledge of syphilis, gonorrhoea and genital ulcers), there was much less awareness of others - 74 per cent had never heard of HPV, 66 per cent of genital herpes and 54 per cent of Chlamydia.

Unfortunately, specific questions on HIV were limited in this 1999 survey. However, around a third of women were unaware that someone with HIV infection might not have any symptoms. There was substantial variation regarding knowledge of STI and HIV, with awareness increasing significantly with educational level and slightly with sexual experience; in general, it was somewhat lower among women living in Western oblasts.

Although notifications of syphilis and gonorrhoea have declined since the late 1990s in Ukraine, notification of other STIs continues to rise, including trichomoniasis, chlamydia and genital herpes (Mavrov & Bondarenko 2002). This suggests that risky sexual behaviour in the general population remains a problem (see also the STI prevalence's reported from the ECS above). In a more recent reproductive health review, it appeared that many people continue to be misinformed or uninformed regarding risk of acquiring STI/HIV (Seltzer et al. 2003).

Recent consultations regarding national estimates for the most-at-risk populations resulted in estimates of 520,000-720,000 male clients of FSWs. There are believed to be at least 1 million to 1.4 million women whose sexual partners are male clients of FSWs (MoH, UNAIDS 2006); these women are at risk of acquiring HIV and other STIs if they engage in unprotected sex but most are unlikely to be aware of their partner's risky sexual behaviour.

Children and adolescents

Adolescents are vulnerable to HIV acquisition in Ukraine because of a combination of sexual and drug taking behaviours that are increasingly prevalent.

In a USAID report of reproductive health, it was concluded that adolescents are at increasingly high risk of unintended pregnancies and STI/HIV, in part due to the relative rapid decline in age at sexual debut (Seltzer et al 2003). Average age of sexual debut in Ukraine is estimated now to be around 14 years for girls and 15 years for boys, a considerable decline since the 1999 reproductive health survey.

In a survey of 1300 sexually active adolescents in school, of whom just over half were girls, aged 14-17 years, 30 percent were identified as having high-risk sexual behaviours. (Pidlisnyy 2002). In another study, prevalence of correct knowledge of HIV and its transmission was only 28 percent among 13-17 year olds prior to an education intervention (Vasylyev 2004).

An advocacy needs assessment conducted by Global Youth Partners - Ukraine, reported that of the youth surveyed, 93 percent knew that HIV could be transmitted through blood, 86 percent through sperm and 53 percent through vaginal secretion. Only a third had discussed HIV issues with their parents, and 43 percent felt that HIV prevention issues were not sufficiently covered by their preferred sources of information, which were, in decreasing order of rated importance: television, national press, friends and the internet (Tereshchenko et al 2004).

Specific groups of children and young people are particularly vulnerable to acquisition of HIV, particularly street children.

In a research project involving adolescents from Russia, Georgia, and Ukraine, Goodwin and colleagues identified an urgent need for education regarding HIV/AIDS among Ukrainian shelter children. These children were found to be more sexually active and less

knowledgeable about means of HIV transmission than school children of similar age (Goodwin et al. 2004). The MoE reports that there are around 42,000 registered street children in Ukraine (UNAIDS 2006), which is likely to be an underestimate of the true number.

The National Reproductive Health Programme in Ukraine was initiated in 2001 and includes a priority to promote healthy reproductive behaviours among young people.

The USAID review of reproductive and maternal health in Ukraine, reported that although a variety of educational and health projects have been developed by international donors for youth, these rarely provide contraceptive services and information (Seltzer, et al 2003). The authors recommended that family planning counselling and services should be fully integrated into youth projects and university health centres.

It is estimated that one in a hundred people in Ukraine use injecting drugs, and many of these users will be young people.

Recreational drug use in Ukraine among young people is predominated by injection of "shirka" - a cheap opiate - or use of dissolved antidepressants. "Shirka" is easy to obtain and often the first time a young person uses drugs, it is intravenously (Lowry 2004)

2.3 Current primary prevention activities

A substantial proportion of the GFATM grant to Ukraine was allocated for intensifying prevention projects among most at risk populations, such as IDUs and SW.

Scaling-up prevention activities has been a priority of the International HIV/AIDS Alliance in Ukraine, which holds the stewardship of the Global Fund grant to Ukraine. Particular emphasis has been placed on reaching vulnerable populations, such as IDUs, SW, MSM and prisoners. This has been a joint action with the International Renaissance Foundation, the Ukrainian Harm Reduction Association and UNDP (see Box 4).

Prevention, particularly among IDUs, has been one of the priorities of the National Programme. Faith, Hope, Love, an Odesa-based NGO, initiated the first HIV prevention project among IDUs in 1996 and among FSWs in 1997. Since then, a large number of harm reduction projects have been initiated, mainly concentrated in cities with known high prevalence of IDU and/or HIV.

Harm reduction projects have been supported by a variety of international organisations including: UNICEF (counselling centres for young IDUs with associated development of guidelines, support-groups and training); UNAIDS, UNDP, the International Harm Reduction Programme, the Open Society Institute, the International Renaissance Foundation, USAID, the International HIV/AIDS Alliance, MSF and the East-West Fund, as well as state agencies.

Initially, harm reduction activities were limited to IDUs, these have now broadened out to include SWs and prisoners. A network of NGOs working in harm reduction has been estab-

lished (the Ukrainian Harm Reduction Association), in response to the increasing number of organizations working in this area, and there have been annual increases in the numbers of IDUs applying to their harm reduction projects.

A major challenge, as identified by the International HIV/AIDS Alliance, is the need to extend harm reduction and prevention programmes beyond regional capitals and major cities to smaller cities and rural areas; however, they report difficulties in finding NGOs who are willing to work in these settings (Chura 2004).

To date, the use of drug substitution therapy in Ukraine remains rare, limited to a pilot among HIV-infected IDUs.

BOX 4: International HIV/AIDS Alliance in Ukraine: summary of prevention activities

Faith, Hope and Love: an example of a long-established harm reduction NGO

- SUNRISE project - ***Scaling-up the national response to HIV/AIDS through information and services***
- Five year USAID-funded project which started in September 2004:
  - Aims to substantially decrease HIV transmission among most at risk and affected communities - by using and increasing access to high quality prevention, care, information and services;
  - Coverage: 8 areas most affected by HIV to date (Kyiv, Odesa, Donetsk, Mykolayiv, Dnipropetrovsk, Crimea, Kherson, Cherkasy).
- Mass media campaign:
  - 23 million Ukrainians reached with 'Behavioural Change Communications' to date;
  - Campaign on solidarity with PLWHA, aimed at reducing stigma and discrimination.
- National HIV/AIDS hotline:
  - Free, 24 hours/day, 7 days/week;
  - Information, counselling and support.
- Most at risk populations:
  - 44 339 IDUs and 4760 FSW in 2004 reached with a variety of preventive services including information provision, needle exchange, condom provision, psycho-social support.
- Secondary school initiatives:
  - Joint action with the Ministry of Education, UNICEF and others on introduction of 'Health Basics' module into the national secondary school curriculum.
- Capacity-building:
  - Increase capacity of NGOs, encourage exchange of information, such as best practices etc.

This Odesa-based NGO's activities are focused on harm reduction and have IDUs, FSWs and trafficked women as their target populations.

Faith, Hope and Love is a large NGO with 120 staff and has acted as a parent NGO, with clients from their first projects in the late 1990s setting up their own NGOs (targeted at IDU, FSW etc).

Activities are mostly concentrated on outreach work, although they have developed a small permanent drop-in point for syringe exchange and counselling.
In September 2005, they initiated a new activity - a mobile laboratory for FSWs where they can be tested for HIV and other STIs (but not pregnancy).

Within this framework, the NGO provides medical, psychosocial and legal support and counselling; they also publish a small monthly newsletter that is disseminated during outreach work and at workshops/training.

Outreach workers are ex-IDU and/or ex-SWs, around half of whom are themselves HIV-infected.

Faith, Hope and Love is also very involved in capacity-building and training for other organizations, including other NGOs and the police, and has an important advocacy role regarding the rights and needs of IDUs and FSW.

To date, the 300-400 FSWs working around Odesa port entry at night have been a relatively easy group to target with outreach. However, with the recent criminalization of prostitution, the NGO outreach workers are concerned that FSWs will become harder to reach as they may be forced to move off the streets and into apartments.

Reaching Young People

UNICEF and the Ukrainian government have been cooperating in a programme: ‘HIV/AIDS and Young People's Health and Development’; the prevention activities have been summarized in Box 5.

UNICEF has been closely involved in the development of the ‘Health Basics’ module of the secondary school curriculum, and the development and provision of methodological support for teachers. This has included the distribution of a free manual within educational journals and issued directly to educational institutes in certain oblasts.

The Metamorphoses Foundation has been implementing a project, on ‘HIV/AIDS Prevention among Youth’, funded by the European Commission. It involves training secondary school teachers and psychologists how to run sexual education lessons in Lviv (Vasylyev 2004).
During 2003, there were 85 training sessions in which 2000 teachers and psychologists participated. Interactive lessons on HIV prevention were held in 350 schools, including role-play and discussions. Post-intervention evaluation showed this to be a very effective

approach. The Foundation has recommended that this model be implemented elsewhere in Ukraine.

The International Red Cross is involved in youth-based harm reduction projects in the Autonomous Republic of Crimea, which involve peer-to-peer counselling by young HIV-infected people, most of whom acquired infection through recreational injection of drugs; needle/syringe exchange activities are also provided.

The ‘Have Fun Safely’ campaign was a partnership venture between UNFPA, the International HIV/AIDS Alliance, and Social Service for Youth in Kyiv, Network of People Living with HIV/AIDS, and Renaissance International Fund. It took place in Kyiv in May 2005 and involved the distribution of 100,000 information booklets containing condoms.

In 2003, AIDS Foundation East-West (AFEW) developed a safer sex mass media campaign that aimed to improve access to HIV prevention information among youth in Ukraine (Dovgan & Grechukhina 2004).

The campaign involved TV and radio commercials, outdoor advertisements, leaflets and posters. These were distributed at educational institutions, health care facilities and youth events.

AFEW reported that there is inadequate enforcement of the national legislation allowing free 'air-time' for social/health education advertising.

BOX 5: Activities of UNICEF HIV/AIDS Prevention among Young People project, in cooperation with the Ukraine Government

Objective: To support the development of social, medical, information and educational services, in order to increase their HIV/AIDS prevention work among young people.

Development of 'youth friendly' health care services (2003-2005):

- National team of trainers introduce the 'youth friendly' approach;
- Training of 400 specialists from 10 oblasts;
- Resource training centres established in Kiev and Sevastopol;
- Youth Friendly Clinics (YFC) are, or will be, opened in Kyiv, Odesa, Poltava, Lviv, Zaporizzhya, Kamyanets-Podilskyy, Chernigiv and Donetsk. Each YFC covers from 1,000 to 4,000 adolescents per year;
- STI prevention, counselling and treatment;
- Favourable regulatory environment.

HIV prevention among young IDUs: Counselling centres 'Trust' (2002-2004) project:

- 14 counselling centres for young IDUs with associated development of guidelines, support-groups, training etc., established in 10 cities. Based on these models, the Government has set up a further 24 counselling points, and included prevention work with young IDUs in the national plan of action of the Social Services for Youth;
- These models informed the government response to HIV/AIDS prevention among IDUs, previously undertaken by NGOs, and have helped to bring new partnerships into place. This has demonstrated that evidence-based models with positive impact are particularly important in working with hard-to-reach and groups at high risk; and these can now be developed as part of national programmes.

Establishment of centres for re-socialization for young IDUs (2003-2005):

- Centres opened in Zhytomyr, Donetsk, Poltava and Kharkiv; training, production and piloting of methodological recommendations; training programme for staff; methodological guide on monitoring and evaluation of the Centres' activity.

Prevention of initiation of IDU among teenagers and young people from risk groups research project (2004-2005):

- Data collection and analysis (800 IDUs and 800 non-IDU friends aged <24 years). Based on the research, strategies were developed to decrease the incidence and prevalence of IDU among youth. These were introduced into the next country programme.

Prevention of HIV/AIDS and risky behaviour in shelters for minors project (2004-2005):

- 300 specialists working in shelters for children given basic HIV/AIDS prevention training;
- 10,000 shelter children have received information on HIV/AIDS from specialists;
- plan to distribute information leaflets and posters to shelter.

Prevention of HIV/AIDS and risky behaviour among street children (2005):

The 'Education for Health' Centre was established by the NGO 'Way Home', in Odesa. To date about 100 children who live and work on the streets there have received information on HIV and substance use prevention, developed life skills and also increased their level of education. About 1,700 street children received skills and knowledge on HIV and their rights, due to an awareness campaign among street children by 'Aspern' NGO in Kyiv.

2.4 Second generation HIV surveillance

Second generation surveillance provides essential information to allow the development of primary prevention programmes, as well as the means to evaluate their impact (UNAIDS/WHO Working Group 2002). In a generalised epidemic setting, surveillance systems should concentrate on monitoring HIV infection and high-risk behaviours in the general population, as well as including monitoring of high-risk sub-groups such as IDUs and sex workers.

Ukraine has a rapidly accelerating epidemic, and thus second generation HIV surveillance is a crucial component of the national response to the epidemic, allowing both monitoring and prevention activities to adapt to reflect the evolving epidemiological situation.

Although some second-generation surveillance has been carried out in Ukraine, there is a need to strengthen aspects of this surveillance, particularly relating to sexual behaviour indicator trends - the behavioural links between the high-risk sub-populations and the general population - via bridging populations and sub-national patterns. There is a need for behavioural surveillance among the young sexually active population in general, as the focus to date has been on IDU.

2.5 Integration of primary prevention and reproductive health services, including PMTCT

Traditional vertical structures for reproductive health services and HIV prevention programmes may result in missed opportunities, whilst integration is likely to improve effectiveness and efficiency.

To achieve the best results, integration of reproductive health care services (including family planning, STI testing and treatment centres and antenatal care) and HIV prevention should be a two-way process (i.e. HIV prevention activities should be built into family planning services and vice versa).

Women at high risk for acquisition of HIV (for example, those diagnosed with another STI), should be identified as such by the health care provider to whom they have presented and be offered appropriate counselling, HIV testing and management (e.g. STI treatment); or, be referred elsewhere to receive such services.

There is a considerable missed opportunity for primary prevention among sexually active women of childbearing age, with regard to counselling in pregnancy around HIV testing.

Under the "opt-out" policy, and with the current lack of guidelines on VCT, there appears to be limited information provided to pregnant women regarding HIV, transmission and prevention. Post-test counselling among women with negative tests seldom takes place. The opportunity to provide information on reducing risk of infection, or to repeat preven-

tion messages given previously is lost. This is a particular concern regarding negative women who may have behaviours that put them at increased risk of acquisition of HIV as a primary infection in pregnancy; and that breastfeeding is associated with increased risk of MTCT.

The antenatal STI screening policy in Ukraine presents an excellent, but as yet under-exploited, opportunity to direct primary prevention activities to the sub-group of pregnant women most at risk of acquisition of HIV. The current policy involves screening for STI in the first trimester, with re-screening of all women in the third trimester. The group of non-HIV infected pregnant women with STIs diagnosed at any time in pregnancy should be prioritised with regard to primary prevention: a positive STI test result should result in a clear message being given, by the health care provider to the woman, that she is at risk of acquiring other STIs, including HIV, unless she changes her behaviour; however, this message needs to be accompanied by the information regarding how to do this and - the means to do it.

Although pregnant women who go on to deliver, or, who chose to continue their pregnancies represents only a small proportion of the total female population of child-bearing aged in Ukraine, 3-4 percent, around 400,000 deliveries among 10.4 million women aged 15-45 years; this group of women are exactly those who need to be targeted by primary prevention activities. They are sexually active and, by definition, have had unprotected sexual intercourse.

In Ukraine, although there have been declines in recent years, there remains a very high abortion rate, with almost as many abortions per year as there are births. Further opportunities for primary prevention could be achieved through integration of primary prevention activities with the abortion services.

Other pertinent findings of the USAID report on reproductive health in Ukraine (Seltzer et al 2003) included the general lack of availability of condoms in MoH-run family planning sites, with an over-reliance on oral contraceptives. Oral contraceptives in Ukraine are highly accessible, as they can be obtained without a prescription. This may help to explain the low use of condoms among young people, compared with other countries where condoms are the easiest contraceptive to access. The report also highlighted that many women receiving family planning counselling and/or contraception in MoH settings, do not receive adequate information or counselling on HIV risk and prevention. The authors suggested social marketing of condoms as a potentially efficient and effective method of addressing the dual problem of unintended pregnancy and HIV infection in Ukraine.

There is little evidence of integration between organisations providing primary prevention activities and those focusing on PMTCT in Ukraine to date. In Odesa, there was some interlinking between MSF that provided PMTCT services and Faith, Hope and Love NGO but this was relatively superficial and ad hoc. Peer educators and counsellors in harm reduction programmes working with IDUs in Ukraine may have some training on PMTCT, but this is likely to be very limited; although further training is planned for 2006 by UNICEF.

2.6 Conclusions and recommendations

On the basis of existing epidemiological data, there is no evidence to suggest a stabilization or decline in HIV incidence among women in Ukraine. This strongly indicates the need to scale-up primary prevention activities in the country, particularly those targeted at young people, including those who are not yet sexually active and to develop a comprehensive prevention strategy.

There is epidemiological evidence to suggest that in Ukraine, the HIV epidemic is maturing from a concentrated to a generalised epidemic. The European Collaborative Study data provide some important information with regard to pregnant HIV-infected women in Southern Ukraine, although these data are limited to women who go on to deliver, and thus excludes the group of women who terminate their pregnancies (who may or may not be aware of their infection status at that time).

Key findings are that the vast majority of pregnant infected women going on to deliver are not current IDUs, although around a fifth did report prior use. Although some women were aware of having prior or current sex partners who used injecting drugs, an increasing proportion did not report any traditional risk factors for HIV acquisition. This indicates that young women in Ukraine are not aware that they are being exposed to HIV. The HIV-infected women in the European Collaborative Study are not very different to the general un-infected pregnant population with regard to socio-demographic characteristics - they are young, most are married or cohabiting and most had not previously been pregnant. It is thus most likely that these young women acquired infection through unprotected sexual intercourse with casual or regular partners, including their husbands.

These findings underscore the need to scale-up primary prevention activities not only in the general, sexually active population but also among adolescents - including those who are most at risk and vulnerable to HIV risk behaviours. A substantial proportion of new HIV infections in Ukraine has been, and is likely to continue to be, concentrated among youth. Integration of family planning and HIV prevention programmes is especially appropriate for youth, as both have the same goal - of reducing exposure to unprotected sexual intercourse. Sexual behaviour change strategies targeted at youth include: delaying sexual debut, reducing the number of sexual partners and increasing correct and consistent condom use.

On a global scale, some of the numerous HIV prevention approaches with youth appear to have been successful, or show promise, for example, in promoting young people's knowledge, attitudes and skills (Johnson et al 2003). However, there is a limited evidence-base with regard to the impact of such prevention activities on HIV and other STI incidence among youth, or on subsequent sexual behaviour itself. Of relevance to the Ukraine context are the findings that provision of condoms to youth only results in increased use of condoms if paired with a behavioural risk-reduction intervention, such as skills training in condom use and safer sex negotiation. Providing safe sex information without supplementing this with free condoms does not have a significant impact on condom use behaviour (Johnson et al 2003).

Increasing access to and use of condoms is likely to be a considerable challenge, particularly among youth (Seltzer et al 2003). The benefits of safer sexual behaviours go beyond HIV to include other STIs, which are themselves associated with increased burden on health services in terms of morbidity and cost, and are showing a similarly concerning rising incidence among young people. Social marketing and distribution of condoms to targeted populations, such as youth could be an appropriate approach.

It is certain that success in changing sexual behaviour in youth cannot be achieved through a single approach. A variety of strategies have been used in Ukraine with non-IDU youth, including the provision of STI prevention counselling and treatment at youth friendly clinics (with the aim of increasing access to and uptake of services). There have been school-based initiatives that incorporate HIV education and life skills development, and community-level outreach - particularly to groups at high risk such as street children. Among adolescents and young people, an interactive approach to prevention and education is preferable and more effective than information alone. Peer-to-peer counselling has occurred on a limited basis but has proven to be a particularly powerful approach.

Sentinel surveillance suggests that as many as nearly 4 in 10 IDUs may be infected with HIV in the most affected regions of Ukraine, indicating the urgent need for the scaling-up of harm reduction activities.

Harm reduction programming for IDUs has to consider the needs of all people who inject drugs and are thus at risk of acquisition, and adapt the activities accordingly. For example, projects targeting older, established IDUs will not necessarily address the needs of younger IDUs, who may be more sexually active. Evidence, indicating that gender-specific interventions among IDUs may be an effective approach, includes the documented increased sexual risk behaviours among female drug users compared to males (Doherty et al 2000, Kral et al 2000). There also is a particular need to extend harm reduction programmes to non-metropolitan areas. This would allow the growing IDU populations in such settings access to the same services as those in the cities.

More country-specific research regarding the IDU population in Ukraine is needed to inform the further scaling-up of harm reduction among this risk group. This is particularly important given some of the high-risk drug use practices in the region, such as the use of pre-filled syringes and front-loading (Barcal et al 2005). Furthermore, given that in some areas harm reduction and prevention activities have been on going for some time, research to determine the extent to which behaviour lags behind knowledge would inform the development of new strategies and modification of existing ones.

Expanding harm reduction programmes among IDUs to incorporate drug substitution therapy would be a long-term approach to reduce the public health impact of opiate use, including HIV infection.

Experience from Western Europe and elsewhere is strongly supportive of the benefits of substitution therapy, with regard to reduction in IDU and HIV prevalence and improving access to a range of health care services (UNDP 2004). Although the extent of drug substi-

tution in Ukraine to date is a pilot programme among HIV-infected IDUs, implementation of drug substitution therapy has been specified as one of the components of a minimum preventive services package for IDUs, identified in a series of national consultations in late 2005/early 2006 (MoH, UNAIDS 2006).

There are an estimated 104 000 FSWs in Ukraine (MoH, UNAIDS 2006). A fifth of female sex workers in the most affected oblasts are estimated to be HIV-infected, rising to 43 per cent for those who also inject drugs (with the highest prevalence recorded in Southern Ukraine, of 67 per cent for IDU sex workers).

The need for harm reduction activities for SWs to be scaled-up and expanded nationally is incorporated into the key prevention targets published in early 2006, in the National Report on Universal Access to HIV/AIDS Prevention, Treatment, Care and Support (MoH, UNAIDS 2006) - with a target of 60 per cent coverage of the FSW population with a minimum package of preventive health by 2010. Programmes designed to meet all the reproductive health needs of FSWs are needed, incorporating: HIV and STI prevention, VCT, prevention of unwanted pregnancy and PMTCT interventions.

It is a great challenge to significantly reduce HIV incidence against a background of limited understanding of risk factors and ways of preventing acquisition among the population at risk. Therefore, skills based HIV/STI and substance use education is urgently required. In particular, there is a need for a shift in the general perception that HIV only affects "drug addicts and prostitutes". Gender-specific STI and HIV prevention programmes may be an appropriate and effective approach in Ukraine, with a focus on the needs of female adolescents and young women, who have both a biological and social vulnerability to acquisition of STIs.

Despite the urgent and real need to scale-up primary prevention in Ukraine, there are some notable examples of good practice in the country, which deserve mention. The creation of the Harm Reduction Association has been very beneficial with regard to cooperation between different groups working in harm reduction. It allows the sharing of experiences avoids duplication of effort in the same sites and provides greater advocacy power with regard to the promotion of harm reduction activities.

Among established IDUs there is evidence of the effectiveness of harm reduction programmes where these have been implemented and evaluated, with reductions in risky injecting behaviour, and some indications of reduced sexual risk-taking (although to a lesser degree). Similarly, research identifying the need for prevention activities among highly vulnerable groups, such as shelter children, has led to their being reached by targeted primary prevention intervention. These activities by the Government and NGOs have taken place in big cities with large populations of street children, such as Kyiv and Odesa.

Good practices with regard to the need for primary prevention among groups at less risk, such as youth in the general population, include the introduction of the teaching of life-skills into secondary schools curricula, the provision of youth friendly clinics and peer-to-peer counselling.

There needs to be a shift in perception at the policy-making level regarding PMTCT and primary prevention.

Advocacy and education are needed to ensure that it is understood that primary prevention in women of childbearing age is the most cost-effective and sustainable form of prevention of HIV infection in infants. This will increase in importance as Ukraine shifts from a concentrated towards a generalised HIV epidemic.

Efforts to establish and scale-up programmes should be intensified.

Recommendations

A comprehensive national HIV prevention programme is required:

- Age-specific and gender-specific approaches to prevention and harm reduction should be developed;
- Any harm reduction activities specifically directed at women should be closely linked to reproductive health services, including PMTCT;
- Involvement of youth in the development of prevention programmes and in their implementation (e.g. peer-to-peer counselling) should be encouraged;
- Monitoring of condom availability and accessibility is needed, together with improvements in supply and access where required;
- Condom promotion for the sexually active should be vigorously pursued, particularly among young people; this should incorporate skills-based education including communication skills, condom skills training and condom negotiation skills, focusing on consistent and correct use;
- Social marketing and distribution of condoms to youth could be an appropriate approach; including free targeted distribution, a community-based distribution programme and dissemination via health facilities and pharmacies;
- HIV prevention interventions for youth should continue to be varied in focus and approach;
- School and university-based as well as outreach to out-of-education youth;
- Activities targeting groups at greatest risk (such as street children, youth diagnosed with STIs) should be scaled-up, as well as youth in general, in recognition of their status as a group at increasing risk for HIV infection;

- Scaling-up of promotion of healthy sexual behaviours, life skills development and harm reduction among youth is needed, using existing successful pilot projects as a model;

- A further mass media campaign targeted to youth should be considered;

- Research extent to which behaviour lags behind knowledge, and the reasons for this;

- Evaluate current harm reduction activities in order to identify their effectiveness and particularly their sustainability, to inform the scaling-up of harm reduction nationally;

- Development is needed of prevention activities directed at young people at risk of initiating IDU or those who are "recreational" but not yet established IDUs;

- Harm reduction activities for IDUs and SW should be extended to areas outside the most affected cities and regions where they are currently concentrated;

- The mass media should be used to increase public awareness of HIV and how it is transmitted and to promote attitudinal changes, particularly with regard to stigma;

- Integration of alcohol/drug use prevention programmes and HIV prevention programmes for school-based youth, with a particular focus on inter-active approaches;

- Youth NGOs should be involved as key strategic partners for programmes promoting healthy lifestyle and safe behaviour among youth, to ensure that interventions are youth-friendly, appropriate and feasible;

- Peer-to-peer preventive counselling and education is an effective tool, not only for youth but also among SW and IDUs, and should be facilitated in prevention programmes;

- Family planning counselling and services, incorporating the idea of "dual protection" against HIV infection and unintended pregnancy, should be fully integrated into existing youth services and programmes;

- Further development and scaling-up of harm reduction and prevention projects directed at specific risk groups (IDU and SW) is needed, tailored to sub-groups within these larger risk groups, particularly younger IDUs and SW, and encompassing both sexual and injecting behaviours;

- Behavioural surveillance is needed with regard to IDU and sex work in Ukraine;

- Gain a better understanding of the context of initiation of illicit drug use among adolescents and young people in order to develop effective prevention programmes;

- Investigate the intersecting epidemics among IDUs and SWs, particularly in regions of Ukraine currently less affected by the HIV epidemic;
- The legislation which allows free air time for health education advertising should be enforced;
- The potential role of STI testing centres and harm reduction centres should be exploited for the dissemination of information regarding sexual acquisition of HIV;
- Policies for offering VCT for HIV to patients with a confirmed STI should be developed (for example, the possibility of an "opt out" strategy);
- Integration of PMTCT and primary prevention is urgently needed;
- PMTCT providers (antenatal clinics, maternity hospitals, AIDS Centres and NGOs) need to establish good links with local harm reduction / prevention projects, especially regarding exchange of information for service-users;
- Within PMTCT the currently missed opportunity for primary prevention among pregnant women with negative HIV test needs to be urgently addressed;
- Counselling guidelines need to be developed;
- Training for antenatal care providers regarding counselling on primary prevention;
- Pregnant women diagnosed with STIs in pregnancy should be prioritised for primary prevention counselling;
- Similarly, the potential for communicating primary prevention messages to women undergoing induced abortions and attending STI clinics should be tapped;
- Second generation HIV surveillance is essential to monitor epidemiological trends, particularly those indicating spread from "traditional" risk groups to bridging populations and beyond;
- These findings should be used to direct prevention strategies most effectively and to plan long-term programmes;
- In developing any future national primary prevention strategies, attention should be paid to evidence regarding the relative effectiveness - including cost effectiveness - of different approaches.

3. Prevention of unwanted pregnancy in HIV-infected women

3.1 Introduction

There is now substantial literature, illustrating that the addition of family planning services to PMTCT programmes (thus preventing unintended pregnancy in HIV-infected women), is a highly cost-effective approach (Best 2004).

Preventing unwanted pregnancies in HIV-infected women not only prevents MTCT but also has the potential to reduce the number of social or "traditional" orphans due to abandonment or to maternal death.

HIV-infected women should be counselled to use barrier methods consistently to prevent sexual transmission to their partners, and to protect themselves against acquisition of other STIs or a different strain of HIV. Although condoms are effective at prevention of sexual transmission of HIV with correct and consistent use, they are not the most reliable form of contraceptive (97 per cent effective against conception with consistent and correct use), and infected women who do not want to become pregnant may be advised to use both a condom and another contraceptive method (Best 2004).

The 1999 Reproductive Health Survey demonstrated that although there is a high knowledge of modern contraceptive methods in Ukraine, with 99 per cent women being able to name at least one method, only 74 per cent of the sexually active respondents in the survey had ever used contraceptives and only 60 per cent had used modern methods. Contraceptive prevalence had risen steadily in the years preceding the survey, accompanied by a declining incidence of induced abortions (Goldberg, et al 2001). However, abortion remains a major method of fertility control in Ukraine, with around half of pregnancies ending in induced abortion in 1999-2001 (Goldberg et al 2001, Little et al 1999); although, this had declined to around 40 per cent in 2005.

The National Reproductive Health Programme was adopted in 2001, but according to a subsequent review, is insufficiently funded for the breadth of the programme and operates within a fragmented and inefficient system (Seltzer et al 2003).

3.2 Identified HIV-infected women and prevention of unwanted pregnancy

A woman with known HIV infection needs access to effective contraception if wishes to avoid pregnancy. This requires integration of services for HIV infected women and general reproductive health services. To date, the majority of HIV-infected women in Ukraine have been identified whilst pregnant through antenatal testing. In the 1999 Reproductive Health Survey, only 25 per cent of women reported receiving counselling regarding contraception after delivery.

In Odes0a Regional Maternity Hospital, there is a policy to discuss future reproductive choices with all infected women in the postnatal period, before discharge, with particular emphasis on dual protection (i.e. condoms plus another more effective method of contraception, according to maternal choice). This policy has been successfully implement-

ed. In this setting, there is a considerably higher elective CS rate among infected women than nationally, and reports of an increasing number of women requesting sterilization at the time of this obstetric procedure.

As reported in the 2003 WHO review (Malyuta 2003), a programme in Dniepropetrovsk oblast has focused on integration of PMTCT activities and prevention of unintended pregnancies in infected women. The programme activities include integration of family planning sessions at the AIDS Centre.

However, there are no data to indicate whether provision of appropriate post-natal family planning counselling for HIV-infected women is currently occurring on a national basis, or whether appropriate referrals are made for these women.

The USAID review (Seltzer et al 2003) reported that there is no functional referral system for women post-partum in general, which suggests that this may be a problem for HIV-infected women, who often face barriers in accessing care in general, compared to the uninfected population.

Adequate use of contraception in the postnatal period among infected women is particularly important as they are all recommended to artificially feed their infants and thus have no benefit of lactational amenorrhoea.

There are specific considerations with regard to contraception among HIV-infected women, including interactions between hormonal contraceptives and antiretroviral medication. There is also evidence to suggest that infected women on oral contraceptives are at increased risk of genital shedding of HIV, which could put their sexual partners at increased risk of infection if no additional barrier method is used.

A further issue is that of contraception for women on HAART, which will become increasingly relevant in Ukraine with the roll-out of ARVs. Although data from epidemiological studies and a pregnancy registry have shown no evidence of an increased risk of congenital abnormalities associated with most antiretroviral drugs, efavirenz is contra-indicated in pregnancy and women need to be adhering strictly to an effective contraceptive method whilst taking the drug (European Collaborative Study 2005a; Thorne & Newell 2005).

Providers of family planning services to HIV-infected women need to receive appropriate training with regard to contraception and HIV-infected women.

In 2004, the national data showed that of 3238 pregnant women with a positive HIV test, 405(12.5 percent) were known to have terminated their pregnancy. There are concerning anecdotal reports of infected women being encouraged to have terminations of pregnancy on the basis of incorrect "counselling" from health care providers; for example, that their baby will definitely be infected if they go on to deliver. Although it is essential that HIV-infected women have access to abortion services, it is equally important that there is no form of coercion with regard to termination of pregnancy.

The reproductive health care professionals should be appropriately trained with regard to PMTCT, so that they are able to provide infected women with accurate information on

which to base any decisions regarding continuation or termination of pregnancy

To date there are no specific guidelines on the care and management of HIV-infected women. Development of such guidelines should incorporate clear recommendations regarding provision of contraceptive services to infected women.

It was reported by a key informant in this review that the strength and degree of linkage and coordination between reproductive health services, and services specifically directed at HIV-infected women, currently depends on individuals rather than as a result of properly integrated services. Efforts are needed to strengthen integration between these service providers.

3.3 Conclusions and recommendations

Prevention of undesired pregnancy in Ukraine is generally a problem, as confirmed by official statistics of the MoH: 264,074 abortions in 2004 (201,135 classified as unintended pregnancies) compared with 412,000 deliveries nationally. This situation is likely to be exacerbated in the case of HIV-infected women, particularly those from specific groups such as IDUs and SWs.

There is limited available information on the use of and unmet need for contraceptives among HIV infected women in Ukraine. However, a recent European survey on childbearing among HIV-infected women carried out by Dr Simona Fiore, which involved some centres from Southern Ukraine, may provide important new information which can guide policy recommendations.

Recommendations

- Advocacy is required on the need for better reproductive health and family planning services for women infected with and at risk of HIV infection;
- Contraceptives should be provided to HIV-infected women free of charge;
- Family planning services should be systematically offered to HIV-infected women identified through ante-natal testing in the ante-natal or post-natal period;
- Women should participate in informed decision-making with regard to reproductive choices and issues;
- There should be clear guidelines with regard to which health care providers and/or settings have responsibility for providing family planning services to HIV infected women;
- Provision of contraception should be an integral component of the clinical management of HIV-infected women on HAART.

4. Prevention of mother-to-child transmission of HIV

4.1 Introduction

MTCT of HIV infection can take place in utero, during labour and delivery and postnatally through breast-feeding. Early in utero transmission appears to be rare, although a few cases have been reported (Newell 1998). Mechanisms of in utero transmission include: foetal exposure to cell-free and/or cell associated HIV in amniotic fluid, and infection of the placental cells and/or disruption of the integrity of the placenta (Ayisi et al. 2004; Mofenson et al. 1999; Mwapasa et al. 2004).

Intrapartum transmission may occur through direct contact between the infant passing through the birth canal and infective genital secretions and blood, through micro-transfusions from maternal to foetal blood, due to uterine contractions, and via ascending infection from the genital tract to the amniotic fluid after rupture of membranes (Kwiek et al. 2005; Mwanyumba et al. 2002; Tuomala et al. 2003; Van Dyke et al. 1999).

Maternal plasma HIV RNA level is the strongest individual predictor of risk of MTCT of HIV infection (Cooper et al. 2002; Garcia et al. 1999; Shaffer et al. 1999). Women with symptomatic HIV disease including AIDS, those with primary infection during pregnancy and with severe immunodeficiency (indicated by low CD4 counts) are at increased risk of transmission (Ioannidis et al. 2001).

Obstetric and infant factors increasing MTCT risk include: vaginal delivery (see later section on obstetric management), prolonged duration of rupture of membranes, and possibly certain invasive obstetric procedures and prematurity (European Collaborative Study 1999; Ioannidis et al. 2004; Kuhn et al. 1999; The European Mode of Delivery Collaboration 1999; The International Perinatal HIV group 2001). Reported MTCT rates prior to the introduction of interventions ranged from 15-20 per cent in Western Europe, 16-30 per cent in the USA, 25-40 per cent in Africa to 13-48 per cent in South and South East Asia (Working Group on Mother-to-Child Transmission of HIV 1995).

The most reliable method of obtaining antenatal seroprevalence data is the use of unlinked anonymous testing of residual blood samples taken for routine antenatal tests. However, use of antenatal HIV test results can provide important prevalence information, although this will lead to an underestimate of the true prevalence if there is a low coverage/uptake of HIV testing in pregnancy and if the group of untested women are those at increased risk of HIV infection.

In Ukraine, most pregnant women are tested for HIV either through antenatal testing or rapid testing at delivery (see next section). Thus the prevalence based on these tests is likely to be a relatively good approximation of true prevalence among women who chose to continue their pregnancies and access antenatal and/or intrapartum medical care. The currently reported prevalence rate of HIV infection among pregnant women in Ukraine by the Ministry of Health is 0.5 per cent. However, there are likely to be considerable varia-

tions sub-nationally, with the highest prevalence's in the most affected oblasts - with prevalence for Odesa of 0.95 per cent in 2005. Furthermore, in general in Europe, HIV prevalence tends to be higher in the cities and lower in rural areas.

4.2 Identification of HIV-infection in pregnant women

Antenatal and intrapartum HIV testing: current strategy

Ante-natal testing: once at registration of pregnancy and again in the third trimester at around 30 weeks

rapid testing of women without antenatal test results in labour

Antenatal HIV screening in pregnancy aims to identify HIV-infected women in order that they may receive optimal medical treatment and psychosocial care. It also allows the application of PMTCT interventions and to identify HIV-infected infants as early as possible, where MTCT occurs, so they may benefit from optimal medical management. However, antenatal HIV screening should not only be considered as an opportunity to prevent transmission to infants, but also as an opportunity to prevent the future acquisition of infection in uninfected women and in the sexual partners of infected women. Antenatal HIV screening is cost-effective, even in low prevalence settings (Postma et al. 1999).

Antenatal coverage

It is likely that most pregnant HIV-infected women in Ukraine will not be aware of their infection status at the time they become pregnant, according to current data from Southern Ukraine (European Collaborative Study 2005b). Many women may not even be aware that they are or have been at risk of acquiring infection. Successful identification of these women at a sufficiently early stage of pregnancy (ideally before 28 weeks) is crucial to the success of a PMTCT strategy with regard to perinatal interventions.

Antenatal care coverage in Ukraine is generally good and antenatal care services are free of charge. In the 1999 Ukrainian Reproductive Survey, 10 per cent of women had no prenatal care, 65 per cent presented for antenatal care in their first trimester and 3 per cent presented in their third trimester. This 90 per cent coverage is intermediate between the 98 per cent figure reported for high-income countries and 82 per cent reported for the CEE/CIS and Baltic States in general. Coverage of antenatal care is likely to vary geographically (estimated range 90-95 per cent, with a figure of 93 per cent in Odesa). Coverage will be substantially lower in certain groups, such as SWs and IDUs, who are the groups at increased risk of HIV infection or other infections that may be associated with adverse pregnancy outcomes. These groups of women are very difficult to reach; they may face

substantial barriers to accessing antenatal care or alternatively, may avoid contact with the health care system. Experience of the Odessa-based NGO, *Faith, Hope and Love* has shown that women accessed by their outreach workers (mainly female IDUs and SWs) are often unwilling to seek medical attention if they are or suspect themselves to be pregnant.

Opt-out strategy

Antenatal HIV testing, based on HIV ELISA tests, is included within the routine package of antenatal screening tests, with an "opt-out" strategy. Under this approach, women will automatically be tested for HIV unless they specifically decline. The proportion of pregnant women tested for HIV has increased from 52 per cent in 1999 to 96 per cent in 2002 and 99 per cent in 2004, reflecting the success of the adopted policy. From experiences elsewhere, it appears that the advantage of this approach is, that it can allow identification of a large proportion of the infected pregnant population, and "normalizes" HIV testing by including it in the routine battery of antenatal tests. However, these benefits have to be balanced against the short-comings of "opt-out" strategies, including a lack of emphasis on pre-test counselling and the potential for lack of informed consent, if women are not made aware of the policy (Walmsley 2003).

Where an opt-out strategy is in operation, provision should be made to provide all pregnant women with information on HIV and PMTCT within standard antenatal care. A leaflet covering HIV infection, including information on all modes of transmission and prevention, not just PMTCT, prepared by the MoH together with UNICEF is available in antenatal care settings nationally.

The MoH and MoJ officially approved a national protocol on VCT in December 2005, which includes recommendations regarding antenatal VCT. The lack of guidance prior to this is reflected in a variety of current practices with regard to antenatal HIV testing across the country.

Two projects have revealed some concerning findings: the USAID POLICY Project II, which involved interviews with 40 HIV-infected pregnant women and 15 health care providers from the Donetsk, Micolaiev and Cherkasy oblasts in 2003 (Box 6), and a needs assessment for PMTCT in Kyiv City, Donetsk oblast and the Autonomous Republic of Crimea, by the Maternal and Infant Health Project of JSI in 2005 (Box 7). These projects include evidence to suggest that women are not routinely informed of the possibility of opting-out of testing in some settings, and also misconceptions on the part of the health care providers carrying out the tests (see Box 6 and 7).

Women need to be informed of the system in place, and how they can opt out, for the system to truly be seen as voluntary. Indeed, the 99 per cent testing rate is what one would expect from a mandatory testing programme rather than a voluntary policy.

Box 6: Results of POLICY Project 11 on HIV testing and counseling

- 60 per cent women felt they had no choice in taking HIV test.
- 43 per cent women believed that they had given informed consent.
- 73 per cent women said they had not received pre-test counselling, although 87 per cent of health care providers said this service was provided at their centres.
- 18 per cent women had not received post-test counselling.
- 48 per cent of the women who received this counselling felt that they did not receive all the information they wanted or that the information provided was difficult to understand.
- 55 per cent women were given information on support groups for PLWHA.

Post-test counselling

There is a considerable missed opportunity for primary prevention among sexually active women of childbearing age, with regard to counselling in pregnancy (see section 2.4).

In the JSI needs assessment, only 20 per cent of surveyed obstetricians gave what could be considered adequate post-test counselling (Box 7). Practice with regard to return of test results to women appears to be variable, but is poorly documented; for example, in some oblasts test results can only be given by physicians, whilst in others, this may be done by nurses. Referral of women with positive tests to AIDS Centres for post-test counselling appears to be common practice, but this can also take place at ante-natal clinics and maternity hospitals.

Post-test counselling for women with a positive test result should provide information on risk of MTCT, ways to reduce the risk, diagnosis of infection in the infant, prognosis for infected children, clinical implications for themselves and information about where to access appropriate services.

Nearly half of the infected women in the POLICY project survey had unmet needs for information provision during post-test counselling.

Many women are in a state of shock and distress following disclosure of a positive result, and the immediate period after this disclosure is not usually a good time to provide the woman with lots of verbal information. Therefore, provision of supplementary written information is crucial, also information on support services such as those provided by NGOs. MSF produced some very well received leaflets for pregnant HIV-infected women within their PMTCT project in Southern Ukraine, but these are not available nationally.

In some settings, such as Odesa (see Box 13), there is excellent collaboration between the medical care providers and NGOs with regard to post-test and ongoing counselling for HIV-infected women. This service is shared between physicians and peer-counsellors (i.e. HIV-infected mothers).

The reasons behind the success in these settings is a result of MSF's PMTCT programme in Odesa, Micolayiv and Simferopol (ARCrimea), initiated in 2000; activities included peer counselling for HIV-infected mothers in maternity hospitals and AIDS Centres. Within this programme, once a woman's HIV status was confirmed at a maternity hospital she was offered confidential support by an MSF trained peer counsellor, who had experienced the PMTCT programme herself. Further support from the peer counsellors was available whenever required, either by phone or when she visited the AIDS Centre (for example, to pick up her baby formula). With the withdrawal of MSF from Ukraine in December 2005, other NGOs have taken over this role (see box 13).

Starting from 2006, there will be an initiative to introduce and extend peer counselling not only in other maternity hospitals and AIDS Centres but also in antenatal clinics, supported by PATH and UNICEF. However, regulations regarding access of HIV-infected peer counsellors to medical premises vary nationally, and in some oblasts, they are not allowed access to antenatal clinics and maternity hospitals.

The newly approved national protocol on VCT determines the algorithm of counselling and testing, and applies to both state health facilities and NGOs; coordination between them will open the opportunity to widen access to VCT for all, including HIV-positive women in risk groups (IDUs, SWs).

Box 7: JSI Needs Assessment: summary of results relating to antenatal HIV testing

- "Blanket" consent for all antenatal tests, including HIV, was frequent
- Obstetricians were more focused on obtaining formal consent for HIV testing rather than on counselling women on the benefits of knowing HIV status, behavioural changes that can lead to reduced risk of infection etc
- Only 5 percent of obstetricians thought that women have the right to refuse a HIV test
- 30 percent of obstetricians did not conduct pre-test counselling or only did so if the woman was known to belong to a specific risk group
- Approximately two-thirds of obstetricians reported giving "post-test counselling" to women with a negative HIV test result.
- In most cases this was simply a return of the result and informing women of the need for the second test in the third trimester. Only a third talked about HIV transmission and prevention
- Among obstetricians in antenatal clinics and maternity hospitals who gave post-test counselling to HIV-infected women:
- Only around 60 percent talked about PMTCT interventions

Usually only discussed a narrow range of topics

Very rarely gave information on support groups, partner testing or living with HIV

Intrapartum rapid testing

The use of rapid testing during labour is a well-established approach for reducing the risk of transmission from mother to infant among women who do not access antenatal care/testing. This then allows immediate provision of post-exposure prophylaxis (PEP), and avoidance of breast-feeding postnatally among women testing positive.

Rapid testing with Multispot HIV-1/HIV-2 rapid tests was first introduced in Ukraine in 2003, following a pilot in 3 oblasts begun in 2001. However, rapid test kits are not distributed to all maternity hospitals, tending to be preferentially provided to those maternity hospitals expected to receive a large number of women in labour for the first time. At least, this has been the case in Odesa oblast. Seroprevalence is reportedly substantially higher in women with rapid tests than among those who were tested during pregnancy. This is consistent with the high proportion of women without antenatal care having HIV risk behaviours. Reported seroprevalence among women who received a rapid HIV test during labour range from <3 per cent (from data at the Odesa AIDS Centre), to 7 per cent [95 percent CI 6.0-8.4 per cent] in the MSF PMTCT pilot study in 2003-2005.

In the MSF project, 16 per cent of women overall were identified through rapid testing at delivery and a further 4 per cent were not identified until after delivery; IDU women were over-represented in this late group.

4.3 Use of antiretroviral prophylaxis

Current national strategy

Antiretroviral prophylaxis for PMTCT

(According to Program for Preventing HIV in Newborns)

For pregnant women with antenatal care, identified as HIV-infected before 28 weeks:

- Short-course zidovudine prophylaxis for mother from 28 weeks gestation to labour (300mg twice a day), and intrapartum (300mg every 3 hours);
- Zidovudine syrup for newborn for 7 days (4 mg/kg every 12 hours).

For pregnant women with ante-natal care, identified as HIV-infected after 28 weeks:

- Short-course zidovudine prophylaxis for mother to labour (300mg twice a day), and intrapartum (300mg every 3 hours) AND single-dose nevirapine for mother;
- Zidovudine syrup for newborn for 7 days (4 mg/kg every 12 hours) AND single-dose nevirapine within 72 hours of delivery.

For pregnant women without ante-natal care identified as HIV-infected during labour / through rapid testing:

- Single-dose nevirapine (200mg) for mothers;
- Single-dose nevirapine within 72 hours of delivery AND zidovudine syrup for 4 weeks (4mg/kg every 12 hours) for the newborn.

State of the art

Resource-limited settings

A regimen consisting of ZDV starting from 28 weeks of pregnancy, sdNVP and ZDV during labour, and sdNVP, plus ZDV for one week given to the infant is highly efficacious.

The PHPT-2 trial in a non-breastfeeding population in Thailand compared ZDV alone, given from 28 weeks of pregnancy, intrapartum and to the infant for the first week of life, to the same ZDV regimen, with the addition of single dose maternal NVP, with or without sdNVP for the infant. The ZDV alone was stopped at the first interim analysis.

The MTCT rate where both the mother and infant received sdNVP, in addition to maternal and infant ZDV, was 2.0 per cent, versus 2.8 per cent where only the mother received sdNVP in addition to maternal and infant ZDV (Lallemant et al. 2004). Conversely the MTCT rate in the PHPT-1 trial among mother-child pairs, randomised to antenatal ZDV from 36 weeks, with 6 weeks neonatal ZDV, was 8.6 per cent (Lallemant et al. 2000).

Current evidence suggests that the long-term impact on future treatment options for women exposed to short-course ZDV is minimal, with low prevalence of ZDV resistance (Cunningham et al. 2002; Ekpini et al. 2002; Nolan, Fowler, & Mofenson 2002). Conversely, resistance to NVP develops rapidly (Eshlemann & et al. 2001; Jourdain et al. 2004).

The impact of resistance on the subsequent response to ART among exposed women is a crucial issue. Immunocompromised women who participated in the Thai PHPT-2 trial were offered NNRTI-based regimens postnatally. NNRTI resistance mutations were detectable in 18 per cent of a random sample of women; although women with NVP exposure had poorer virological response than those non-exposed, a clinically significant proportion had undetectable viral loads after 6 months of therapy, including women with resistance mutations. Women with a greater delay (> 6 months) between delivery and initiation of the NNRTI-based regimens had a better virological response to treatment than those who started ART earlier (Jourdain et al 2004).

Strategies to reduce the development of nevirapine resistance in women receiving PMTCT prophylaxis are being investigated. In particular, the addition of up to one week of postnatal prophylaxis with ZDV and lamivudine (3TC) to the sdNVP doses, significantly reduces prevalence of NVP resistance at 4-6 weeks' follow-up (Chaix et al. 2005; McIntyre et al. 2004).

In the DITRAME Plus open label trial in Ivory Coast, antenatal ZDV+3TC from 32 weeks, intrapartum sdNVP, infant sdNVP and 7 days ZDV+3TC and maternal postnatal ZDV+3TC resulted in MTCT rates at 6 weeks of 4.6 per cent (Chaix, et al 2005; Dabis et al. 2005).

An important issue relating to sdNVP prophylaxis is whether the intervention will continue to be as effective in PMTCT in future pregnancies in women with previous exposure. Preliminary data from the Soweto MTCT program in South Africa (Martinson et al. 2005) suggest that the effect of sdNVP is not compromised when used in second pregnancies, but this needs confirmation.

Box 8: Current WHO recommendations: Antiretroviral drugs and PMTCT in resource-limited settings where maternal HAART is not available (2005 revision)

Antenatal
Short-course ZDV starting at 28 weeks of pregnancy or as soon as feasible thereafter

Intrapartum
sdNVP* and ZDV
*Omission of maternal sdNVP may be considered if ≥4 weeks of antenatal ZDV received

Postnatal
Infant: sdNVP within 72 hours of birth and ZDV for 7 days
Mother: ZDV+3TC for 7 days may be considered to reduce emergence of NVP resistance

For women presenting around delivery with no PMTCT antiretrovirals in pregnancy:

Option 1: Intrapartum: sdNVP and ZDV; Post-natal: infant - sdNVP and 4 weeks ZDV
Option 2: Intrapartum: 3TC and ZDV; Post-natal: mother and infant: 3TC+ZDV for 7 days

Western European experience

The therapeutic management of pregnant HIV-infected women in Western Europe has changed radically over time, with the rapid uptake of ZDV prophylaxis following the ACTG 076 trial results in 1994, and subsequently, the increasing use of HAART in pregnancy (European Collaborative Study 2001b). Use of elective CS is high in these settings [see next section].

Box 9 summarizes the effectiveness of different combinations of PMTCT interventions, in non-trial settings in Western Europe.

Box 9: MTCT rates in cohort studies, by PMTCT interventions

European Collaborative Study [unpublished analysis, 2004]		
No breastfeeding	16 per cent	(14-18 per cent)
No breastfeeding, elective CS	9 per cent	(6-12 per cent)
No breastfeeding, mono/dual therapy	8 per cent	(6-12 per cent)
No breastfeeding, elective CS and mono/dual therapy	2 per cent	(1-4 per cent)
No breastfeeding, HAART	2 per cent	(1-5 per cent)
No breastfeeding, HAART, elective CS	1 per cent	(0.5-3 per cent)
French Perinatal Cohort Study (Mandelbrot et al. 1998)		
No breastfeeding, elective CS and ZDV monotherapy	1 per cent	(0.02-4.1 per cent)

The current situation in Ukraine Uptake/coverage

In 2005, 90 per cent of HIV-infected women received antiretroviral prophylaxis for PMTCT, with coverage figures of 87 per cent in 2004, 86 per cent in 2003 and 91 per cent in 2002. In general, coverage reflects the availability of antiretrovirals for prophylaxis (both on a national and on a hospital level), and the timely identification of HIV-infected pregnant women needing prophylaxis. The decline in coverage from the peak in 2002, was reportedly due to a short-fall in the number of antiretroviral prophylaxis doses available, compared with the increasing number of HIV-infected pregnant women.

There is likely to be some national variation in coverage of prophylaxis: for example, in Odesa the coverage of women with ARV prophylaxis is 93 per cent. In Donetsk oblast, the key reasons why antiretroviral prophylaxis was not given were absence of ZDV (58 per cent) and intrapartum diagnosis of HIV infection (22 per cent) (Grazhdanov 2005). There are no official data with regard to coverage per specific ARV prophylactic regimens. It is estimated that, nationally, approximately one-third of HIV-infected women currently receive only sdNVP because they are identified too late for the ZDV component of the antenatal prophylaxis. In Odessa, the head of the Regional AIDS Centre specified that improving their coverage (i.e. focusing on the 7 per cent of women who did not receive prophylaxis) is now a key priority.

Effectiveness

There is no national information available with which to assess the effectiveness of different antiretroviral prophylactic approaches used in Ukraine, as currently, disaggregated

data are not collected in the monitoring system. However, the national reported MTCT rate in 2004 was 8.2 per cent (see section 4.7). There is some information on effectiveness of specific combinations of regimens available from epidemiological research and evaluation of specific projects. In the MSF PMTCT programme in Odesa, Mycolayiv and Simferopol, the MTCT rate was 7 per cent (n=232) among mother-child pairs where women received a full ARV prophylaxis course, and infants received prophylaxis and were bottle-fed.

In the ECS, analysis of MTCT rates among women delivering between 2000 and the end of 2004 have shown that MTCT rates as low as 4.2 per cent (95 per cent CI 1.8-8.0) have been achieved in study centres in Odesa, Micolayiv and Simferopol, among mother-child pairs receiving antenatal prophylaxis with ZDV from 35 weeks boosted with sdNVP for mother and child; this was somewhat lower than the rate seen among mother-child pairs receiving short-course ZDV only, at 7.8 per cent (95 per cent CI 2.9-16.2). A very similar MTCT rate to that in the ECS was reported from the Donetsk oblast among women receiving both ZDV and sdNVP (6.9 per cent) (Grazhdanov 2005).

Supply

The coverage of ARV prophylaxis for HIV-infected pregnant women for use in PMTCT in Ukraine to date, has been made possible by the availability of ZDV as humanitarian aid from UNICEF (as a donation in kind from GSK), and of NVP through a 5 year donation programme from Boehringer Ingelheim (2001-2005). In Southern Ukraine, coverage was ensured by the provision of ARV drugs within the MSF PMTCT programme (2000-2005). PMTCT was one of the priorities of Ukraine's successful application to GFATM. Since 2004, ARV medicines for PMTCT have been provided through the International HIV/AIDS Alliance in Ukraine, with financial resources provided by the GFATM, according to the Stewardship Agreement between the Alliance and GFATM; this will continue until 30 September 2008.

There are anecdotal reports of variable supply of ARVs for PMTCT between and within regions, for example, with some areas only having access to NVP, or with others having problems in accessing ZDV syrup for neonatal prophylaxis.

4.4 Mode of delivery

Current national policy recommendation

Elective caesarean section for PMTCT

Recommended for women with viral loads >1000 copies/ml

State of the art

There is a consistent body of evidence from observational studies, a meta-analysis and trial which all indicate that elective caesarean section, before onset of labour and rupture of membranes, significantly reduced the risk of MTCT, compared to both vaginal and emergency caesarean section deliveries in the monotherapy era (European Collaborative Study 1999; Mandelbrot, et al 1998; The European Mode of Delivery Collaboration 1999; The International Perinatal HIV group 1999).

In the recent Cochrane review of the efficacy and safety of CS for PMTCT, it was concluded that elective CS is an effective intervention in women receiving monotherapy, and that post-partum morbidity is higher following an elective CS than vaginal delivery, but lower than after an emergency CS (Read & Newell 2005). However, HIV-infected women are at increased risk of post-partum complications after vaginal delivery compared with HIV-negative women (European HIV in Obstetrics Group 2004). There is some evidence to suggest that elective CS is also effective in reducing MTCT risk among women on HAART (European Collaborative Study 2005b), although its impact on women with undetectable viral loads remains uncertain, and more research is needed.

Current situation in Ukraine

Elective CS

In Ukraine, the elective CS rate among HIV-infected women is 13.8 per cent, which is similar to the rate in the general population. This reflects current MoH protocol, which states that an elective CS should be offered to women with a viral load above 1000 copies/ml and was written at a time when it was believed that viral load monitoring would shortly become available. This protocol urgently needs to be updated, and a MOH working group has been convened to this end. Obstetric practice reflects interpretation of this protocol, that is, that in the absence of viral load testing, elective CS is only required for obstetric indications.

In maternity hospitals in Odesa, Micolayiv and Simferopol, which have participated in the MSF pilot PMTCT programme since 2000, there are considerably higher elective CS rates (50 per cent at the Regional Hospital in Odesa, and above 70 per cent in Simferopol currently). In these settings, women receive counselling on the benefits of elective CS regarding PMTCT, and are encouraged to opt for an elective CS. However, in some settings, obstetricians, although aware of the benefits of elective CS, lack delivery kits, including protective equipment for health care staff; this is a reported barrier to increasing the number of elective CS.

In the JSI needs assessment in 2005 in Kyiv, Donetsk, and the Crimea, 29 per cent of obstetricians provided elective CS as a component of PMTCT; however, 68 per cent of obstetricians at maternity hospitals, and 90 per cent of obstetricians at antenatal clinics did not know that elective CS is associated with a decreased risk of MTCT. In the POLICY survey of 2004, several HIV-infected women reported being refused an elective CS by obstetricians, despite a specific request for this mode of delivery.

A survey of health care providers within this research project are consistent with the results from JSI, with most thinking that HIV-infected pregnant women should have an elective CS only for obstetric indications.

These studies highlight the need for training and education regarding the benefits of elective CS in populations receiving abbreviated regimens among obstetric health care providers.

Vaginal delivery

The JSI needs assessment also revealed that, although 71 per cent of obstetricians in the maternity hospitals surveyed were aware that they should avoid invasive procedures during delivery, it was apparent there was some lack of knowledge regarding obstetric factors increasing the risk of intrapartum MTCT; for example, only 36 per cent knew that long duration of rupture of membrane is a risk factor.

4.5 Infant feeding

NATIONAL POLICY

Infant feeding

- Formula feeding is recommended for all HIV-infected women

State of the art

Breast-feeding is associated with an approximate doubling of overall MTCT risk, with the risk remaining as long as breast-feeding continues (Nduati et al. 2000). Breast-feeding transmission accounts for one third to one half of all infant HIV infections in low-income settings (Fowler & Newell 2002). In developed country settings where formula feeding is acceptable, feasible, affordable, sustainable and safe, HIV-infected women should be advised to avoid all breast-feeding, as recommended in the WHO/UNICEF/UNAIDS guidelines (WHO/UNICEF/UNAIDS 1998).

Current situation

Nearly all HIV-infected women in Ukraine who access medical care postnatally are reported to adhere to the infant feeding recommendations. There are no official data regarding the percentage of infected women who formula feed their infants. However, quantitative reports on the utilisation of infant formulas, provided by the AIDS Centres at oblast level to the Ukrainian AIDS Centre, confirms a high level of adherence of HIV-positive mothers to infant feeding guidelines. There are anecdotal reports of a very small number of women

who insist on breast-feeding their infants; it appears that, at least in some settings, these women are recommended to exclusively breast-feed for four months only, which is consistent with the current evidence base.

Factors behind the likely high rate of formula feeding among HIV-infected mothers in Ukraine include the provision of free artificial infant formula, and the fact that not breast-feeding is non- stigmatizing in Ukraine. Although the national programme states that artificial infant formula should be available for all HIV-infected women, as this is usually funded from local budgets, free formula is not always available. In a study carried out by the State Institute for Family and Youth (Justice et al 2004), half of the interviewed HIV-infected parents never received free infant formula for their babies.

In the JSI needs assessment, a fifth of neonatologists provided no counselling or support to HIV-infected mothers regarding infant feeding recommendations. There was, also, a concerning lack of knowledge regarding the correct preparation of infant formula in the sample (Semenenko et al 2005). Nursing staff were not included in this survey, therefore it is not certain whether they, rather than the doctors, provided support to infected mothers with regard to artificial feeding.

Breast-feeding is the norm in in Ukraine, although non breast-feeding is non-stigmatising. In the 1999 Ukrainian Reproductive Health Survey, 92 per cent respondents had breast-fed their babies (Goldberg et al 2001).

There appears to be a lack of support and information for HIV-infected women with regard to artificial feeding, which is vital for the health of the formula-fed infant. Even in resource-rich settings, formula-feeding is associated with increased infant morbidity (Ball & Wright 1999), whilst the WHO estimate that 1.5 million infants die due to diarrhoea annually because they are not breastfed - mostly in developing countries. There is no available information on artificial feeding practices of women in Ukraine (HIV-infected or otherwise), for example, when they switch to cow's milk rather than formula, or introduce non-milk food or drinks. However, given the poor quality control of dairy products in Ukraine, and the lack of support regarding safe practices (sterilization etc), it is feasible that morbidity, due to poor feeding practices, has contributed to the significantly higher perinatal mortality reported among infants born to HIV-infected mothers, compared to that in the country as a whole.

4.6 Diagnosis of infants born to HIV-infected mothers

Ukraine is currently undergoing a transition with regard to diagnosis of infants born to HIV-infected mothers. At the time of this review, most infants born to HIV-infected mothers were diagnosed on the basis of antibody tests, which cannot give a definitive diagnosis of infection until the child is 18 months old, due to the passive transfer of maternal antibodies in utero. This not only complicates the diagnosis and management of infants born to HIV-infected women, but also causes considerable difficulties in the evaluation of the PMTCT programme.

The benefits of an early diagnosis of HIV infection for both mother and baby are profound, including the potential for earlier treatment for infected infants and less uncertainty and reduced stress for the parents. Prompt diagnosis would also have economic benefits for the health care system, for example, as it would rapidly accelerate the monitoring process with shorter follow-up by paediatricians, shorter durations of cotrimoxazole prophylaxis for those diagnosed uninfected etc. Furthermore, PCR diagnosis would facilitate the planning of services, particularly with regard to the antiretroviral treatment of infected children.

Systems to allow the early diagnosis of infants born to HIV-infected mothers were highlighted as a priority in previous reviews of the PMTCT programme in Ukraine (Malyuta 2003, Justice et al 2004); but HIV DNA PCR testing was still not widely available at the time of this review. However, PCR equipment has been procured for 7 regions, with finance from the GFATM and the World Bank. It is planned to assign one day per week in the reference laboratories for testing samples of infants born to HIV-infected mothers.

Since November 2005, the laboratory of the Ukrainian AIDS Centre has been given the remit to provide PCR testing for infants born to HIV-infected mothers from all oblasts except Crimea and Odesa.

The Odesa Regional AIDS Centre will continue the PCR testing (started in 2003 with equipment provided by MSF), in November 2005, with new equipment received from GFATM. PCR diagnostics started in December at the Crimean AIDS Centre in Simferopol and at the Kiev AIDS Centre, and there are plans to introduce early PCR testing for infants on a nation-wide basis from early 2006.

There is currently no national protocol regarding early diagnosis of children born to HIV-infected women, but the MoH in 2004 developed and adopted an order on HIV diagnostics among infants.

The use of real-time HIV DNA PCR should be seriously considered for use nationally in Ukraine. This is a low cost approach to early diagnosis in infants born to HIV-infected mothers, designed for use in resource-limited settings. This approach has been used successfully in settings in Africa for the early diagnosis of infection status, with high specificity and sensitivity (Pineau et al. 2004; Sherman et al. 2005).

Currently, staff at AIDS Centres have the main responsibility for follow-up and diagnosis of infants aged <18 months with indeterminate HIV status. However, the general paediatric services also manage children born to HIV-infected mothers. There is thus a double system of management and observation of children of indeterminate infection status.

Follow-up by staff at AIDS Centres is problematic as many families' live long distances from their closest AIDS Centre, and it is costly and difficult for them to attend appointments. This situation may partly explain why there is loss to follow-up of some indeterminate children. Follow-up, diagnosis, and the appointment for the blood draw could be transferred to local paediatricians under conditions of proper training; although, the actual testing would still need to be carried out in reference laboratories. This would be a more sustain-

able and appropriate approach. This is backed up by the high vaccination coverage among young infants in general, which is the responsibility of local paediatricians' clinics, suggesting that access to such clinics is generally good. However, such a change in strategy would require intensive training of paediatricians nationally, particularly with regard to confidentiality issues.

4.7 Monitoring and evaluation of PMTCT

Current system

UNICEF and the MoH have developed the national monitoring system of the PMTCT programme in Ukraine jointly.

Regional AIDS Centres and Epidemiological Stations are responsible for data collection on pregnant women, and obtain reports from the local antenatal clinics and hospitals in their region. These data are reported on three collection forms:

1. 'Report on HIV-infected pregnant woman' ;

2. 'Report on the ending of pregnancy of HIV-infected woman' ;

3. 'Report on taking ARVs under medical supervision and confirmation of the status of the child born to HIV-infected mother'.

These data are collated monthly at the national level in the MoH and used for evaluation and monitoring purposes; including, monitoring the number of HIV-infected women delivering annually, the MTCT rate and the coverage of ARV prophylaxis.

Limitations of the existing system

In the absence of rapid diagnostic methods for infants born to HIV-infected mothers, estimation of the MTCT rate, and evaluation of the effectiveness of PMTCT in Ukraine, is problematic. In effect, the MTCT rates estimated in 2004 (8 per cent), apply to infants born at least 18 months previously (i.e. in 2002/3); thus, caution should be used in interpreting these rates with regard to effectiveness of current approaches to PMTCT.

The approach currently used for estimation of the MTCT rate is on a case-by-case basis. This is labour-intensive and non-sustainable as the number of HIV-infected women delivering continues to increase. Furthermore, there are problems regarding unique identification of mother and infants, with matching not always possible; currently, mothers' surnames are used and thus may not be the same as that of her child.

The ex-Minister of Health had plans to implement a unique health identification number to facilitate monitoring, but it is uncertain whether the current Minister will prioritise

these. There is also a problem with loss to follow-up, with children with indeterminate HIV status having been lost to the AIDS Centre where follow-up is managed.

There is consensus that the software developed for M&E of PMTCT needs to be updated. It is not possible to obtain disaggregated data by type of ARV prophylaxis received, or other interventions, within the current system. One reported barrier to an adequate approach to monitoring was the lack of skills, with regard to data base management at local hospital level.

Suggestions for improving the M&E system

Box 10 shows some details on the potential role of the M&E system for PMTCT in Ukraine.

Although the monitoring function of the system is important on a nationwide level, a national approach is not necessary for all the evaluation components.

Collection of all the data required for a formal evaluation of the PMTCT programme, and ensuring a high level of data quality, would be labour-intensive, particularly in a setting such as Ukraine, where there is a large and increasing number of HIV-infected women delivering. Some of the evaluation within the M&E system could therefore be carried out on a sub-national basis, for example, in selected regions with differing background HIV prevalence.

BOX 10: Potential role of M&E system for PMTCT

To monitor:

- Seroprevalence in the pregnant population;
- The number of infants exposed to HIV infection;
- The number of vertically-infected infants;
- The MTCT rate.

To evaluate the PMTCT programme:

- Coverage of HIV antenatal and intrapartum testing;
- Timing of HIV diagnosis in pregnant women;
- Proportion identified through antenatal testing and proportion through intrapartum rapid testing.

Coverage of ARV among infected women:

- By type of ARV prophylaxis;
- By mode of delivery;
- Effectiveness of interventions;
- Link outcome (vertical transmission) to interventions used;
- Coverage of PMTCT services for high risk behaviour women;
- Quality of PMTCT services;
- Guidance and training.

With regard to the evaluation of PMTCT, it is important to start to monitor the timing of diagnosis of infection in HIV-infected pregnant women, particularly the proportion of women identified late; earlier identification, and thus application of more effective PMTCT intervention should now be a priority of the PMTCT programme.

To evaluate the effectiveness of different combinations of prophylactic interventions, disaggregated information is required on the use of prophylactic interventions (ARV, elective CS and formula feeding). Furthermore, the receipt of ARV prophylaxis should be sub-categorized according to:

- Whether or not the women received a full or partial ZDV course;
- With or without sdNV;
- What neonatal prophylaxis was given.

The M&E system will also need to be updated with regard to the increasing availability of PCR testing of infants born to HIV-infected mothers, and with continued data collection regarding the outcome of antibody testing of exposed infants at 18 months of age.

Within the M&E of PMTCT there has been some evaluation of the quality of the PMTCT programme, for example, the POLICY project in 2004, which involved a qualitative assessment of barriers to obtaining high-quality health care, including PMTCT, among 40 HIV-infected mothers (Yaremenko et al 2005). However, further evaluation of quality of service provision is needed, particularly in the less experienced oblasts, where there is evidence that the epidemic is now spreading.

4.8 Training of health care professionals in antenatal clinics and maternity hospitals

In 2003, a training manual on PMTCT was developed for obstetrician-gynaecologists, neonatologists, paediatricians, infectionists, family doctors, health care providers, interns and students, with assistance from UNICEF. The manual includes three components: general issues on HIV, HIV infection in obstetrics and diagnosis and care of HIV-infected children. Although this manual has been distributed nationally, the results from the needs assessment and anecdotal reports suggest that not all clinicians working with pregnant women and their children are well informed regarding PMTCT.

UNICEF has placed an emphasis on capacity building, and carries out regular PMTCT training for health care providers. However, an organization such as UNICEF only has the ability to carry out a certain number of training sessions per year - 10 at the most, with a maximum of 25 people attending - which thus only covers a small proportion of the several thousand health care providers who need training. Clearly a crucial component of capacity building involves training with regard to HIV infection and prevention and care at the curriculum level. UNICEF has advocated and initiated the process of introducing the issues of PMTCT within the curriculum at colleges, medical institutes, universities and post-graduate education. JSI are promoting better practices regarding the perinatal period in general, to include HIV. In addition to JSI, other organizations are working intensively on training and human capacity-building issues, including AIHA and PATH.

4.9 Conclusions and recommendations

The third pillar of the PMTCT strategy in Ukraine has been an undoubted success story, as highlighted by a variety of indicators (Box 11). The PMTCT target within the UNGASS goals includes the reduction in the proportion of infants infected with HIV by 20 per cent by 2005, and by 50 per cent by 2010. The national MTCT rate in Ukraine today is less than half that of the rate reported in 2000 (27 per cent).

BOX 11: Indicators of success of the 3rd pillar of the PMTCT programme

Successes

- MTCT rate has declined substantially
- National MTCT rate in 2004 was **8.2** per cent
- National coverage of ante-natal HIV testing in 2004 was **99** per cent (96 per cent in 2002)
- In 2005 **90** per cent of HIV-infected pregnant women received ARV prophylaxis

What made PMTCT a success story?

On the macro level, there has been a strong political commitment to PMTCT in Ukraine both at the national and regional governmental levels, and this has certainly contributed to the successes seen to date. The planning and instigation of the first national PMTCT programme in 2001, involved a multi-sectoral approach with a variety of partner organizations including WHO, UN agencies and NGOs and resulted in a clearly defined national PMTCT strategy.

Cooperation between the government (MoH) and experts from WHO, UNICEF and other national and international organizations in the evaluation of the first programme in 2003 (Malyuta 2003), allowed consolidation of efforts and the development of the next phase of the PMTCT programme. This included the adoption of new guidelines on the use of ARV in pregnancy in line with the current evidence-base, for example, with the reduction in the gestational age at initiation of ZDV from 36 to 28 weeks, which is more effective in reducing MTCT risk.

To successfully prevent vertical transmission of HIV, it is essential to have timely and adequate access of all pregnant women to antenatal care, including those at greatest risk of HIV infection who may, conversely, be the group of women least likely to have good access to health care services.

One of the factors contributing to the success of the third pillar in Ukraine is the high level of antenatal care coverage, at 90 per cent, with pregnant women generally accessing antenatal care in early pregnancy. This reflects the extensive infrastructure of antenatal clinics and maternity hospitals nationally. The challenge remains to address the 10 per cent of women who are currently missed by services.

Prompt identification of HIV-infected pregnant women is the crucial next step.

Integration of the PMTCT programme within the existing MCH services has facilitated the national antenatal HIV screening programme. Routine antenatal screening for other infections such as syphilis provided a basis on which to develop the HIV antenatal screening programme.

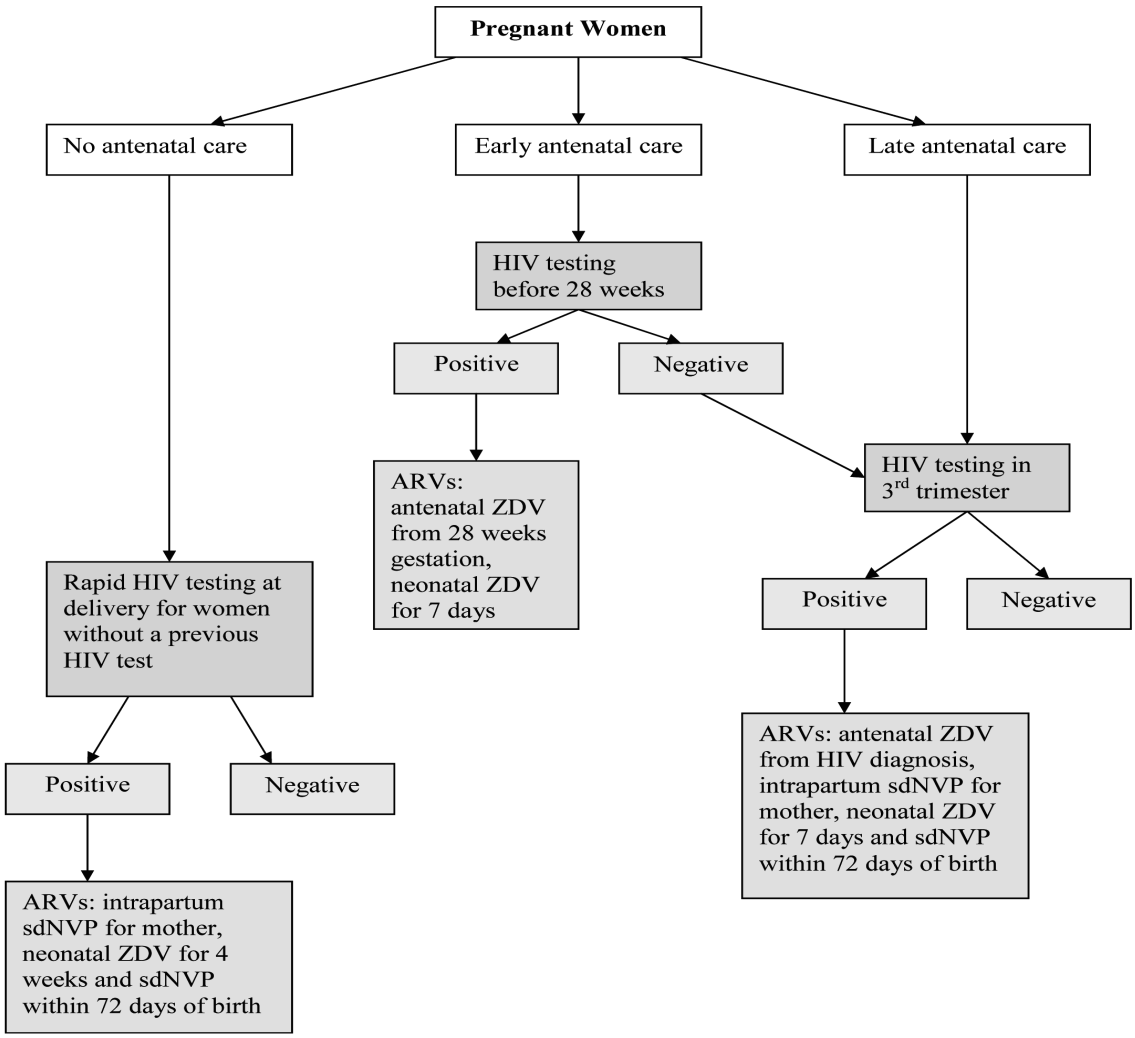
In Ukraine, the adoption of the "opt-out" antenatal HIV screening policy nationally has been highly successful in identifying infected women, with a nearly 100 per cent coverage of women who receive antenatal care and/or deliver in health care settings. The approach taken has optimised identification of infected women, as there are several opportunities to identify infected women before delivery, with the policy of testing in early pregnancy and re-testing in the third trimester; plus, intrapartum rapid testing for women presenting without an HIV test result (see Figure 2).

Next, the appropriate offer of effective PMTCT interventions and optimal clinical management is needed, to prevent the transmission of infection from mother-to-child.

In Ukraine, there has been good access to antiretroviral drugs for PMTCT prophylaxis since 2000; initially, this was as a result of humanitarian aid from the pharmaceutical industry and is now through the financial provisions of GFATM. Furthermore, in Odesa, antiretroviral drugs were provided within the MSF PMTCT programme for several years. However, although the peak prophylactic ARV coverage achieved was 91 per cent nationally in 2002, it has proved a challenge to sustain this (see next section). Coverage to date has been ensured by the distribution of antiretroviral drugs for PMTCT to regional AIDS centres, on the basis of epidemiological projections of need, performed by the National AIDS Centre.

Ukraine is a setting where formula feeding is acceptable, feasible, affordable, sustainable and safe. This situation, together with the national policy that free formula milk should be available to these women has facilitated the widespread use of artificial feeding for infants of HIV-infected women. However, there is some evidence that practice regarding access to free artificial milk may not reflect policy; also there are no specific, empirical data to indicate that HIV-infected women are compliant with regard to artificial feeding.

FIGURE 2: Flow chart to show current approach to identification of HIV-infected pregnant women and ARV prophylaxis



As a result of pilot studies and research projects, some regions have significantly more experience in PMTCT than others, usually those with higher antenatal seroprevalences. Specific centres in these regions have a high level of knowledge, dedicated professionals, good co-operation and communication between maternity hospitals, antenatal clinics and AIDS centres - and as a result, excellent results with regard to MTCT. This is well illustrated by the MTCT rates as low as 4.2 per cent in the study centres of the European Collaborative Study, which were also participants in the MSF pilot PMTCT study. The experience of these centres should be utilized in determining strategies to improve coverage and quality of service-provision nationally.

Box 12: Summary: factors contributing to success in reducing MTCT in Ukraine

- Political commitment;
- Role of international donors, NGOs and other international organizations, including UN agencies and WHO;
- Development of PMTCT programme from a strategic base within MCH services;
- Evaluation and modification of national PMTCT programme
  High levels of ante-natal coverage;
- Integration of HIV testing within existing antenatal screening infrastructure and as a part of routine ante-natal care;
- Opt-out model for antenatal HIV testing;
- Good access to antiretroviral drugs for prophylaxis, procured with GFATM funding;
- Formula feeding by HIV-infected mothers is acceptable, feasible, affordable, sustainable and safe.

Reducing the MTCT rate further

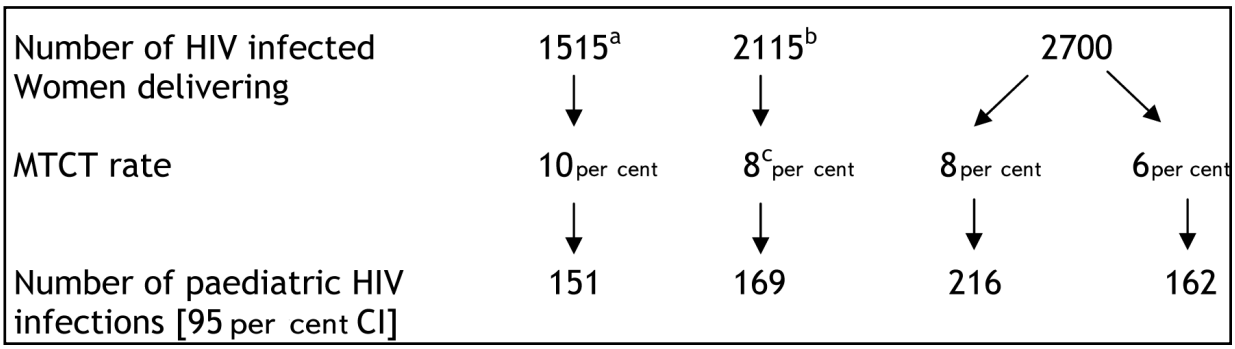
The stringent Dublin Declaration target is to reduce MTCT rates to less than 2 per cent, and to achieve a target of <1 HIV-infected infant per 100,000 births by 2010. As the number of HIV-infected women delivering each year is increasing in Ukraine, maintenance of the current MTCT rate of 8 per cent will not result in a decreasing number of new paediatric infections if current epidemiological trends continue (Figure 3).

In Ukraine, MTCT rates of less than 5 per cent are already being achieved in a selected group of centres (those involved in research and/or those with the greatest experience having been involved in PMTCT pilot studies); but, it will be a challenge to achieve this on a national level on the basis of the current recommendations.

One of the most effective methods of decreasing the current MTCT rate in Ukraine to below current rates would be an increased use of elective CS among women on ZDV

monotherapy, which would be expected to half the rate of transmission in those women receiving both interventions (Read & Newell 2005). However, this would require a change in the current national guidelines and a substantial input of resources such as additional training, delivery kits etc.

Figure 3



a 2003 figure; b 2004 figure; c MTCT rate for 2004

Currently 10 per cent of HIV-infected pregnant women do not receive any ARV prophylaxis and are highly unlikely to be offered an elective CS. There are no national data on the reasons for non-receipt of ARV but these are likely to be due to either late identification of HIV infection, or, a lack of availability of antiretroviral prophylaxis on a local level. These women will be at significantly higher risk of transmitting infection to their infants than women who receive antenatal and/or intrapartum prophylaxis and will thus inflate the MTCT rate. To illustrate, applying an MTCT rate of 25 per cent to 270 (10 percent) of 2700 pregnant HIV-infected women, a realistic rate in the absence of ARV prophylaxis, would give a total of 68 infected infants in this sub-group; these 68 would account for nearly a third of all 216 vertical infections that would be expected if there was an 8 per cent MTCT rate overall. Thus, there is an urgent need to reduce the proportion of HIV-infected women not receiving ARV prophylaxis, including improving their access to antenatal care, to facilitate earlier identification and application of more effective PMTCT interventions.

The group of pregnant women with the highest prevalence of HIV are more likely to be identified through intrapartum rapid testing than other women. For example, in Odesa, the seroprevalence of those identified through rapid HIV testing intrapartum was estimated to range between 3-7 per cent. This is not an unexpected finding, as women at the greatest risk of acquiring HIV continue to be those who inject drugs and/or are sex workers, who often avoid contact with health care services and thus do not access antenatal care, or only do so very late in pregnancy. Identifying effective approaches to address this situation will not only have a beneficial impact on PMTCT, but has the potential for other benefits for this group of marginalized women, with regard to their general health, management of HIV disease and referral for psycho-social support, and may also have a "knock-on" effect with regard to abandonment of infants. The establishment of stronger integration between harm reduction services and reproductive health services including PMTCT is required, with the creation and maintenance of referral linkages.

With increasing numbers of infected women being identified, the problem of lack of prophylactic drugs in some settings highlights the challenge of sustaining the level of ARV prophylactic coverage needed in the face of the maturing epidemic. There is not only a need to accurately forecast PMTCT prophylaxis requirements with the use of good epidemiological monitoring, but also to procure adequate quantities of drugs and to ensure that these are distributed effectively. Excellent links are thus needed between the national epidemiological centre and the International HIV/AIDS Alliance with regard to projections for PMTCT needs. Furthermore, although there is a growing focus in Ukraine on the roll-out of HAART for treatment, the increasing level of need for PMTCT prophylaxis must be acknowledged and planned for.

Integration of PMTCT within existing MCH structures has been a successful approach in terms of use of existing infrastructure and lack of duplication, but the drawback has been a lack of additional human or financial resources regarding PMTCT management. This has become particularly apparent, as the epidemic has matured in Ukraine, with increasing numbers of HIV-infected women being diagnosed in pregnancy. There has been a considerable effort with regard to capacity-building, for example, with training modules on PMTCT developed by UNICEF, as well as the projects implemented by MSF, AIHA and currently JSI and this needs to be scaled-up nationally; inclusion of PMTCT within the curricula of medical and nursing students should facilitate this process.

Recommendations

Antenatal and Intrapartum HIV Testing

- Antenatal HIV testing should be voluntary and free of coercion:
    - In an opt-out system, women should be adequately informed that this is the system in place.
- As a priority, the newly developed national guidelines on VCT of pregnant women should be disseminated, with training, among: health care providers, obstetricians, midwives, nursing staff and other service providers (e.g. peer counsellors from NGOs).

Both the guidelines and training should pay particular attention to the following:

- Post-test counselling of negative women and their partners;
- This should be provided to all;
- Opportunities for passing primary prevention message;

- Post-test counselling of infected women;
- Verbal and written information;
- The meaning of a positive test result for the womens own health to be explained;
- MTCT risk and PMTCT interventions;
- Protocol with regard to follow-up of their child;
- Sources of psychosocial support and referral services;
- Prevention of transmission to sexual partners;
- A certain amount of information on HIV, prevention and PMTCT should be provided to all pregnant women;
- Referral linkages should be established with harm reduction programmes for HIV-infected pregnant women who inject drugs, or whose partners do so;
- All maternity hospitals should have the capacity to perform rapid HIV testing intra-partum for women presenting with unknown HIV status, and to provide appropriate support to women with a positive rapid test result;
- Peer counsellors from NGOs should be allowed access to antenatal clinics and maternity hospital outpatients departments.

Antiretroviral prophylaxis:

- Update protocols for antiretroviral prophylaxis for PMTCT in line with current WHO guidelines;
- Ensure an uninterrupted supply of antiretroviral drugs for PMTCT.

Obstetric management:

- Up-date the national protocol for mode of delivery to be consistent with the evidence base (i.e. that elective CS is highly effective in reducing MTCT among women not receiving HAART in pregnancy);
- Intensify efforts to scale-up use of elective CS as a PMTCT intervention by:
- Training of health care professionals;
- Ensuring supply of delivery kits;

- Routinely discuss mode of delivery with all infected pregnant women;
- Ensuring availability of prophylactic antibiotics for all infected women undergoing an elective CS.

Infant feeding:

- All HIV-infected women should have access to free breast-milk substitute formula, and provision of this should be consistent with the principles and aim of the International Code of Marketing of Breast-milk Substitutes;
- Provision of infant feeding counselling to all infected women is needed, including practical information and support on safe artificial feeding, ideally during pregnancy as well as in the post-partum period;
- Research is needed to assess compliance with infant feeding recommendations among HIV-infected mothers, including identification of risk factors for non-compliance;
- Training of health care providers regarding optimal infant feeding practices.

Infant Diagnosis:

- A national protocol regarding the follow-up and PCR and antibody testing of HIV-exposed infants is needed, particularly as PCR diagnosis will shortly become available in most oblasts;
- Information for pregnant women and mothers regarding diagnosis and follow-up of their infants will need to be updated as availability of PCR increases;
- Alternative models for follow-up and diagnosis of infants with indeterminate infection status should be considered:
  - Consider use of dried blood spots and real time PCR for diagnostic purposes;
  - Explore potential for de-centralised follow-up.

Monitoring and evaluation:

- PMTCT monitoring/evaluation system needs to be updated to adequately monitor the HIV seroprevalence in the antenatal population, the number of infants exposed to HIV infection, the number of infants acquiring vertically-transmitted HIV infection and the MTCT rate;
- The PMTCT programme evaluation needs essential revision, to include the ability to evaluate not only coverage of HIV testing and of receipt of any ARV prophylaxis, but also the use and effectiveness of different combinations of PMTCT interventions and programme coverage (including for high risk groups) and quality.

Training

- Training and information provision for obstetricians-gynaecologists, paediatricians, neonatologists, midwives and other appropriate health care professionals working with HIV-infected pregnant women and their infants needs to be scaled-up, particularly at the curriculum level;

- VCT;

- PMTCT interventions.

Multi-sectoral working

- Strong working partnerships need to be established between MoH and NGOs to include VCT, outreach services, harm reduction, promotion of maternal and child health and PMTCT.

5. Providing care and support to HIV positive women, their infants and their family

5.1 Introduction

Care and support should be provided to HIV-infected mothers as an essential component of any PMTCT strategy, not only on a humanitarian/human rights basis, but also because provision of these services will result in improved survival and quality of life among HIV-infected mothers. This not only benefits the woman herself, but also her children (infected and uninfected) (Newell et al. 2004). This is the fourth pillar of PMTCT.

The Committee on Treatment, Care and Support, which is part of the National Coordination Council on HIV/AIDS, decides the main issues regarding treatment, care and support of HIV-infected mothers and their children on a national level, and co-ordinates activities relating to these issues from the ministerial to the local level. The Committee has a multi-disciplinary membership, including members from international organisations and NGOs.

The National Treatment Protocol for treatment of pregnant HIV-positive women has been developed but is not yet ready for nationwide dissemination. Furthermore, there are no current guidelines on general management of HIV-infected women or children. Guidelines on palliative care and support for HIV-infected people have been developed but have not yet been approved by the MoH. There are no national standards or guidelines currently with regard to psychosocial care and support for PLWHA.

Antiretroviral treatment

Box 13 summarises the roll-out of ARVs for the treatment of HIV disease in Ukraine. The ARV treatment target set within the GFATM national programme has been achieved (2,600 by 2005), and the scaling-up of the programme will see 20 of the 27 regions of Ukraine covered by the start of 2006. HIV-infected patients from regions not covered by the Comprehensive Treatment Plan will receive ART through the central Epidemiological Institute in Kyiv. ARVs procured by GFATM are distributed to the regional AIDS Centres of the oblasts, although some logistical problems with transport are being experienced.

There is a lack of consensus regarding the estimated total requiring ARV treatment; the 2853 adults and children receiving HAART represent 15 per cent of the estimated 18,500 HIV-infected people requiring treatment according to one estimate, and 32 per cent of the 9,000 officially registered cases who require treatment according to another estimate. No information is currently available on the number of infected children requiring HAART, although there are an estimated 1000 children with confirmed HIV infection in Ukraine (and a further 4,100 with indeterminate HIV infection status).

5.2 Medical care

5.2.1 HIV infected pregnant women and mothers

Medical care of HIV-infected adults and children in Ukraine is very much focused around AIDS Centres. However, not every oblast in Odesa has an AIDS Centre, and it is uncertain where HIV-infected individuals in these regions access their HIV-related care. Depending on their size, AIDS Centres may have a variety of specialists working in them; infectious diseases specialists, gynaecologists, TB specialists, paediatricians, dentists, and psychiatrists. Out-patient and in-patient care is provided, the latter usually only for adults.

HIV-infected individuals are monitored for clinical signs and symptoms, and CD4 counts are measured where laboratory monitoring is available; currently, only in 6 "priority" oblasts out of 27 administrative units including Autonomous Republic of Crimea, Kiev and Sevastopol Cities, although 2 more flow cytometers are expected through a World Bank project.

Box 13: Brief history of ARV treatment in Ukraine

- **2001:** first individuals treated, funded by state budget;
- **March 2003:** Ukrainian government registered generic antiretroviral drugs;
- **2004: 137** people on HAART;
- **August 2004:** GFATM-funded treatments started;
- **Autumn 2004:** Clinton HIV/AIDS Foundation successfully negotiates for reduced price generic antiretrovirals for treatment programmes supported by GFATM on behalf of the Ukraine government.
- **December 2004:** National protocol for ARV treatment (based on WHO recommendations) approved by MoH and disseminated via a series of orders:
  - Knowledge-hub initiated (training of 50 multi-disciplinary teams).
- **January 2005:** Comprehensive Treatment Plan:
  - Covering 6 regions with highest HIV prevalence;
  - Special needs assessment of readiness of region for ART roll-out.
- **September 2005:** Comprehensive Treatment Plan extended to 9 more regions;
- **October 2005:** 2503 adults and 350 children on HAART.

January 2006: 5 more regions to be added to the Comprehensive Treatment Plan (total, 20 regions)

An HIV Satellite clinic at Odessa Regional Hospital (Box 14) is a pilot activity, set up by MSF in August 2002 and now continued with support from the MoH - despite MSF's withdrawal from Ukraine.

This community-based out-patient service pioneered the concept of 'HIV family medicine' in Ukraine, and aimed to develop capacity to treat and care for HIV-infected mothers outside the typical, vertical structure of AIDS Centre.

Contributing to the success of the clinic was the multi-disciplinary approach, with the clinic staffed by physicians, nurses and peer counsellors. Target groups attending are women and children from the PMTCT programme, people on HAART and others seeking an HIV diagnostics test.

Although the clinicians working at the satellite clinic are not yet able to prescribe ARVs, which is currently the role of the AIDS Centre physicians, this will change in 2006, representing a real move towards de-centralisation of HIV/AIDS care in Odesa. To facilitate this change, a specially trained infectious diseases physician will be appointed. However, to date this satellite clinic remains a "one-off" pilot model and elsewhere in Ukraine, comprehensive HIV care continues to be only available in AIDS centres.

The MoH recently confirmed readiness to introduce a system of satellite clinics nationally; however, it is uncertain how long the processes of introduction and regulatory approval for these clinics will take.

Antenatal care

HIV-infected pregnant women are generally cared for by obstetricians at antenatal clinics and at maternity hospitals, with the same schedule of routine antenatal visit as non-HIV infected women (8 times in pregnancy for those registering in their first trimester).

Although, according to the national policy, all antenatal clinics and maternity hospitals are required to provide medical care for HIV-infected pregnant women, there is a strong element of referral of infected cases for delivery to certain hospitals within specific areas (e.g. Kiev and Odessa), as a result of their greater expertise.

Currently in Ukraine, ARV drugs can only be prescribed by physicians working at AIDS Centres, and thus HIV-infected women initiating prophylactic zidovudine in pregnancy are referred to AIDS Centres. This is not an ideal situation as women are therefore required to attend health care settings in several locations and AIDS Centres may be difficult to reach - for example, the Odesa Regional AIDS Centre is on the outskirts of the city and is only on one bus route.

Box 14

HIV Satellite Clinic - Odesa Regional Hospital

- Purpose: to provide more accessible and anonymous care, to reduce stigmatisation, to improve the quality of life of PLWHA.
- Services offered:
  - HIV testing;
  - Clinical examination and follow-up for mother and family;
  - Laboratory testing;
  - OI prophylaxis and treatment;
  - Psychosocial and adherence support;
  - Primary health care.
- Very close cooperation with the AIDS Centre, including a shared data base and with NGOs who provide peer counselling, adherence support etc.
- Advantages of the clinic:
  - An easier location than the AIDS Centre;
  - Less stigmatising to access than the AIDS Centre;
  - In 2006 will become a "one-stop shop" for comprehensive HIV care.

In Odesa, pregnant HIV-infected women who require ART for their own health are starting to receive HAART in pregnancy. The first-line regimen is ZDV+3TC+NVP (for women with CD4 counts below 250 cells/mm3), which is started at 28 weeks gestation and continues post-partum. Currently, 10-15 women are receiving this regimen, and they are very closely monitored at the AIDS Centre, which has a flow cytometer for CD4 count monitoring.

The perinatal mortality rate among infants born to HIV-infected mothers in Ukraine is reported to be 1.5 times higher than in the general population. However, exposure to HIV in utero and intrapartum would not be expected to have an impact of this magnitude, and this high perinatal mortality rate is more likely to be a reflection of inadequate antenatal care, poor feeding practices, co-morbidities such as co-infection with other blood-borne viruses, other STI, TB, and prematurity / low birth weight, associated with in utero exposure to illicit drugs and/or co-infections.

The Maternal and Infant Health Project is being implemented by JSI, with the main goal of strengthening maternal and neonatal service delivery programmes, with the ultimate goal of reducing maternal and infant mortality and morbidity in the pilot sites.
After the Project was initiated, it became clear that a specific PMTCT component was needed, which has now become an integral part of the Project.

5.2.2 Infected children

In developed country settings, paediatric HIV disease has come to be seen a chronic disease of childhood, characterized by relatively long, stable periods with no or only mild symptoms, interspersed with acute episodes which may require hospitalisation.

Data from the European Collaborative Study show that HIV-infected children in Western Europe, irrespective of ART use, have a better clinical picture than is generally imagined, being largely symptom-free throughout their lives, with fewer than 25 percent of infected children after four years of age having symptoms at any one time (European Collaborative Study 2001a).

Although there is political recognition of the problem of paediatric HIV infection and the need to manage this effectively, there is a lack of resources both in terms of infrastructure and human capacity in Ukraine. Neither the National AIDS Centre nor the TB/HIV department of the MoH have a paediatrician working in them, and the Paediatrics department at the MoH is overburdened, with only four paediatricians to cover all the issues. There is thus a lack of human resources with regard to care of children with HIV infection at the highest levels.

On a regional level, there is also a lack of human resources and paediatric HIV care is not currently available in some regions. However, some Regional AIDS Centres and children's hospitals have paediatricians with considerable experience of managing HIV disease in children (for example in Odesa). Children from regions without paediatric HIV care available are sometimes referred to Kyiv City Hospital #1. However, due to budgetary rules, "out of area" children in Kyiv are not currently permitted to receive any ARVs.

A discussion regarding the need to provide regional specialist clinics for HIV-infected children is ongoing. A Presidential decree has been made that these should be a priority, but it is uncertain how this will be achieved.

Although NGOs and donor agencies are prepared to provide appropriate training and equipment for paediatric clinics, they are unable or unprepared to build these. However, there is concern from some that centralisation of care for HIV-infected children in a few specialist centres is not necessarily the best approach, as this could prevent or delay broader integration and training; furthermore, it has been suggested that centralisation of care of infected children could be perceived as another example of stigmatisation.

Clinical management

The UNICEF study (2004) included data from the KAP Study, ‘Assessment of Knowledge, Attitudes and Practice in the Field of Care of Children Living with HIV’, and reported considerable deficits in the knowledge of health care providers involved in the care of HIV-infected children. For example: 46 per cent did not consider it important to regularly monitor and evaluate physical, mental and emotional development of children, 34 per cent lacked knowledge on vaccination of HIV-infected children and 25 per cent did not know about antiretroviral therapy. The study also identified a lack of awareness of parents of HIV-infected children regarding their health needs.

There is a training manual on OIs and ARVs in children: 'Care and support for HIV positive children', which was developed by UNICEF together with the MoH, but to date no guidelines on the general management of HIV-infected children have been developed.

These are urgently needed, as the above findings and anecdotal evidence show.

Training

UNICEF have identified and trained a small group of national expert trainers in paediatric HIV, who carry out training of a variety of professionals working with HIV-infected children (paediatricians, nurses, NGO volunteers, school nurses etc).

Training courses last 5 days and cover a range of issues, from medical care to the rights of the child. Course participants receive a training manual and CD Rom after the course, which is approved by the MoH. A total of 420 service-providers (including medical, social and educational professionals) and parents were trained with UNICEF assistance in 2004-2005.

These courses have been very successful on the basis of post-course evaluation, but, as with the PMTCT training, cover only a small proportion of the health care professionals who need training. Furthermore, in a rapidly changing field such as HIV/AIDS, there is a need for on-going training of medical professionals to keep up-to-date with clinical care standards and the evidence-base.

Antiretroviral therapy in children

ART was first prescribed to infected children in Ukraine in 2003, with 86 children treated and this number has increased four-fold to date, with 350 HIV-infected children currently receiving HAART. There are an estimated 1000 children with confirmed HIV infection in Ukraine and a further 4,100 with indeterminate HIV status (of whom at least 8 per cent (n=328) would be expected to be infected on the basis of current MTCT rates).

There are currently no data regarding the distribution of the children on HAART nationally, but it is likely that they are concentrated in the oblasts most affected by the epidemic. For example, in Odesa there are 120 children on HAART (i.e. over a third of those treated overall). In these more experienced settings there is a high level of expertise regarding the clinical and psychosocial management of treated HIV-infected children (see Box 17), and this has been utilised to good effect with regard to provision of training to other health care and psychosocial professionals working with infected children in other settings [see below].

There are currently no data regarding the need for ART among HIV-infected children in Ukraine. A model being developed for UNICEF NY by Prof. Marie-Louise Newell and Kirsty little will be used to project these needs on the basis of a variety of indicators (antenatal seroprevalence, use of PMTCT prophylaxis, use of cotrimoxazole prophylaxis etc) with assumptions based on the global evidence-base. Furthermore, an ongoing research study

jointly carried out between a network of paediatricians in Southern Ukraine and the European Collaborative Study should provide some cross-sectional data regarding the clinical, immunological and virological status of HIV-infected children and their use of ART in early 2006.

5.3 Psychosocial care

Psychosocial support services for HIV-infected people, including children in Ukraine are generally provided by NGOs, of which many have been set up by PLWHA. Some parts of Ukraine, particularly in the South, have a very active NGO sector, which has undoubtedly facilitated the achievements with regard to PMTCT.

Peer counsellors, who are themselves HIV-infected, play a crucial role. However, in many oblasts HIV-infected people are not allowed to attend outpatient clinics as peer counsellors, because of local regulations. This not only highlights the institutionalised stigma and discrimination that remains in parts of Odesa, but also severely curtails the potential for appropriate psychosocial care for HIV-infected people.

However, there are some examples of good models with regard to the integration of medical and psychosocial support for HIV-infected people in Ukraine, with excellent cooperation between the medical providers and NGOs. An example is the HIV/AIDS continuum of care model developed by MSF in Odesa, incorporating PMTCT; the psychosocial aspects of this model have been taken up and continued by Alternativa and Life+ (see Box 15).

NGOs play an important role in advocacy, as well as being able to offer support in a non-stigmatising environment, which may not always be the case with regard to some health care settings.

Some concerns have been raised regarding the lack of regulation concerning the activities of peer counsellors, and the government is planning to introduce a counselling licence, which can only be obtained by individuals with training in counselling methodology. However, on-going training of peer counsellors appears to be a priority of most NGOs.

Box 15: An example of good practice: partnership between maternity hospitals, City and Regional AIDS Centres and Alternativa and Life+ NGOs in Odesa

- Alternativa is a new Odesa-based NGO officially established in January 2005, one of three NGOs which have taken over the non-medical aspects of the PMTCT and HIV/AIDS continuum of care models initiated by MSF;
- Based at the Odesa Regional AIDS Centre, but peer counsellors visit maternity hospitals and increasingly, antenatal clinics (two so far, but scaling-up coverage);
- Provides comprehensive help to families affected by HIV;

- Many clients are pregnant women with recent HIV diagnoses;
- Emphasis is placed on working together with women to develop a clear plan of what will happen during pregnancy, at delivery and postnatally;
- Partners are encouraged to participate at every stage.
- Activities include:
  - Post-test counselling after test result has been disclosed by physician;
  - Helping prepare women for start of prophylactic ARVs or HAART;
  - Adherence support for pregnant women;
  - Formula feeding counselling;
  - Group counselling in antenatal clinics;
  - Psychosocial support for families;
  - Antenatal classes specifically for HIV infected women (pilot in development);
  - Referrals to other charitable organizations which can provide financial and food support;
  - Assistance in obtaining state social support.
- Referrals take place between Alternativa, Regional and City AIDS Centres and maternity hospitals;
- Dissemination of contact information and limited information in all antenatal clinics in Odesa city;
- ***Life+ : Treatment adherence project*** (started in September 2004; GFATM funded);
- Close cooperation between infectious diseases specialists at AIDS Centre.
- Activities include:
  - Preparation for starting HAART and ongoing support for people on HAART;
  - Individual peer counselling and group workshops/ support group;
  - Motivational gifts;
  - Dietary management;
  - Legal advice and practical support;
  - Drop-in community centre.

Psychosocial care and support for children born to HIV-infected mothers

Some of the findings below are drawn from the existing documentation, interviews in the field and a monograph 'Care of Children with HIV: the Current State, Problems and Solutions' (2004), which is based on the findings of a study initiated by UNICEF and carried out by the State Institute for Family and Youth.

Social orphans, abandoned and separated children

By June 2005, the MoH reported that a total of 397 children born to and abandoned by HIV-infected mothers were living in "boarding institutions" - 323 in children's homes, 10 in boarding school, 64 in hospitals.

The key challenges with regard to social orphans and abandoned and separated children are to try to reduce the rate of abandonment and separation among HIV-infected mothers and to provide appropriate and timely care for their abandoned children, around 8-10 per cent of whom will be HIV-infected based on current MTCT rates in Ukraine.

Abandonment

The problem of abandonment of infants by HIV-infected mothers is certainly not unique to Ukraine, and has been documented across the world, for example, in the USA, in Western Europe, Thailand and Russia.

In an analysis of the European Collaborative Study based on children born by 1997 in Western Europe, overall 7 per cent infants born to HIV-infected mothers were abandoned at birth and 25 per cent of infants born to infected mothers who were also drug users were no longer living with their parents by age 6 months compared to only 5 per cent among those with non-drug using mothers (European Collaborative Study 1998); however, abandonment in this study has been very rare in more recent years.

The issue of abandonment of infants born to HIV-infected mothers in Ukraine must be considered in the context of abandonment in the country in general: in 2003, an estimated 103,000 children were living in state-run residential institutions, and this represents a doubling over the previous decade. It is estimated that the general rate of placements of children into public care in Ukraine is currently around 1 per cent.

Factors increasing susceptibility for abandonment, regardless of HIV infection status include:

poverty, insecure or inadequate housing, illicit drug addiction, sexual abuse, teenage pregnancy, mental illness, unwanted pregnancy, no antenatal care and lack of support.

It is therefore unsurprising that Ukraine is now facing a problem with regard to abandoned infants of HIV-infected women, as they tend to be over-represented with regard to these problems. Although there is consensus that abandoned, HIV-exposed infants are a growing problem in Ukraine, there are few empirical data available. Furthermore, there is limited knowledge regarding the specific characteristics of HIV-infected women who abandon their infants, although it is assumed that they are most likely the group of women who lack antenatal care and are diagnosed on the basis of rapid testing at delivery, and are predominantly IDU and/or FSWs.

Although for some women abandonment may be triggered by their HIV diagnosis, for others this may simply compound pre-existing problems that put them at high risk of abandoning their babies regardless of HIV.

It will be an enormous challenge to reach such women with specific interventions to prevent child abandonment. However, it is important to improve support for all HIV-infected women in pregnancy and in the post-partum period, and not only those in specific vulnerable groups.

There is a need to strengthen the provision of care earlier in pregnancy, and for this care to be non-stigmatising, to promote a multidisciplinary approach and to ensure appropriate linkages with other service-providers, including harm reduction programmes (see Box 16).

BOX 16: FACTORS WHICH MAY REDUCE ABANDONMENT OF INFANTS BORN TO HIV-INFECTED WOMEN

- Improved and timely access to / uptake of antenatal care among IDU/FSW and other vulnerable groups;
- Drug substitution programmes for pregnant women and mothers;
- Change in attitudes and practices of health care workers in antenatal and maternity settings;
- Improved counselling and multi-disciplinary care and support of HIV-infected pregnant women;
- Practical support for HIV-infected women (financial benefits, housing etc);
- Earlier diagnosis of infection status in HIV-exposed infants;
- More widespread access to antiretroviral treatment;
- Referrals and working partnerships, health service settings and through outreach) with NGOs and networks of PLWHA.

An analysis of the situation in the Russian Federation identified that experience in the maternity hospital is an important factor with regard to abandonment (Transatlantic Partners Against AIDS 2004). Although some pregnant women may arrive at the hospital with their minds already made up to abandon their babies, for others this decision is made later. Thus, contact with experienced antenatal care workers during labour and after delivery can be crucial in the decision making process. This is particularly important for those women who, lacking information and support, may abandon their babies because of their fears regarding the implications of HIV infection for themselves and their babies, and the stigmatising nature of treatment by medical and nursing staff.

In the JSI needs assessment (Semenenko 2005) several findings highlighted the stigmatising care provided to HIV-infected women in some maternity hospitals, including inappro-

priate "over-use" of safety clothing/equipment around HIV-infected women, segregation of infected women from uninfected women, and lack of confidentiality. Such practices need urgent modification. This is likely to be achieved best by education and training of physicians and nursing staff.

The need to provide training regarding MTCT is crucial, to ensure the provision of accurate, appropriate and understandable information to women. The verbal provision of information to women regarding their HIV infection and what this means for them and their baby should always be supplemented by written information, with details provided of whom to contact with further questions or requests for information.

Peer counsellors who themselves have had children since their HIV diagnosis can provide a very helpful source of support, both emotionally and practically (see Box 16). Peer counsellors from Alternativa reported a high level of misconception among pregnant women regarding vertical transmission rates, with a low awareness of the fact that the large majority of infants born to HIV-infected women are uninfected themselves.

Doctors of the World-USA (DOW), sponsored by USAID and the All-Ukrainian Network of People Living with HIV/AIDS are implementing a two-year (2005-2007) innovative pilot project for the prevention of abandonment of children born to HIV+ mothers in Kyiv, Donetsk, and Simferopol. The overall goal of the project is to build the capacity and commitment of the Ukrainian system to keep children born to HIV+ mothers within the biological family environment.

Provision of social benefits (i.e financial support) for families with young children may help to alleviate abandonment due to poverty, and a social support payment has been recently introduced for women with newborns (8,500 UAH are paid as a lump sum of 3,384 UAH at birth and subsequently 12 payments of 427 UAH monthly). However, it has been suggested that this may be counter-productive. It may encourage a small proportion of women to complete an unwanted pregnancy in order to obtain the initial payment and then abandon their baby.

Owing to the "double stigma" of HIV infection and IDU, the needs of a certain group of HIV-infected drug-using women may not be recognised; these are women for whom pregnancy and motherhood represent a reason to change their lifestyle and stop taking drugs. However, drug substitution programmes have yet to be developed in Ukraine, although some pilot projects are underway.

Care of abandoned and separated children

It is acknowledged that children who cannot be cared for by their own mother and/or father are usually better-off in family-based care settings (foster care, adoptive care, extended family care), than in institutionalised settings. In some Western European centres in the earlier years of the HIV epidemic, there was the situation whereby abandoned infants remained in hospital for long periods because of a lack of an alternative care setting (European Collaborative Study 1997); however, respite and longer-term foster care,

adoption and supported extended family care were relatively quickly developed in response to the situation.

The HIV epidemic in Ukraine has placed huge demands on an already over-burdened child welfare system. In Ukraine, the system for child-care and protection responses for children without parental care is fragmented and reliant on residential institutions. Children born to infected mothers, as for all abandoned children, are transferred to 'baby orphanages' for children up to age 3 years, which are the responsibility of the MoH. After that age, children are transferred to MoE-run orphanages (for ages 3-7) and subsequently to 'boarding schools', for which the MoLSP are responsible. The foster care system in Ukraine remains under-developed in general, and the absence of early diagnosis of infection in vertically exposed infants is likely to be a further barrier to prompt fostering of abandoned children. [See next section for discussion of the issues relating to infected children].

The care of abandoned children of HIV-infected mothers, where these children are placed in state care institutions, should be shared between the MoH, the MoE and the MoLSP. A variety of organisations outside the government are also involved in the issue of abandonment of children born to HIV-infected mothers, and of abandonment of children in general in Ukraine, including Doctors of the World-USA, UNICEF, the All-Ukrainian Network PLWHA, 'Every Child' NGO and the Christian Children's Fund, Ukraine. However, the MoH report that the MoE and the MoLSP are not prepared to confront this issue, particularly that of the HIV infected children in care and their HIV treatment.

HIV-infected children

Vertically acquired HIV disease is unique in terms of the co-infection and concurrent illness of at least one other family member, and the stigma and discrimination commonly surrounding HIV. In addition, HIV disproportionately affects families from socially and materially deprived backgrounds and is often just one of the many social, economic and psychological problems that families are facing. Families affected by HIV thus often present with complex health, social, psychological and practical needs, which change over time with the progression of disease in the child and/or the parent.

The findings of the 2004 study on 'Care of Children with HIV' with regard to provision of and needs for psychosocial and educational services and support are summarised in Box 17.

Provision of alternative social care of HIV-infected social orphans is a critical issue. In Ukraine, there is a transition regarding the provision/organisation of alternative care at age three years, with MoH-run institutions up to that age, and MoES-run institutions with no subsequent medical supervision available. Thus, the MoES-run institutions are unsuitable for many HIV-infected children, particularly those with symptomatic disease or other specific medical needs. This situation has been made worse by the lack of coordination between the two ministries, meaning that there is no continuity in the provision of alternative care for HIV-infected children.

Box 17: Psychosocial needs

- Most families of HIV-infected children have a poor financial situation:
  - 25 per cent lack money for basic needs, such as food.
- There is inadequate awareness both among parents and among non-medical staff regarding state social support for HIV-infected children
  - 37 per cent of parents and 45 percent staff did not know that HIV-infected children are classified as "disabled" and are thus eligible for additional support
- Most parents of HIV-infected children remain un-reached by existing training programmes
- Coordination is lacking between ministries, departments, state agencies, international donors and NGOs providing care for children living with HIV
- Mechanisms are lacking for implementation of Ukrainian legislation on HIV including the rights of HIV-infected children
- No state regulatory standards for care of HIV-infected children
  - No guidance or standards for social monitoring of families with HIV-infected children
  - No recommendations or policies regarding confidentiality
- System of alternative care placement of HIV-infected children is seriously under-developed
  - No fostering of an HIV-infected children recorded to date
  - Lack of training and preparation of staff in children's homes regarding HIV

This is a problem requiring prompt action, as there will be an increasing number of older, infected children as the MTCT epidemic in Ukraine matures.

There is currently a debate nationally on the best approach to take - that is, whether to create special institutions specifically for HIV-infected orphans, or units within existing institutions where these children can receive the appropriate medical care they need. Although integrating new services within existing structures is usually more challenging, in the long-term this is often a more sustainable and appropriate response, and is certainly less stigmatising than creating special ‘AIDS orphanages’. Furthermore, with the roll-out of ART for children, one would expect that some of the morbidity experienced in this population will be reduced; although, there will be the additional need for support with regard to taking the ARV drugs, monitoring etc.

The needs of parents of HIV-infected children

A variety of projects and experience from existing programmes in Western Europe may be helpful to consider when developing services for parents and carers of HIV-infected children, particularly those who are themselves HIV-infected.

Respite-care services for parents or caregivers who have an HIV-infected child allow for the provision of temporary care and support, whether this is planned or on an emergency basis.

These services provide parents and carers with a break from the daily routine of care giving, which, for example, may allow infected parents the time to organize and attend medical appointments, or to attend to other responsibilities, and to have a rest.

Respite care services may also include assistance with a specific caring task, as well as short breaks away from caring. Services may be provided at the home of the child, or in respite care centres where families or individuals can be referred.

Given the poor socio-economic situation of many HIV-affected families, it is not surprising that many parents and alternative carers prioritise their need for practical services including financial support and respite care over other services; although information provision, particularly regarding access to non-medical services, is also given a high priority (Thorne et al 1998).

Alternative carers of infected children may have specific needs, such as extended family carers (particularly grandparents), who may be less informed of and have reduced access to services compared with state-registered foster carers (Moore & Heymann 1994). Furthermore, aging grandparents caring for children with HIV may have their own chronic health problems, and thus may have additional support needs. However, despite the need for help with childcare, families may not seek help because they are reluctant to disclose the HIV infection in the family; this is likely to be a particular problem in settings where there is a high level of stigmatisation and discrimination around HIV/AIDS.

In addition to such concerns, HIV-infected parents may also avoid medical and social services because of fears that their children may be removed from their care due to chaotic lifestyles associated with illicit drug use (Mok et al. 1996;Thorne et al 1998).

There are therefore several substantial challenges with regard to provision of support to families with children affected by HIV.

Day care centres for families affected by HIV/AIDS have been set up in Kiev (2 centres) (Box 18), Odesa, Kherson, Mykolayiv, Krivui Rig with funding from UNICEF, and in Cherkasu, Donetsk, Simferopol and Chernigiv, supported by the Global Fund.

Box 18: An example of good practice: Life+ Day Care Centre, Odesa Funded by UNICEF

- Physically located in same place as paediatric out-patients unit at Odesa Regional AIDS Centre; paediatricians provide medical services to families and advise on the medical aspects of the project.
- A friendly, child-centred environment for children and their families to attend before and after medical consultations, blood draws etc.
- Staffed by a child psychologist, teachers, social workers, peer counsellors.
- Activities include:
  - Adherence support for children on ART and their families;
  - Help with transportation to medical institutions;
  - Respite care - "babysitting" for example - if parents have to go to hospital for tests;
  - Liaison with social services, local administration etc;
  - Refers family members with specific needs (psychological services, drug programmes, medical services etc).
- Works with schools, e.g. if a child is about to start school.
- Nutritional support (food packages for families, especially those with children on therapy with particular nutritional requirements).
- Close liaison with paediatricians; mediation between clinicians and families if require.
- Special trips for the children.
- Provision of material support (such as food basket), to children who live in orphanages; organising cultural event for children from boarding schools (circus, theatres etc.).
- Staff are specially trained in advocacy, child psychology, counselling, all aspects of therapy.

Education

The widespread stigma and discrimination that pervade many structures within Ukraine is reported to prevent the unhindered attendance of many HIV-infected children at pre-schools and schools.

The Office of the Human Rights Ombudsperson is aware of many violations of the right to schooling for HIV-infected children in Ukraine, but these have not been reliably quantified or addressed.

There is an urgent need for education and training, at the highest levels and for regulatory changes at the highest political levels. UNICEF and the All-Ukrainian Network of PLWHA are both involved in advocacy on a political level and in provision of training on the needs of HIV-infected children for teachers.

UNICEF works in close cooperation with the Ministry of Education and Science (MoES), with representation on the Coordinating Council on HIV/AIDS under the Ministry. More than 160 teachers from kindergartens and schools, including boarding schools or orphanages, have been trained since 2003 on care and support for HIV-positive children.

A training course for primary school teachers was developed in the framework of the project 'Training Centre', run by the NGO 'Life+', and supported by UNICEF. In addition, four training sessions for pupils and their parents with the aims of providing information on HIV prevention and of fostering more tolerant attitudes towards HIV infected children and adults have been held to date.

Methodological guidelines, 'Interactive techniques of HIV prevention and formation of tolerant attitude towards HIV+ children and adults in pre-school and primary school educational system', have been developed and approved in 2005, by the Academic Council of Odessa Regional Institute of Postgraduate Education for Teachers.

'Open Your Heart', an information campaign on solidarity with children living WHIV/AIDS, was instigated among staff of kindergartens in Kyiv in 2005 by the All-Ukrainian Network of PLWHA.

The aim of the campaign was to lessen the stigmatisation of children affected by HIV/AIDS through providing information about HIV/AIDS and its psychological and social consequences.

5.4 Conclusions and recommendations

Recommendations

Develop and disseminate comprehensive national guidelines on the clinical management and treatment of HIV-infected adults, including pregnant women

Monitoring disease progression, preparing for HAART, adherence to HAART, management of co-infection (e.g. TB/HIV, HCV/HIV)

Develop a comprehensive strategy for the care and support of HIV-infected children and their carers (families and alternative carers such as orphanage staff).
Ensure input from all stakeholders, together with international organisations, such as WHO, UN agencies and donor organisations.

This strategy should include:

- Primary health care, including vaccinations etc;
- HIV-specific management, including monitoring disease progression, OI prophylaxis, HAART use, adherence support;
- Psychosocial support, including financial support;
- Education;
- Universal quality of antenatal, intrapartum and postnatal care for all pregnant women, regardless of HIV infection status;
- Confidentiality;
- Discontinuation of segregation of HIV-infected women in maternity facilities;
- Referral to appropriate psychosocial support services (usually provided by NGOs) for all HIV-infected people;
- Scale-up availability of CD4 count monitoring, to guide therapeutic decision-making and facilitate monitoring of HIV disease progression;
- Promoting use of universal precautions for all patients and not only for HIV infected women;
- Implementing community-based HIV comprehensive care, using satellite clinics for the care of HIV-infected women and their families following the model used in Odesa;
- De-centralisation of care;
- Primary health care provision as well as HIV-related care;
- Psychosocial support as well as medical care;
- Capacity-building on the care and support of HIV-infected women and their families;
- Increased training for staff of AIDS Centres;
- Train all health care professionals including paediatricians and family doctors on HIV and issues of confidentiality, stigma and discrimination;
- Continue capacity-building efforts to enable all HIV-infected children be treated and cared for in their home regions;
- Establish effective linkage between antenatal care services, including PMTCT, and harm reduction programmes;
- Improve information and support for HIV infected mothers of children with indeterminate infection status on the schedule of follow-up of infants, diagnosis of infection in the child etc;

- Scale-up implementation of psychosocial support for HIV-infected mothers, with a multi-sectoral approach, involving governmental and non-governmental organisations;

- Promote linkages and cooperation between medical service providers and NGOs, especially those run by PLWHA, concerning the provision of psychosocial support to HIV-infected women and their families;

- Develop guidelines / methodology on provision of services for women in groups at risk of abandoning their babies; to include: counselling and support of women before delivery where possible, specific guidelines regarding post-test counselling among women with positive rapid tests, and good practices to promote bonding;

- Research better understanding of the incidence and risk factors for infant abandonment among HIV-infected women, to better inform the development of specific, targeted interventions;

- Overcome stigma and discrimination in schools and pre-schools through raising awareness on HIV/AIDS among educators;

- Development of clear interdepartmental guidelines on the education of HIV-infected children, including recommendations for training pre-school and school staff.

Challenges

- Guaranteeing access to free medical and psychosocial care for HIV infected women and children, wherever they live;

- Providing HAART to women and children who require this for their own health according to WHO guidelines;

- Ensuring confidentiality for HIV-infected women and their families;

- De-stigmatising PLWHA - for the general public and particularly for the medical and educational community;

- Medical and laboratory capacity-building;

- Moving from vertical to horizontal structures for care of HIV-infected women and their children;

- Promoting earlier attendance for antenatal care among vulnerable groups;

- Ensuring quality care medication for infants and children.

6.0 Conclusions

The framework of the four pillars of PMTCT reflects the need for a broad approach for the prevention of paediatric HIV infections to achieve public health success.

Although the first PMTCT programme in Ukraine (2001-2003) only concentrated on the third pillar, prevention of mother-to-child transmission, the national programme for 2005-2011, 'Comprehensive Measures for Prevention of HIV Transmission from Mother to Child and Medical and Social Support to Children Born to HIV positive Mothers' addresses all four pillars; with the strategic goal of virtual elimination of HIV infection in infants.

Most of the successes of the PMTCT programme in Ukraine to date have concerned prevention of vertical transmission, focusing on PMTCT interventions in pregnancy and the neonatal period. In this respect, Ukraine has experienced substantial success, with a decline in the national rate of MTCT from over 25 per cent to 8 per cent. Lower MTCT rates have been reported in Southern Ukraine, from maternity hospitals which participated in the MSF pilot programme since 2000 and which are currently participating in epidemiological research.

The number of reported deliveries to HIV-infected women is continuing to increase in Ukraine, from 1282 in 2002, to 1515 in 2003 and 2115 in 2004. Only a small proportion of these increases are due to improved ascertainment, as HIV antenatal/intrapartum testing coverage has been high throughout this period, increasing from 94 per cent to 96 per cent.

The increasing seroprevalence among pregnant women is consistent with trends in the adult population as a whole, with the number of newly diagnosed HIV infections reported to the WHO/UN European Centre for the Epidemiological Monitoring of AIDS increasing from 5,485 in 2000 to 10,218 in 2004 (EuroHIV 2004). Ukraine is therefore in a situation of increasing HIV prevalence among women of childbearing age, with seroprevalence in the antenatal population estimated to have reached at least 0.5 percent in 2005.

For a sustained and sustainable decline in the numbers of vertically infected infants, the MTCT rate not only needs to continue to decline but also the number of new infections in women of childbearing age.

This highlights the urgent need for scaling-up primary prevention of HIV infection in Ukraine. However, although successes in primary prevention would result in fewer new HIV infections among women, with the improvements in survival associated with the roll-out of HAART, the total number of prevalent HIV infections among women of childbearing age would be likely to increase. Furthermore, there is evidence from Western Europe that low MTCT rates and the improvements in quality of life associated with HAART have not only given HIV-infected women greater opportunity to become pregnant but also an increased desire to do so (European Collaborative Study 2005c).

The components of a comprehensive PMTCT programme which are reliant on behavioural change (i.e. primary prevention) are not as well developed in Ukraine as those requiring

medical intervention, such as the pharmaceutical interventions for PMTCT.
If young women lack the necessary knowledge, skills and means to protect themselves against the acquisition of HIV or other STI then they will be highly vulnerable to infection in a generalised epidemic setting such as Ukraine. Young Ukrainians, particularly those living in the regions most affected by HIV, self-report a relatively high knowledge of HIV, but generally perceive themselves to be at low risk.

Primary prevention activities among youth are ongoing, but to date, most effort has been focused on primary prevention and risk reduction in groups at high risk, such as IDUs and sex workers. However, the harm reduction and prevention strategies for IDUs are not currently being implemented on a sufficiently broad scale to make a significant impact on the current or future epidemic. The scaling-up nationally of primary prevention activities directed at different groups, particularly populations at risk and youth, should therefore be a key concern.

Expanding second generation surveillance in Ukraine, with its rapidly evolving HIV epidemic, is a main priority as information from surveillance is crucial in developing prevention programmes, to monitor trends in prevalence and in high risk behaviours over time and to evaluate existing primary prevention activities. Close co-ordination between the surveillance and prevention programmes is therefore vital.

Ukraine is still in the early stages of roll-out of HAART to those HIV-infected adults and children who require this. Capacity building and training is a priority with regard to the additional requirements associated with scaling-up HAART use, including the need for increased laboratory capacity for monitoring response to therapy and adherence monitoring and support.

There is a need to ensure that appropriate structures and strategies are put in place now, which will be able to cope with the increasing numbers of treated adults and children.

First steps have been made towards decentralisation of HIV care, with a model community-based satellite clinic in Odesa, and similar clinics should be set up in other regions. Similarly, in areas where HAART is now available, there are examples of good practice, with close cooperation between NGOs and medical providers in the provision of services preparing individuals for HAART and supporting them during initiation and beyond. The concept of multidisciplinary care is one that needs greater acceptance and application in Ukraine, particularly regarding the care and support of HIV-infected women and their families.

PMTCT is an activity that requires a horizontal approach, with good linkages across a variety of services, both medical and psychosocial, and Ukraine now faces the challenge of shifting towards such an approach from a predominantly vertical system.

Ukraine has made considerable progress towards achieving the PMTCT targets proposed in the UNGASS Declaration of Commitment on HIV/AIDS and the Dublin Declaration. However, major challenges to reducing the MTCT rate further remain, including reducing the proportion (currently around 13 per cent) of HIV infected pregnant women who do not receive

any ARV prophylaxis; and, maintaining the level of ARV prophylactic coverage needed in the face of increasing numbers of HIV infected women being identified.

It is now time to focus on sustainability of the PMTCT programme:

- Achieving even larger reductions in MTCT;
- Strengthening the comprehensive approach (i.e. across all four pillars);
- Attending to the needs of vulnerable groups with poor access to PMTCT services;
- Improving the quality of services;
- Monitoring and evaluating of what has been achieved to date.

The results of this process can then be used to strengthen further the PMTCT strategy in Ukraine.

References

Aceijas, C., Stimson, G. V., Hickman, M., & Rhodes, T. 2004. Global overview of injecting drug use and HIV infection among injecting drug users, AIDS, 18, 2295-2303.

Ayisi, J. G., van Eijk, A. M., Newman, R. D., ter Kuile, F. O., Shi, Y.P., Yang, C., Kolczak, M. S., Otieno, J. A., Misore, A. O., Kager, P. A., Lal, R. B., Steketee, R. W., & Nahlen, B. L. 2004. Maternal malaria and perinatal HIV transmission, western Kenya, Emerging Infectious Diseases, 10, 643-652.

Ball, T. M. & Wright, A. L. 1999. Health care costs of formula-feeding in the first year of life, Pediatrics, 103, 870-876.

Barcal, K., Schumacher, J.E., Dumchev, K., Moroz, L.V. 2005. A situational picture of HIV/AIDS and injecting drug use in Vinnitsya, Ukraine. Harm Reduct. 2, 16-17

Best K. 2004. Family planning and the prevention of mother-to-child transmission. A review of the literature. Family Health International Working Paper Series, WP04-01, Family Health International, USA.

Booth, R. E., Mikulich-Gilbertson, S. K., Brewster, J. T., Salomonsen-Sautel, S., & Semerik, O. 2004, Predictors of self-reported HIV infection among drug injectors in Ukraine, J Acquir Immune Defic Syndr, 35, 82-88.

Chaix, M. L., Dabis, F., Ekouevi, D. K., Rouet, F., Tonwe-Gold, B., Viho, I., Bequet, L., Peytavin, G., Toure, H., Menan, H., Leroy, V., & Rouzioux, C. 2005, Addition of 3 days of ZDV+3TC postpartum to short course ZDV+3TC and single dose nevirapine provides low rate of NVP resistance mutations and high efficacy in preventing peripartum HIV-1 transmission: ANRS DITRAME Plus, Abidjan, Cote d'Ivoire. 12th Conference on Retroviruses and Opportunistic Infections, 22-25 February 2005, Boston, USA., Abstract 72LB.

Chura V. 2004 Opportunities and Challenges to Scaling up in Ukraine: New GFATM Project on HIV prevention among vulnerable groups. Int Conf AIDS. 2004 Jul 11-16; 15: abstract no. E10891.

Coker, R. J., Atun, R. A., & McKee, M. 2005, Health-care system frailties and public health control of communicable disease on the European Union's new eastern border, Lancet, 363, 1389-1392.

Cooper, E. R., Charurat, M., Mofenson, L. M., Hanson, I. C., Pitt, J., Diaz, C., Hayani, K., Handelsman, E., Smeriglio, V., Hoff, R., & Blattner, W. A. 2002, Combination antiretroviral strategies for the treatment of pregnant HIV-1-infected women and prevention of perinatal HIV-1 transmission, J Acquir Immune Defic Syndr, 29, 484-494.

Cunningham, C. K., Chaix, M. L., Rekacewicz, C., Britto, P., Rouzioux, C., Gelber, R. D., Dorenbaum, A., Delfraissy, J. F., Bazin, B., Mofenson, L. M., & Sullivan, J. L. 2002, Development of resistance mutations in women receiving standard antiretroviral therapy

who received intrapartum nevirapine to prevent perinatal human immunodeficiency virus type 1 transmission: a substudy of pediatric AIDS clinical trials group protocol 316, J Infect. Dis., 186, 181-188.

Dabis, F., Bequent, L., Ekouevi, D. K., Viho, I., Rouent, F., Horo, A., Sakarovitch, C., Becquent, R., Fassinou, P., Dequae-Merchadou, L., Welffens-Ekra, C., Rouzioux, C., & Leroy, V. 2005, Field efficacy of zidovudine, lamivudine and single-dose nevirapine to prevent peripartum HIV transmission, AIDS, 19, 309-318.

Doherty, M.C., Garfein, R.S., Monterroso, E., Latkin, C., Vlahov, D. 2000. Gender differences in the initiation of injection drug use among young adults. J Urban Health, 77, 396-414.

Ekpini, E. R., Nkenganson, J., Sibailly, T. S., Maurice, C., Adje, C., Monga, B. B., Roels, T. H., Greenberg, A. E., & Wiktor, S. Z. 2002, Changes in plasma HIV-1 RNA viral load and CD4 cell counts, and lack of zidovudine resistance among pregnant women receiving short-course zidovudine, AIDS, 16, 625-630.

Eshlemann, S. H. & et al. 2001, Selection and fading of resistance mutations in women and infants receiving nevirapine to prevent HIV-1 vertical transmission (HIVNET012), AIDS, 15, 1951-1957.

EuroHIV. 2004 HIV/AIDS Surveillance in Europe: end year report 2003. Report no. 70. Saint-Maurice, France: Institut de Veille Sanitaire.

European Collaborative Study 1997, Hospitalisation of children born to HIV-infected women in Europe, Pediatric Infectious Disease Journal, 16, 1151-1156.

European Collaborative Study 1998, Social care of children born to HIV-infected mothers in Europe, AIDS Care, 10: 7-16.

European Collaborative Study 1999, Maternal viral load and vertical transmission of HIV-1: an important factor but not the only one. AIDS, 13, 1377-1385.

European Collaborative Study 2001a, Fluctuations in symptoms in HIV-infected children: the first 10 years of life, Paediatrics, 108, 116-122.

European Collaborative Study 2001b, HIV-infected pregnant women and vertical transmission in Europe since 1986, AIDS, 15, 761-770.

European Collaborative Study 2005a, Does highly active antiretroviral therapy increase the risk of congenital abnormalities in HIV-Infected women? J Acquir Immune Defic Syndr, 40, no. 1, 116-118.

European Collaborative Study 2005b, Mother-to-child transmission of HIV infection in the era of highly active antiretroviral therapy, Clin Infect Dis, 40,458-465.
European Collaborative Study 2005c, Increasing likelihood of further live births in HIV-

infected women in recent years. BJOG 2005, 112: 881-888.

European Collaborative Study 2006a, The mother-to-child HIV transmission epidemic in Europe: established in the West and evolving in the East. AIDS [in press]

European Collaborative Study, 2006b. Sexually transmitted infections in HIV-1 infected pregnant women: prevalence and risk factors in a European population. Abstract. XVI International AIDS Conference, Toronto, Canada 13-18 August 2006.

European HIV in Obstetrics Group. 2004. Higher rates of post-partum complications in HIV-infected than in uninfected women irrespective of mode of delivery. AIDS, 18, 933-938.

Fowler, M. G. & Newell, M. L. 2002, Breast-Feeding and HIV-1 transmission in resource-limited settings, AIDS, 30, 230-239.

Galustyan, Y. M., Balakireva, O. M., Andruschak, L. I., 2002. Sex Business in Ukraine: an attempt of scientific analysis. Int Conf AIDS. 2002 Jul 7-12; 14: abstract no. WePeC6201

Garcia, P. M., Kalish, L. A., Pitt, J., Minkoff, H. L., Quinn, T. C., Burchett, S. K., Kornegay, J., Jackson, J. B., Moye, J. J., Hanson, C., Zorrilla, C., Lew, J. F., & Women and Infants Transmission Study 1999, Maternal levels of plasma human immunodeficiency virus type 1 RNA and the risk of perinatal transmission, New Engl J Med, 341, 394-402.

Goldberg, H., Melnikova, N., Buslayeva, E., & Zakhozha, V. 2001, 1999 Ukraine Reproductive Health Survey. Final report September 2001, Kiev International Institute of Sociology, Centers for Disease Control and Prevention, USA, United States Agency for International Development, Kiev, Ukraine.

Goodwin, R., Kozlova, A., Nizharadze, G., & Polyakova, G. 2004, High-risk behaviors and beliefs and knowledge about HIV transmission among school and shelter children in Eastern Europe, Sex Transm.Dis, 31, 670-675.

Halperin, D. T., Steiner, M. J., Cassell, M. M., Green, E. C., Hearst, N., Kirby, D., Gayle, H. D., & Cates, W. 2004, The time has come for common ground on preventing sexual transmission of HIV, Lancet, 364, 1913-1915.

Hamers, F. F. & Downs, A. M. 2003, HIV in central and Eastern Europe, Lancet, 361, 1035-1044.

Ioannidis, J. P. A., Abrams, E. J., Bulterys, M., Goedert, J. J., Gray, L., Korber, B. T., Mayaux, M. J., Mofenson, L. M., Newell, M. L., Shapiro, D. E., Teglas, J. P., & Wilfert, C. 2001, Perinatal Transmission of Human Immunodeficiency Virus Type 1 by Pregnant Women with RNA Virus Loads<1000 Copies/mL, J Infect Dis, 183, 539-545.

Ioannidis, J. P. A., Tatsioni, A., Abrams, E. J., Bulterys, M., Coombs, R. W., Goedert, J. J., Korber, B. T., Mayaux, M. J., Mofenson, L. M., Moye, J. J., Newell, M. L., Shapiro, D. E., Teglas, J. P., Thompson, B., & Wiener, J. 2004, Maternal viral load and rate of disease pro-

gression among vertically HIV-1 infected children: an international meta-analysis, AIDS, 18, 99-108.

Johnson, B.T., Carey, M.P., Marsh, K.L., Levin, K.D., Scott-Sheldon, L. A. Interventions to reduce sexual risk for the human immunodeficiency virus in adolescents, 1985-2000: a research synthesis. Arch Pediatr Adolesc Med, 157, 381-388.

Jourdain, G., Ngo-Giang Huong, N., Le Coeur, S., Bowonwatanuwong, C., Kantipong, P., Leechanachai, P., Ariyadej, S., Leenasirimakul, P., Hammer, S. M., Lallemant, M., & Perinatal HIV Prevention Trial Group. 2004, Intrapartum exposure to Nevirapine and subsequent maternal responses to Nevirapine-based antiretroviral therapy, New Engl J Med, 351, 229-240.

Justice, J., Drew, D., Lee, S. 2004. Review of the National Program to Prevent Mother-to-child Transmissio of HIV/AIDS in Ukraine. USAID Ukraine.

Kelly, J. A. & Amirkhanian, Y. A. 2003, The newest epidemic: a review of HIV/AIDS in Central and Eastern Europe, Int J STD AIDS, 14, 361-371.

Kral, A. H., Lorvick, J., Edlin, B. R., 2000. Sex- and drug-related risk among populations of younger and older injection drug users in adjacent neighbourhoods in San Francisco. J AIDS, 24, 162-167.

Kyrychenko P, Polonets V., 2005. High HIV risk profile among female commercial sex workers in Vinnitsa, Ukraine. Sex Transm Infect. 81, 187-8

Kuhn, L., Steketee, R. W., Weedon, J., Abrams, E. J., Lambert, G., Bamji, M., Schoenbaum, E. E., Farley, J. J., Nesheim, S. R., Palumbo, P. E., Simonds, R. J., Thea, D. M., & Perinatal AIDS Collaborative Transmission Study 1999, Distinct Risk Factors for Intrauterine and Intrapartum Human Immunodeficiency Virus Transmission and Consequences for Disease Progression in Infected Children. J Infect Dis, 179, 52-58.

Kwiek, J., Mwapasa, V., Ou, C. Y., Molyneux, M., Rogerson, S., & Meshnick, S. 2005, Maternal-fetal microtransfusions and HIV mother-to-child transmission, 12th Conference on Retroviruses and Opportunistic Infections, 22-25 February 2005, Boston, USA., Abstract, p. 794.

Lallemant, M., Jourdain, G., Le Coeur, S., Kim, S., Koetsawang, S., Comeau, A. M., Phoolcharoen, W., Essex, M., McIntosh, K., & Vithayasai, V. 2000, A trial of shortened zidovudine regimens to prevent mother-to-child transmission of human immunodeficiency virus type 1. Perinatal HIV Prevention Trial (Thailand) Investigators, N Engl.J Med, 343, 982-991.

Lallemant, M., Jourdain, G., Le Coeur, S., Mary, J. Y., Ngo-Giang Huong, N., Pharm, D., Koetsawang, S., Kanshana, S., McIntosh, K., & Thaineua, V. 2004, Single-dose perinatal nevirapine plus standard zidovudine to prevent Mother-to-Child transmission of HIV-1 in

Thailand, New England Journal of Medicine, 351, 217-228.

Layne, M. 2001 Estimating the flow of illegal drugs through Ukraine. US Ukraine Partnership. Final conference paper. www.ojp.usdoj.gov/nij/international/programs/ukr_est_text.html

Little, R.E., Monaghan, S.C., Gladen, B.C., Shkyryak-Nyzhnyk, Z.A., Wilcox, A.J. Outcomes of 17137 pregnancies in 2 urban areas of Ukraine. American Journal of Public Health, 89, 1832-1836.

Lowry, J. 2004. The defenders of Sevastapol. International Red Cross News. http://www.ifrc.org/docs/news/04/04113001/

Lurie, P. & Drucker, E. 1997, An opportunity lost: HIV infections associated with lack of a national needle-exchange programme in the USA, Lancet, 349, 604-608.

Malyuta R. 2003. Review of the Ukraine programme for prevention of HIV infection in infants. Child and Adolescent Health and Development. WHO Regional Office for Europe, Copenhagen.

Mandelbrot, L., Le Chenadec, J., Berrebi, A., Bongain, A., Benifla, J. L., Delfraissy, J. F., Blanche, S., Mayaux, M. J., & French Perinatal Cohort 1998, Perinatal HIV-1 Transmission - Interaction Between Zidovudine Prophylaxis and Mode of Delivery in the French Perinatal Cohort. Journal of the American Medical Association, 280, 55-60.

Martinson, N., Pumla, L., Morris, L., Ntsala, M., Puren, A., Chezzi, C., Dhlamini, P., Cohen, P., Gray, G., Steyn, J., & McIntyre, J. 2005, Effectiveness of single dose nevirapine in a second pregnancy, 12th Conference on Retroviruses and Opportunistic Infections, 22-25 February 2005, Boston, USA., Abstract 103.

Mavrov, G. I. & Bondarenko, G. M. 2002, The evolution of sexually transmitted infections in the Ukraine, Sex Transm.Infect., 78, 219-221.

McIntyre, J. A., Martinson, N., Investigators for trial 1413, Boltz, V., Palmer, S. J., Coffin, J. M., Mellors, J. W., Hopley, M., Kimura, T., Robinson, P., & Mayers, D. L. 2004, Addition of short course combivir (CBV) to single dose viramune (sdNVP) for prevention of mother-to-child transmission (MTCT) of HIV-1 can significantly decrease the subsequent development of maternal nntri-resistant virus, XV International AIDS conference, Bangkok, Thailand, 11th-16th July 2004.

Ministry of Health. 2003. Organization of MTCT prevention systems in Ukraine - an overview. Kyiv, Ukraine.

Ministry of Health, UNAIDS 2006. National Report on Universal Access to HIV/AIDS Prevention, Treatment, Care and Support in Ukraine by 2010. Report prepared by the Multi-Stakeholder Working Group on Universal Access, based on the results of three nation-

al consultations, with technical assistance from UNAIDS. February 2006.

Mofenson, L. M., Lambert, J. S., Stiehm, E. R., Bethel, J., Meyer III, W. A., Whitehouse, J., Moye, J. J., Reichelderfer, P., Harris, D. R., Fowler, M. G., Mathieson, B. J., Nemo, G. J., & Pediatric AIDS Clinical Trials Group Study 185 Team 1999, Risk factors for perinatal transmission of human immunodeficiency virus type 1 in women treated with zidovudine, New England Journal of Medicine, 341, 385-393.

Mok, J. Y. Q., Ross, A. C., Raab, G. M., Hamilton, B., Gilkison, S., & Johnstone, F. D. 1996, Maternal HIV and drug use: effect on health and social morbidity, Archives of Disease in Childhood, 74, 210-214.

Moore, C. & Heymann, E. 1994, The birth of a group: transgenerational support for families affected by HIV/AIDS, AIDS Impact 2nd International Conference Brighton UK, Abstracts, P124.

Mwanyumba, F. M., Gaillard, P., Inion, I., Verhofstede, C., Claeys, P., Chohan, V., Vansteelandt, S., Mandaliya, K., Praet, M., & Temmerman, M. 2002, Placenta inflamation and perinatal transmission of HIV-1, JAIDS, 29, 262-269.

Mwapasa, V., Rogerson, S., Molyneux, M., Abrams, E. T., Kamwendo, D., Lema, V., Tadesse, E., Chaluluka, E., Wilson, P., & Meshnick, S. 2004, The effect of Plasmodium falciparum malaria on peripheral and placental HIV-1 RNA concentrations in pregnant Malawian women, AIDS, 18, 1051-1059.

Nduati, R. W., John, G. C., Ngacha, D. A., Richardson, S., Overbaugh, J., Mwatha, A., Achola, J., Onyango, F., Hughes, J. P., & Kreiss, J. K. 2000, Effect of Breastfeeding and Formula Feeding on Transmission of HIV-1: a Randomised Clinical Trial, Journal of the American Medical Association, 283, 1167-1174.

Newell, M. L. 1998, Mechanisms and timing of mother-to-child transmission of HIV-1., AIDS, 12, 831-837.

Newell, M. L., Coovadia, H. M., Cortina-Borja, M., Rollins, N., Gaillard, P., Dabis, F., & for the Ghent IAS Working Group on HIV in Women and Children 2004, Mortality among infected and uninfected infants born to HIV-infected mothers in Africa: a pooled analysis, Lancet, 364, 1236-1243.

Nolan, M., Fowler, M. G., & Mofenson, L. M. 2002, Antiretroviral prophylaxis of perinatal HIV-1 transmission and the potential impact of antiretroviral resistance, Journal of Acquired Immune Deficiency Syndromes, 30, 216-229.

Okware, S., Kinsman, J., Onyango, S., Opio, A., & Kaggwa, P. 2005, Revisiting the ABC strategy: HIV prevention in Uganda in the era of antiretroviral therapy, Postgrad.Med J, 81, 625-628.

Pidlisnyy, V.V., Risk sexual behavior prevention for school children of age 14-17 years as

the part of Health education, provided in 14 schools Kiev city (Ukraine). Int Conf AIDS. 2002 Jul 7-12; abstract no. MoPeD3617

Pineau, F., Marcy, O., Ngoubou, S., Burgard, M., Tran-Minh, T., Franco-Montoya, M. L., Rouzioux, C., & Gentilini, M. 2004, Reliable diagnosis of neonatal HIV-1 infection by real time PCR in Congo. 11th Conference on Retroviruses and Opportunitistic Infections, San Francisco, 8th-11th February 2004 900-401.

Postma, M. J., Beck, E. J., Mandalia, S., Sherr, L., Walters, M. D. S., Houweling, H., & Jager, J. C. 1999, Universal HIV screening of pregnant women in England: cost effectiveness analysis, Br Med Journal, 318, 1656-1660.

Read, J. S. & Newell, M. L. 2005, Cesarean delivery for prevention of mother-to-child transmission of HIV, Cochrane Database Syst Rev, 4.

Rhodes, T. & Simic, M. 2005. Transition and the HIV risk environment. Br Med Journal. 331(7510): 220-223.

Seltzer, J., Bryan, P., Senlet, P., & O'Hanley, K. 2003, Assessment of Reproductive and Maternal Health in Ukraine, USAID.

Semenenko, I. 2005. Need assessment on knowledge and skills for prevention of MTCT in three regions of Ukraine. USAID, JSI, Kyiv, Ukraine.

Shaffer, N., Chuachoowong, R., Mock, P. A., Bhadrakom, C., Siriwasin, W., Young, N. L., Chotpitayasunondh, T., Chearskul, S., Roongpisuthipong, A., Chinayon, P., Karon, J. M., Masto, T. D., Simonds, R. J., & Bangkok Collaborative Perinatal HIV Transmission Study Group 1999, Short-course zidovudine for perinatal HIV-1 transmission in Bangkok, Thailand: a randomised controlled trial, Lancet, 353, 773-780.

Sherman, G. G., Stevens, G., Jones, S. A., Horsfield, P., & Stevens, W. S. 2005, Dried Blood Spots Improve Access to HIV Diagnosis and Care for Infants in Low-Resource Settings, J Acquir Immune Defic Syndr, 38, no. 5, 615-617.

Stammers, T. 2005, As easy as ABC? Primary prevention of sexually transmitted infections, Postgrad.Med J, 81, no. 955, 273-275.

Tereshchenko, O., Tytysh, H., Regush, L. (GYP-Ukraine team) 2004. Situation assessment: Young people and HIV epidemic in Ukraine. Global Youth Partners, Ukraine.

The European Mode of Delivery Collaboration 1999, Elective caesarean section versus vaginal delivery in preventing vertical HIV-1 transmission: a randomised clinical trial, Lancet, 353, 1035-1039.

The International Perinatal HIV group 1999, Mode of delivery and vertical transmission of HIV-1: a meta-analysis from fifteen prospective cohort studies, New England Journal of

Medicine, 340, no. 13, 977-987.

The International Perinatal HIV group 2001, Duration of ruptured membranes and vertical transmission of HIV-1: a meta-analysis from fifteen prospective cohort studies, AIDS, 15, 357-368.

Thorne, C. & Newell, M. L. 2005, The safety of antiretroviral drugs in pregnancy, Expert Opinion in Drug Safety, 4, 323-335.

Thorne, C., Newell, M.- L., & Peckham, C. S. 1998, Clinical and psychosocial service needs of children and families affected by human immunodeficiency virus in Europe, European Journal of Public Health, 1999, 99: 8-14 .

Transatlantic Partners Against AIDS. 2004. Abandoned children born to HIV-positive women: analysis of the situation in Russia. Moscow.

Tuomala, R. E., O'Driscoll, P. T., Bremer, J. W., Jennings, C., Xu, C., Read, J. S., Matzen, E., Landay, A. L., Zorrilla, C., Charurat, M., & Anderson, D. J. 2003, Cell-associated genital tract virus and vertical transmission of human immunodeficiency virus type 1 in antiretroviral-experienced women, J Infect.Dis. 187, 375-384.

UNAIDS 2004, Report on the global AIDS epidemic, 2004 UNAIDS, Geneva.

UNICEF Ukraine 2004. Care of children with HIV: the current state, problems and solutions.
UNAIDS Ukraine 2003. Prospects for Development of HIV Prevention Programmes among Injecting Drug Users, Kyiv, Ukraine.

UNAIDS/WHO Working Group on Global HIV/AIDS/STI Surveillance. 2002. Initiating second generation HIV surveillance systems: practical guidelines. UNAIDS, Geneva.

UNDP 2004. HIV/AIDS in Eastern Europe and the Commonwealth of Independent States. Reversing the Epidemic: Facts and Policy Options. UNDP: Bratislava.

UNFPA. 2005. Youth and HIV/AIDS Fact Sheet.
http://www.unfpa.org/swp/2005/presskit/factsheets/facts_youth.htm

Van Dyke, R. B., Korber, B. T., Popek, E. J., Macken, C., Widmayer, A. B., Hanson, I. C., Wiznia, A., Luzuriaga, K., Viscarello, R. R., Wolinsky, S., & Ariel Core Investigators 1999, The Ariel Project: A prospective cohort study of maternal-child transmission of human immunodeficiency virus type 1 in the era of maternal antiretroviral therapy. J Infect Dis, 179, 319-328.

Vasylyev M.2004. HIV/AIDS prevention program for youth in Lviv region (Ukraine). Trainings "How to run sexual education lessons" for secondary school teachers and psychologists. Int Conf AIDS. Jul 11-16 2004; 15: abstract no. TuPeC4851
Walmsley, S. 2003, Opt in or opt out: what is optimal for prenatal screening for HIV infec-

tion? CMAJ. 168, 707-708.

Weller, S. & Davis, K. 2002, Condom effectiveness in reducing heterosexual HIV transmission, Cochrane Database Syst Rev no. 1, CD003255.

WHO/UNICEF/UNAIDS 1998, HIV and infant feeding. Guidelines for decision makers. UNAIDS, Geneva.

WHO/UNFPA/UNAIDS/UNICEF 2004. Strategic Framework for the Prevention of HIV Infection in Infants in Europe. WHO: Copenhagen.

Working Group on Mother-to-Child Transmission of HIV 1995, Rates of mother-to-child transmission of HIV-1 in Africa, America, and Europe: Results from 13 perinatal studies, Journal of Acquired Immunodeficiency Syndromes and Human Retrovirology, 8, 506-510.

Yaremenko O et al. 2004. Analytical Report: access of HIV-positive women to quality reproductive health and maternity services. POLICY Project II. USAID, Kyiv, Ukraine.

Appendix

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Ukraine has one of the fastest growing HIV/AIDS epidemics in Eastern Europe and the Commonwealth of Independent States. The number of HIV-infected women is steadily increasing, as is the risk of transmission of HIV to newboms. Ukraine has made substantial progress and reduced the MTCT rate from above 27 per cent in 2000, to 8 per cent in 2004.

The aim of this review Is to document the experience of PMTCT in Ukraine to date, highlighting the strengths and weaknesses of lessons learned within the current PMTCT programme.

The publication is intended for medical doctors, health administrators and medical university lecturers and those who are generally interested in HIV/AIDS problems.

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