



PREVENTING
MOTHER-TO-CHILD
TRANSMISSION OF HIV
A Practical Guide for
the Treatment of
Sexually Transmitted
Infections in HIV-Positive
Pregnant Women
2nd Edition



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This guide was developed using the most recent treatment information available at the time of production by professionals in Ukraine for colleagues working in similar healthcare settings. In the rapidly changing field of HIV care and treatment, information can become outdated quickly. We encourage users to compare this data and its date of issuance with the latest information found on www.aidsknowledgehub.org and other relevant sites. AIHA disclaims any responsibility for any errors, omissions, or other possible problems associated with this publication. February 2005.



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Since 1992, the American International Health Alliance (AIHA) has established and managed more than 100 volunteer-driven partnerships between healthcare institutions in the United States and their counterparts in Central and Eastern Europe and Eurasia. AIHA partnerships involve the twinning of hundreds of health systems, educational institutions, and communities, as well as the participation of thousands of clinicians, educators, and other health-related professionals. AIHA assistance has enabled the US healthcare sector to help address local healthcare issues by providing effective and coordinated assistance to the countries of these regions. AIHA also sponsors a number of supportive and collaborative activities, including conferences, workshops, and a multilingual Web-based clearinghouse of medical information. In an extraordinary demonstration of private-public collaboration and commitment, the US health sector is contributing more than one dollar in resources ranging from equipment and supplies to in-kind time for every federal dollar provided in support of the twinning programs.

AIHA's twinning partnerships have made many important contributions to health reform efforts in Central and Eastern Europe and Eurasia, including: (1) restructuring national, oblast (state), and city healthcare delivery systems by, for example, organizing regional perinatal and emergency networks; reorganizing key in- and outpatient hospital services at institutional and multi-institutional levels; and introducing new levels of care and services including hospice care and home health visits by nurses; (2) developing a network of more than 25 free-standing Women's Wellness Centers that provide comprehensive health care tailored to the specific needs of women; (3) reorganizing and improving health professions education by establishing some of the first residency-based training programs in the region for family physicians and other primary care providers; (4) supporting the development of the region's first schools and programs in health management, health administration, and public health; (5) establishing new skills-based training centers and programs for the in-service training of physicians, nurses, feldshers, and administrators, such as the region's first programs in basic emergency care, disaster response, infection control, and neonatal resuscitation; (6) opening more than 23 high-quality, model Primary Care Centers that provide comprehensive medical care and emphasize community-based health promotion and wellness programs; (7) developing successful "healthy communities/healthy cities" twinning relationships that enable communities to address their own unique health and social welfare problems; (8) creating more than 130 Learning Resource Centers to promote evidence-based clinical practices and offer support to the dozens of nursing and other associations created to encourage professional development and broad health reform initiatives; and (9) developing a number of operational comprehensive, community-based model programs that target specific health priorities such as tuberculosis, cardiovascular disease, family violence, post-traumatic stress syndrome, diabetes, asthma, and preventing the risk of mother-to-child transmission of HIV.

AIHA operates primarily under cooperative agreements with the United States Agency for International Development (USAID)—the US government agency that finances programs and projects that promote broad-based and sustainable economic growth worldwide—and the US Department of Health and Human Services, Health Resources and Services Administration (HRSA). Additional funding has been provided through grants from the US Department of Energy, the Library of Congress's Open World Leadership Center, and various foundations. (February 2005)

AIHA's Regional Model for Preventing Mother-to-Child Transmission of HIV in Odessa, Ukraine

Central and Eastern Europe and Eurasia are currently experiencing the fastest increase of HIV infection in the world, bringing the total number of people living with the virus in the region to 1.5 million.¹ Although the number of children born to HIV-positive mothers in this area is still relatively low, two-thirds of the reported cases are in Ukraine² (population: 48 million, 2002).³ According to UNAIDS statistics, HIV prevalence in Ukraine is approaching 1% of the adult population.⁴ The number of children born to HIV-positive women in the country increased nearly 90%, from 737 reported cases in 2000, to 1,379 in 2002.⁵ The percentage of HIV cases registered among pregnant women has also skyrocketed, in some regions rising above 0.4 percent.⁶

Odessa oblast has one of the highest HIV infection rates in the country (361.3 per 100,000 people oblast-wide)⁷ and the number of children infected through vertical transmission has grown significantly during the last three years, with the number of births to HIV-positive mothers rising from 0.8% in 2001 to 1.0% in 2003.⁸ For comparison, in 2001, 0.4% of pregnant women tested positive for HIV in Ukraine; in 2002, 0.5% of pregnant women had a positive status.⁹

In response to this public health crisis, AIHA initiated a pilot project in 2001 aimed at preventing mother-to-child transmission (MTCT) of HIV in Odessa. Supported by USAID, AIHA's project is an integral part of a larger effort involving international donors including UNAIDS, WHO, UNICEF, Médecins Sans Frontières (MSF; also known as Doctors Without Borders), and Ukrainian government agencies and nongovernmental organizations. MSF, for example, is providing Odessan women with supplies, such as antiretroviral (ARV) drugs and infant formula crucial to preventing MTCT, and AIHA is cooperating closely with MSF to provide related technical assistance and training for healthcare workers to Odessa healthcare institutions.

In 2003, the World Health Organization Regional Office for Europe (WHO/Euro) joined with AIHA to establish the independent, non-governmental Regional Knowledge Hub for Care and Treatment of HIV/AIDS in Eurasia. Operating with funds provided by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) and USAID, the Knowledge Hub serves as a crucial capacity-building mechanism for reaching WHO's "3 by 5" targets for the region.

Based in Ukraine at the Kiev Medical Academy of Post Graduate Education and closely affiliated with the Ukrainian National AIDS Center, the main objective of the Knowledge Hub is to create the human resource capacity necessary to provide care to HIV-infected individuals by developing expertise among healthcare professionals, cultivating training capacity,

and massing a body of evidence-based resources and informational materials.

Tasked with developing a cadre of well-trained, knowledgeable, and skilled professionals who will work in close collaboration with community-based organizations dedicated to providing care and social support to HIV-positive individuals, the Knowledge Hub will be part of a synergistic network that includes international experts, two similar centers—one focusing on harm reduction and the other on surveillance—and a cadre of strategic partners including AIDS Foundation East West (AFEW), International Association of Physicians in AIDS Care (IAPAC), and AIDS Healthcare Foundation-Global Immunity (AHF-GI).

AIHA's project in Odessa focuses primarily on implementing systemic and institutional changes related to the prevention and treatment of HIV/AIDS by:

- reorganizing and strengthening clinical service delivery to ensure that measures to stop vertical transmission of the disease are integrated into the obstetric, pediatric, and new family-centered primary care systems;
- revising treatment protocols to ensure that they are evidence based and effective within the region's changing social and economic context; and
- developing training materials and curricula for health professionals in important areas such as

counseling, obstetrics, occupational health, women's health, pediatric care, and family planning.

This effort builds upon more than a decade of highly successful AIHA programmatic activity throughout Ukraine, in general, and in Odessa, in particular.

With USAID support, AIHA is applying its proprietary twinning methodology—supplemented by expert resources—to the prevention of mother-to-child transmission (PMTCT) project in Odessa. Boulder Community Hospital and its collaborating institutions, including the University of Colorado Health Sciences Center and Children's Hospital of Denver, are serving as the lead US partners under a subgrant from AIHA. These partners, working closely with their counterparts in the Odessa Oblast Health Administration, the State Medical University of Odessa, and the Odessa Oblast Hospital—one of the largest public hospitals in the region—are providing training and capacity building related to the model program. In addition, AIHA is drawing upon the expertise of individual health professionals and key public institutions across the United States to supplement and expand upon this training and to provide expertise in the area of HIV/AIDS treatment and care.

Training to date has been specifically designed to increase the proficiency of medical professionals from Odessa in the areas of obstetrics and gynecology, neonatology, counseling, and clinical practice guidelines. While future training will continue to focus on

these important areas, additional emphasis is being placed on nursing, pediatrics, and laboratory support, as well as the development of high-quality primary care for mother and child.

As is the case in other AIHA twinning programs, US institutions and health professionals involved in the Ukraine PMTCT project are voluntarily providing professional support and material resources—including basic workplace infection control barriers and other important supplies—matching US government funding on a dollar-for-dollar basis.

As a result of the coordinated efforts by AIHA and others, the Odessa Oblast Hospital has been able to quickly demonstrate dramatic success in the prevention of MTCT; preliminary results at the end of 2002 indicated a 75% decrease in HIV-positive infants born to HIV-positive women at the hospital.¹⁰ Having demonstrated initial success in preventing MTCT among participating women, the project is increasingly focused on systematically identifying all women in the city and oblast who are at risk, enrolling them in family planning and prenatal services, and ensuring 100% case management through delivery and postdelivery. The project is also striving to provide all HIV-positive mother/child pairs with high-quality family care and, if necessary, specialized treatment.

In 2003, AIHA established the Southern Ukraine AIDS Education Center (SUAEC) in Odessa to disseminate the PMTCT model through hands-on, skills-based and methodological trainings. SUAEC

[P]reliminary results at the end of 2002 indicated a 75% decrease in HIV-positive infants born to HIV-positive women at the hospital.

currently serves as a regional training center for the Knowledge Hub in the areas of PMTCT and pediatric AIDS.

An overall goal of AIHA's model PMTCT project is to develop materials that can be used throughout the region. Companion products are a critical output of the project, and collaboration and consensus-building with the Ukrainian Ministry of Health and others is a key component of the project's work plan. Practical materials such as this guide are being developed using a collaborative approach in which the Ukrainian authors' drafts are circulated to US counterparts for review and comment. All documents are made available in both English and Russian.

Companion products and further information about the model PMTCT project, the Regional Knowledge Hub for the Care and Treatment of HIV/AIDS in Eurasia, USAID, and AIHA's partnership programs, and the HRSA-funded HIV/AIDS Twinning Center Program in Africa, Asia, and the Caribbean can be found at www.aiha.com. Further information about the Regional Knowledge Hub for the Care and Treatment of HIV/AIDS in Eurasia can be found at www.aidsknowledgehub.org (July 2004).

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Preface

This guide for the prevention and treatment of sexually transmitted infections (STIs) in pregnant women infected with HIV was developed by staff in the Departments of Obstetrics and Gynecology at Odessa State Medical University and Odessa Oblast Clinical Hospital. Information and protocols found in this guide are based on the staff's own experience, data from relevant literature, and international standards for providing medical care and preventing STIs in pregnant women.

The guide is based on the most recent recommendations of the US Department of Health and Human Services, the US Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO), adapted to the conditions existing in Ukraine.¹⁻⁴ It contains new information on current procedures for the diagnosis and treatment of STIs in HIV-positive pregnant women, as well as recommendations for the prevention of STI transmission. Information is often presented in the form of flowcharts.

The guide is designed to be used by obstetricians and gynecologists working at hospitals and

outpatient care facilities, by staff members of women's health clinics and AIDS centers, and by infectious disease specialists, midwives, and nurses working in the field of maternal and child health.

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GLOSSARY OF TERMS

Chancroid: STI caused by the bacterium *Haemophilus ducreyi*, during which genital ulcers form.

Chlamydiosis: Infection caused by the bacterium *Chlamydia trachomatis*; one of the causes of discharge from the vagina, urethra, and the eyes of newborns.

Congenital syphilis: Syphilis transmitted from mother to child during pregnancy.

Conjunctivitis: Inflammation of the mucous membrane of the eyes and eyelids.

Consulting: A confidential discussion between a consultant and client for the purpose of providing psychological and informational support. Consultations can help clients develop the skills needed to overcome difficulties when new situations arise and provide them with the information they need to make important decisions. As a component of HIV prevention, consultations are used to instill a sense of responsibility for behavior in the client and, when necessary, encourage them to adopt a low-risk lifestyle.

Counseling and testing (C&T): A process through which patients learn whether or not they are HIV-positive, what that means for their future, and the various decisions they may need to make after being given more information about their

diagnosis. In HIV testing, blood or another biological fluid is checked for the presence of HIV antibodies or virus antigens. HIV testing must be strictly voluntary and performed only with the informed consent of the patient. Counseling accompanying HIV testing comprises a series of confidential meetings between a patient and counselor that allows the patient to determine the level of his/her knowledge about HIV; assess his/her behavior from the standpoint of the risk of infection and transmission; decide whether or not to be tested; and receive psychological support when test results are given. The terms “HIV testing and counseling,” “voluntary counseling and testing,” and “voluntary and confidential counseling and testing” (VCCT) are synonymous. (Definition from *Increasing Access to Knowledge of HIV Status: Conclusions of a WHO Consultation*, Dec. 3-4, 2001.)

Epididymitis: Inflammation of the epididymis, usually caused by a gonorrheal or chlamydial infection.

Ectopic pregnancy: Pregnancy outside the uterine cavity (usually in the fallopian tubes); a life-threatening condition that can lead to massive internal bleeding.

Genital ulcers: Name of a syndrome in which ulcers or erosions appear in the genital area; usually observed in syphilis and chancroid cases.

Gonorrhea: STI caused by *Neisseria gonorrhoeae*; widespread cause of discharge from the urethra or vagina, and also discharge from the eyes of newborns.

Herpes: Disease caused by the herpes simplex virus, in which vesicles, erosions, and small ulcers form.

HIV: Human immunodeficiency virus; a retrovirus that causes AIDS. In this guide, HIV refers to HIV-1, since cases of vertical transmission of HIV-2 are extremely rare.

HIV status: (divided into four categories)

- **Indeterminate status:** A person who has not been tested for HIV, whose results of an HIV screening are unknown, or who has received a positive result on an HIV quick test.
- **HIV-infected:** A person who is infected with HIV, who may or may not know it.
- **HIV-negative:** A person who has tested negative for HIV and knows the results of the test. In the case of a child, the parent(s) have been notified.
- **HIV-positive:** A person who has tested positive for HIV, has a confirmed diagnosis, and knows the results of the diagnosis. In the case of a child, the parent(s) have been notified.

Informed consent: In terms of HIV testing, permission given by the patient to the healthcare professional to perform an HIV test. Informed

consent certifies that the patient has made a voluntary and deliberate decision based on being given all relevant information. Relevant information is defined as any information the patient considers important, especially information about the risks and advantages of testing, about what declining to be tested means in practical terms, and about available testing opportunities. Only after all relevant information is imparted and the patient has the opportunity to consider the options can an informed decision be made. It is important that informed consent be obtained because of the life-threatening nature of HIV and its consequences for the patient. (Definition from *Increasing Access to Knowledge of HIV Status: Conclusions of a WHO Consultation*, Dec. 3-4, 2001.)

Mother-to-child transmission (MTCT): In this guide, MTCT refers to the transmission of HIV from an HIV-positive woman to her child during pregnancy, delivery, or breast feeding. A woman can become infected with HIV through unprotected sexual contact with an HIV-positive partner, a blood transfusion, contact with a nonsterile instrument, or a medical procedure. She may not know her HIV status. The term MTCT, also known as vertical transmission, does not carry any hint of judgment.

Ophthalmia neonatorum: Conjunctivitis occurring in infants under one month of age, usually as a result of gonorrheal or a chlamydial infection.

Pelvic inflammatory diseases: Encompasses the entire range of inflammatory occurrences in the area of the upper reproductive tract in women—endometritis, salpingitis, tubo-ovarian abscess, pelvic peritonitis—both as distinct clinical entities and in any possible combination.

Sexually transmitted infections (STIs): Infections that are transmitted from one person to another during intercourse or intimate contact.

Syndrome: Specific combination of subjective and objective symptoms.

Syphilis: STI caused by *Treponema pallidum*; one of the causes of genital ulcers (hard chancres).

Trichomoniasis: STI caused by *Trichomonas vaginalis*; one of the causes of typical vaginal discharge.

Vertical transmission: See mother-to-child transmission of HIV.

ACRONYMS

AIDS: acquired immune deficiency syndrome

BV: bacterial vaginosis

HB: hepatitis B

HBeAg: hepatitis Be antigen

HC: hepatitis C

HIV: human immunodeficiency virus

HPV: human papillomavirus

HSV: herpes simplex virus

PCR: polymerase chain reaction

PID: pelvic inflammatory disease

STI: sexually transmitted infection

TB: tuberculosis

WHO: World Health Organization

UNAIDS: Joint United Nations Program on HIV/AIDS

Chapter 1: Introduction and Background

In recent years, our understanding of and attitudes toward STIs have altered considerably because of changes in sexual behavior, the use of contraceptives, the rapid increase in the number of young people engaging in sexual activity (particularly in developing countries), urbanization, and other social, medical, and demographic factors. Concurrently, there has been an exceptionally rapid increase in STI morbidity in Eastern Europe—including Ukraine, particularly Odessa—which is related to major social and economic changes, the transition to a market economy, and subsequent declines in income. These realities have led to increases in unemployment, prostitution, and addiction. This noted increase in STI morbidity is exacerbated by international tourism, changes in the age structure of the population, changing attitudes toward sex and prostitution, and the appearance of antibiotic-resistant strains of pathogens.

One reason to pay particular attention to the increase in STI morbidity is its relationship to HIV infection. There is direct evidence that STIs greatly increase the risk of sexual transmission of HIV because of the resulting damage to the epithelium and inflammation of the genital mucous membranes.

At present, there are more than 20 identified STIs, as seen in the chart below. These STIs are characterized by a high contagiousness and relatively rapid spread among certain population groups.¹

CLASSIFICATION OF SEXUALLY TRANSMITTED INFECTIONS	
Classic Venereal Infections	
Disease Name	Causative Agent
Syphilis	<i>Treponema pallidum</i>
Gonorrhoea	<i>Neisseria gonorrhoeae</i>
Chancroid (soft chancre)	<i>Haemophilus ducreyi</i>
Venereal lymphogranulomatosis	<i>Chlamydia trachomatis</i>
Granuloma inguinale (venereal)	<i>Calymatobacterium granulomatis</i>
STIs Primarily Affecting Genital Organs	
Disease Name	Causative Agent
Urogenital chlamydiosis	<i>Chlamydia trachomatis</i>
Urogenital trichomoniasis	<i>Trichomonas vaginalis</i>
Urogenital candidiasis	<i>Candida albicans</i>
Urogenital mycoplasmosis	<i>Mycoplasma hominis</i>
Genital herpes	Herpes simplex virus
Papillomavirus infections	<i>Papillomavirus hominis</i>
Molluscum contagiosum of the genitals	<i>Molluscovirus hominis</i>
Bacterial vaginosis	<i>Gardnerella vaginalis</i>
Urogenital shigellosis	<i>Shigella species</i>
Pubic pediculosis (phthiriasis)	<i>Phthirus pubis</i>
Scabies	<i>Sarcoptes scabiei</i>
STIs Primarily Affecting Other Organs	
Disease Name	Causative Agent
Acquired immunodeficiency syndrome (AIDS)	Human immunodeficiency virus (HIV)
Hepatitis B, hepatitis C	Hepatitis B virus, Hepatitis C virus
Cytomegaly	<i>Cytomegalovirus hominis</i>
Amebiasis	<i>Entamoeba histolytica</i>
Lambliasis	<i>Lamblia intestinalis</i>

Source: Ministry of Health of Ukraine, UNICEF, *Prevention of Mother-to-Child HIV Transmission*, training module (Kiev, 2001).

Infectious vaginitis and vulvovaginitis are the most common diseases encountered in gynecology. Their typical symptom is profuse discharge from the genital tract, and the most common forms are bacterial vulvovaginitis and vulvovaginal candidiasis (known as dysbiosis), as well as chlamydiosis and trichomoniasis. These diseases greatly increase the risk of HIV infection during heterosexual contact.

It has now become evident that normal flora found in the genital tract acquire pathogenic properties under certain conditions. The balance of microorganisms in the vagina depends on the functioning of the immune and endocrine systems, metabolic processes, and certain environmental factors. Accordingly, a change in any of these factors may lead to a microorganism balance “collapse” in the vagina and, therefore, an increased risk of infection. Factors that effect this balance include:

- Physiological and age-related changes, such as pregnancy and menopause
- Endocrine diseases (diabetes mellitus, obesity, hypothyroidism)
- Prolonged antibiotic or immune-suppression therapy
- Prolonged use of hormone contraceptives.