

Received: 18 August 2025 / Accepted: 29 January 2026 / Published online: 27 February 2026

DOI 10.34689/SH.2026.28.1.022

UDC 616.9:613.88



This work is licensed under a
Creative Commons Attribution 4.0
International License

MODERN APPROACHES TO THE PREVENTION OF SEXUALLY TRANSMITTED INFECTIONS AMONG YOUNG PEOPLE: CHALLENGES AND PROSPECTS. LITERATURE REVIEW

Aizhan J. Turekhanova¹⁻², <https://orcid.org/0000-0001-6040-4187>

Botagoz S. Turdaliyeva³, <https://orcid.org/0000-0001-9884-0777>

Marziya Kh. Jusupgaliyeva³, <https://orcid.org/0009-0002-2229-5682>

Bayan I. Imasheva^{1-2*}, <https://orcid.org/0000-0003-2261-4428>

¹ Kazakhstan Medical University "KSPH", Almaty, Republic of Kazakhstan;

² Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan;

³ RSE on the REM "Kazakh Scientific Center of Dermatology and Infectious Diseases", Almaty, Republic of Kazakhstan.

Abstract

Introduction: Sexually transmitted infections (STIs) continue to pose a significant threat to public health, especially among young people. The increase in the incidence of STIs in the world is associated with a combination of social, behavioral and biological factors. The relevance of effective prevention strategies for the youth group is increasing against the background of changing patterns of sexual behavior and limited access to medical services in a number of regions.

Objective: To summarize the data from the available literature on existing preventive measures aimed at reducing the incidence of STIs among young people, with an emphasis on international experience and practical approaches.

Search strategy: A review of the relevant literature over the past 5 years has been conducted using PubMed, Scopus and Google Scholar databases. The analysis includes 75 peer-reviewed articles covering data from both international and CIS studies.

Results: Several key areas of STI prevention among young people have been identified: 1) Educational programs in schools, universities, and online platforms significantly increase awareness and reduce risky sexual behavior. 2) Increased access to diagnosis and treatment, including free testing and counseling, promotes early detection and treatment of STIs. 3) The use of mobile technologies and applications has proven effective in increasing STI awareness and motivation for testing. 4) Partner awareness programs and rapid testing promotion make it possible to interrupt the chain of transmission of infection.

Conclusions: Effective prevention of STIs among young people requires a multidisciplinary approach combining educational, medical and technological interventions. Educational campaigns, testing using mobile platforms, as well as programs focused on informing and treating partners have demonstrated the greatest contribution to reducing morbidity. The development of digital prevention tools, individualized educational approaches and the integration of preventive measures into the systems of general medical care for young people remain promising new areas.

Keywords: Sexually transmitted infections (STIs), prevention, youth, healthcare, health education, international experience.

For citation:

Turekhanova A.J., Turdaliyeva B.S., Jusupgaliyeva M.Kh., Imasheva B.I. Modern approaches to the prevention of sexually transmitted infections among young people: challenges and prospects. Literature review // *Nauka i Zdravookhranenie* [Science & Healthcare]. 2026. Vol.28 (1), pp. 189-198. doi 10.34689/SH.2026.28.1.022

Резюме

СОВРЕМЕННЫЕ ПОДХОДЫ К ПРОФИЛАКТИКЕ ИНФЕКЦИЙ, ПЕРЕДАЮЩИХСЯ ПОЛОВЫМ ПУТЕМ СРЕДИ МОЛОДЕЖИ: ВЫЗОВЫ И ПЕРСПЕКТИВЫ. ОБЗОР ЛИТЕРАТУРЫ

Айжан Д. Туреханова¹⁻², <https://orcid.org/0000-0001-6040-4187>

Ботагоз С. Турдалиева³, <https://orcid.org/0000-0001-9884-0777>

Марзия Х. Джусупгалиева³, <https://orcid.org/0009-0002-2229-5682>

Баян И. Имашева^{1-2*}, <https://orcid.org/0000-0003-2261-4428>

¹ Казахский медицинский университет «ВШОЗ», г. Алматы, Республика Казахстан;

² Казахский национальный университет имени Аль-Фараби, г. Алматы, Республика Казахстан;

³ РГП на ПХВ "Казахский научный центр дерматологии и инфекционных заболеваний", г. Алматы, Республика Казахстан.

Введение: Инфекции, передающиеся половым путем (ИППП), продолжают представлять собой значительную угрозу общественному здоровью, особенно среди молодежи. Рост заболеваемости ИППП в мире связан с

сочетанием социальных, поведенческих и биологических факторов. Актуальность эффективных профилактических стратегий для молодежной группы возрастает на фоне изменения моделей сексуального поведения и ограниченного доступа к медицинским услугам в ряде регионов.

Цель: Обобщение данных доступной литературы о существующих профилактических мероприятиях, направленных на снижение заболеваемости ИППП среди молодежи, с акцентом на международный опыт и практические подходы.

Стратегия поиска: Проведен обзор актуальной литературы за последние 5 лет, с использованием баз данных PubMed, Scopus и Google Scholar. В анализ включены 75 рецензируемых статей, охватывающих данные как международных исследований, так и исследований стран СНГ.

Результаты: Выявлено несколько ключевых направлений профилактики ИППП среди молодежи: 1) Образовательные программы в школах, университетах и онлайн-платформах значительно увеличивают уровень осведомленности и снижают рискованное сексуальное поведение. 2) Расширение доступа к диагностике и лечению, включая бесплатное тестирование и консультирование, способствует раннему выявлению и лечению ИППП. 3) Использование мобильных технологий и приложений доказало свою эффективность в повышении осведомленности об ИППП и мотивации к тестированию. 4) Программы информирования партнеров и продвижение экспресс-тестирования позволяют прерывать цепочку передачи инфекции.

Выводы: Эффективная профилактика ИППП среди молодежи требует мультидисциплинарного подхода, сочетающего образовательные, медицинские и технологические интервенции. Образовательные кампании, тестирование с использованием мобильных платформ, а также программы, ориентированные на информирование и лечение партнеров, продемонстрировали наибольший вклад в снижение заболеваемости. Новыми перспективными направлениями остаются развитие цифровых инструментов профилактики, индивидуализированные образовательные подходы и интеграция профилактических мероприятий в системы общего медицинского обслуживания молодежи.

Ключевые слова: Инфекции, передающиеся половым путем (ИППП), профилактика, молодежь, здравоохранение, образование в области здоровья, международный опыт.

Для цитирования:

Туреханова А.Д., Турдалиева Б.С., Джусупгалиева М.Х., Имашева Б.И. Современные подходы к профилактике инфекций, передающихся половым путем среди молодежи: вызовы и перспективы. Обзор литературы // Наука и Здравоохранение. 2026. Vol.28 (1), С. 189-198. doi 10.34689/SH.2026.28.1.022

Түйіндеме

ЖАСТАР АРАСЫНДА ЖЫНЫСТЫҚ ЖОЛМЕН БЕРІЛЕТІН ИНФЕКЦИЯЛАРДЫҢ АЛДЫН АЛУДЫҢ ЗАМАНАУИ ТӘСІЛДЕРІ: ҚИЫНДЫҚТАР МЕН ПЕРСПЕКТИВАЛАР. ӘДЕБИЕТТІК ШОЛУ.

Айжан Д. Туреханова¹⁻², <https://orcid.org/0000-0001-6040-4187>

Ботагоз С. Турдалиева³, <https://orcid.org/0000-0001-9884-0777>

Марзия Х. Джусупгалиева³, <https://orcid.org/0009-0002-2229-5682>

Баян И. Имашева^{1-2*}, <https://orcid.org/0000-0003-2261-4428>

¹ «ҚДСЖМ» Қазақстандық медициналық университеті, Алматы қ., Қазақстан Республикасы;

² Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы қ., Қазақстан Республикасы;

³ "Қазақ Дерматология және жұқпалы аурулар ғылыми орталығы" ШЖҚ РМК, Алматы қ., Қазақстан Республикасы.

Өзектілігі: Жыныстық жолмен берілетін инфекциялар (ЖЖБИ), әсіресе жастар арасында, қоғамдық денсаулыққа айтарлықтай қауіп төндіреді. Әлемде ЖЖБИ жиілігінің артуы әлеуметтік, мінез-құлық және биологиялық факторлардың жиынтығымен байланысты. Жастар тобы үшін тиімді профилактикалық стратегиялардың өзектілігі бірқатар өңірлерде жыныстық мінез-құлық үлгілерінің өзгеруі және медициналық қызметтерге қолжетімділіктің шектелуі аясында артып келеді.

Мақсаты: Халықаралық тәжірибе мен практикалық тәсілдерге баса назар аударып, жастар арасында ЖЖБИ жиілігін төмендетуге бағытталған қолданыстағы профилактикалық іс-шаралар туралы қолжетімді әдебиеттер деректерін жинақтау.

Іздеу стратегиясы: PubMed, Scopus және Google Scholar дерекқорларын пайдалана отырып, соңғы 5 жылдағы өзекті әдебиеттерге шолу жасалды. Талдауға халықаралық зерттеулердің де, ТМД елдерінің зерттеулерінің де деректерін қамтитын 75 рецензияланған мақала енгізілген.

Нәтижелер: жастар арасында ЖЖБИ алдын алудың бірнеше негізгі бағыттары анықталды: 1) мектептердегі, университеттердегі және онлайн-платформалардағы білім беру бағдарламалары хабардарлық деңгейін айтарлықтай арттырады және қауіпті жыныстық мінез-құлықты төмендетеді. 2) тегін тестілеу мен кеңес беруді қоса алғанда, диагностика мен емдеуге қолжетімділікті кеңейту ЖЖБИ ерте анықтауға және емдеуге ықпал етеді. 3) мобильді технологиялар мен қосымшаларды пайдалану ЖЖБИ туралы хабардарлықты арттыруда және тестілеуге

ынталандыруда өзінің тиімділігін дәлелдеді. 4) серіктестерді ақпараттандыру және жедел тестілеуді ілгерілету бағдарламалары инфекцияның берілу тізбегін үзуге мүмкіндік береді.

Қорытындылар: жастар арасында ЖЖБИ-нің тиімді алдын-алу білім беру, Медициналық және технологиялық араласуды біріктіретін көпсалалы тәсілді қажет етеді. Білім беру науқандары, мобильді платформаларды қолдана отырып тестілеу және серіктестерді ақпараттандыруға және емдеуге бағытталған бағдарламалар ауруды азайтуға үлкен үлес қосты. Профилактиканың цифрлық құралдарын дамыту, жекелендірілген білім беру тәсілдері және профилактикалық іс-шараларды жастарға жалпы медициналық қызмет көрсету жүйелеріне интеграциялау перспективалы жаңа бағыттар болып қала береді

Түйінді сөздер: жыныстық жолмен берілетін инфекциялар (ЖЖБИ), профилактика, жастар, денсаулық сақтау, Денсаулық сақтау саласындағы білім, халықаралық тәжірибе.

Дәйексөз үшін:

Туреханова А.Д., Турдалиева Б.С., Джусупғалиева М.Х., Имашеева Б.И. Жастар арасында жыныстық жолмен берілетін инфекциялардың алдын алудың заманауи тәсілдері: қиындықтар мен перспективалар. Әдебиеттік шолу // Ғылым және Денсаулық сақтау. 2026. Vol.28 (1), Б. 189-198. doi 10.34689/SH.2026.28.1.022

Introduction

Sexually transmitted infections (STIs) remain a major global health problem today, with more than 340 million new cases occurring worldwide each year [71]. In 2020, 376 million new cases of infection were registered worldwide, including the following four STIs: trichomoniasis (156 million), chlamydia (127.2 million), gonorrhoea (86.9 million), and syphilis (6.3 million) [68]. According to the latest data from the statistical digest "Health of the Population of the Republic of Kazakhstan and Activities of Healthcare Organizations" for the Republic of Kazakhstan (RK) in 2023 In 2010, 134.9 cases of STIs were registered per 100,000 population, where 16.3 cases per 100,000 population were urogenital trichomoniasis, 13.4 cases of urogenital chlamydia, 9.3 cases of syphilis, 6.8 cases of gonococcal infection [8]. As is known, STIs cause serious consequences for public health and are the reason for the development of various secondary diseases and complications, such as cervical cancer, infertility, pregnancy-related complications, including intrauterine mortality, and an increased risk of infection with the human immunodeficiency virus (HIV) [10, 13]. STIs most often affect young people, which is due to a combination of biological and social factors, including characteristics of sexual behavior and social needs characteristic of the transition from adolescence to adulthood [43]. Factors contributing to the increased incidence of STIs among young people include: premature onset of sexual activity, number of sexual partners and frequent changes, self-assertion, difficulties in accessing health services, financial situation, and education [31]. Currently, there are no uniform international standards clearly defining the age range of the concept of "young people", and existing data from scientific literature vary [26]. Thus, according to the classification of the World Health Organization (WHO), young people are considered to be individuals aged 10-24 years, and adolescents - 10-19 years [17]. In turn, the United Nations defines youth as a group of individuals from 15 to 24 years old [69]. While the results of a study conducted among members of the Society for Adolescent Health and Medicine showed that the terms "adolescents", "youth" and "young people" are often used as synonyms in international practice, covering the ages of 15 to 24 years, and in some cases even reaching 30-40 years [41]. In Kazakhstan, the age limits for young people have undergone changes: if previously the category of young

people covered the age of 14 to 29 years, since 2022, according to the legislative act of the Republic of Kazakhstan on state youth policy and social security, the upper age limit was raised to 35 years [2]. Numerous studies have recorded that young people do not have sufficient knowledge about sexually transmitted infections, and that their education and level of awareness affect the frequency of infection [12, 33]. Scientific data indicate that the use of condoms is the most common preventive measure to reduce the rate of STI infection [28]. However, due to their age and unconscious risky sexual behavior, young people engage in early sexual intercourse without the use of protection, with the majority having their first sexual experience under the influence of alcohol or psychoactive substances [34]. It should be noted that recently there has been an increase in the number of non-traditional relationships without commitment among adolescents, which should cause particular concern among parents, educational institutions, and healthcare professionals [35]. Therefore, increasing knowledge and awareness of STIs, protection, the culture of sexual behavior, and marital relations among young people, as well as the development of new methods of medical and preventive measures and psychosocial assistance is the main task of the government of various countries [19].

Objective: To summarize the data from the available literature on existing preventive measures aimed at reducing the incidence of STIs among young people, with an emphasis on international experience and practical approaches.

Search strategy

For these purposes, a comprehensive literature search was performed on three main databases: NCBI (PubMed), Scopus and Google Scholar, with a focus on publications released between 2019 and 2024. In order to ensure methodological rigor and reproducibility, the search strategy used a combination of logical operators and terms for medical thematic headings (MeSH). We used the following search queries: PubMed: ("sexually transmitted infections" [MeSH Terms] AND "prevention" [All Fields]) AND ("youth" OR "adolescents" OR "young adults") – 6373 entries. Scopus: ABS-KEY ("STIs" AND "prevention" AND ("youth" OR "health education" OR "healthcare services")) – 2347 entries. Google Scholar: "STI Prevention Programs" + "youth" + "public health strategies" + "Kazakhstan" + "International experience" – 688 entries.

Strict inclusion and exclusion criteria were applied in the research selection process. Duplicates (n = 6402) were removed from the original set of 9408 records, leaving 3006 unique studies. The titles and abstracts were checked for relevance, and 2,862 articles were excluded from them for the following reasons: not youth-oriented, lack of organizational or preventive orientation, and non-peer-reviewed sources. Subsequently, 144 full-text articles uploaded to the Zotero software application were analyzed in detail and passed an abstract review. The criteria for

excluding full-text articles included: insufficient methodological clarity, an emphasis on therapeutic rather than preventive interventions, disparate descriptive articles, and a limited sample size, which presents some challenges for conducting an objective critical analysis of a study. Ultimately, 75 peer-reviewed articles containing both international evidence and regional data from CIS countries were selected for inclusion in the final analysis. The literature search strategy is shown in Figure 1.

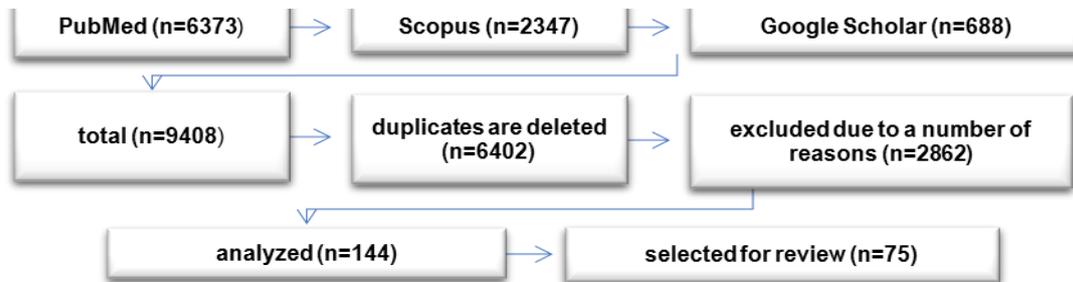


Figure 1. Stages of research selection for literary review.

Results

Global dynamics of STI prevalence

One of the strategic objectives of the WHO is to achieve a sustainable reduction in the incidence of STIs, with the prospect of eliminating them as a public health threat by 2030 [70]. To ensure effective planning of personalized preventive measures, epidemiological studies aimed at analyzing the geographic and age characteristics of the spread of STIs are of particular importance. Thus, in the work of *Du M. et al. (2022)*, based on data from the *Global Burden of Disease project*, a retrospective assessment of the dynamics of the prevalence of STIs in various geographic regions was conducted for the period from 1990 to 2019, where the highest increase in incidence was observed in low- and middle-income countries: the incidence of syphilis increased by 14.2%, and gonorrhea - by 4.7%. An analysis of the age structure of cases revealed a shift in the peak incidence towards younger ages: while in 2010 the highest rates were recorded among individuals aged 25–29 years, by 2019 the leading age group was 20–24 years [14]. This study demonstrated the need to implement age-specific preventive strategies aimed primarily at adolescents and young adults [45, 46]. It is important to consider regional differences in the rate of incidence growth for the effective allocation of prevention resources. Forecasting changes in the age structure of cases allows for the planning of long-term interventions [47].

Reasons for the increase in STI incidence among young people

Currently, the full list of factors contributing to the increased prevalence of STIs among young people remains unclear [21]. Among the hypothetical reasons for the increase in STI incidence among young people, both behavioral and systemic factors are distinguished. Some authors point to a decrease in the use of barrier methods of contraception, a reduction in funding for STI prevention programs at the local, state, and federal levels, increased access to dating through digital platforms, as well as an increase in antibiotic resistance in a number of pathogens. An important aspect is also considered to be the improvement of diagnostic capabilities, which has led to an increase in the detection of previously unspecified cases [42, 46]. One of the significant contributions to understanding the threat of STI pathogens was the study by *Tien V. et al.*

(2020), which noted a tendency towards the formation of multidrug resistance [48]. Given the limited arsenal of effective antibacterial agents, the emphasis in strategies to combat STIs is shifting towards prevention, primarily among high-risk groups [58]. In order to control STIs, first of all, it is necessary to pay attention to reducing the percentage of high-risk sexual behavior, especially among young people, he believes. *Peltzer K. et al. (2021)* documented an increase in the prevalence of ever having had sexual intercourse (from 24.4% to 36.4%) and having multiple sexual partners (from 13.6% to 16.9%) among adolescent girls in Argentina from 2007 to 2018 [36]. These findings further highlight the need to strengthen educational components in educational settings. Social media and dating apps create new forms of risk that require digital prevention strategies [50, 51].

Psychological factors such as the feeling of “invisibility of risk” contribute to neglect of protective measures [52]. The need for a comprehensive approach includes the involvement of families, schools and local communities in preventive initiatives [65].

School sexuality education and intervention programs

With the global rise in STI rates, school-based sexual health education plays a key role in STI prevention among young people. For example, *Szucs et al. (2021)* report that in 2019, 27.4% of high school students in the United States were sexually active, but 46% did not use condoms the last time they had sex and only 8.6% had been tested for STIs. The Division of Adolescent and School Health (DASH) and the US Centers for Disease Control and Prevention (CDC) emphasize skills training covering 15 key elements to promote safer behavior. These programs reach up to 2 million students annually, demonstrating the effectiveness of a structured approach [44]. However, despite the implementation of large-scale programs, the rate of increase in STI rates in the United States remains high, especially among adolescents [14]. This has led to the implementation of specialized intervention programs, such as *Project Prepared (2021)*, a randomized trial implemented in the Bronx, New York. The program included a series of 11 educational sessions and an internship, covering topics such as sexual risks, social attitudes, and gender norms. The primary outcomes assessed were HIV knowledge, self-efficacy,

condom use expectancies, and behavioral intentions, while secondary outcomes included relationship expectations and risky gender norms. Results showed that youth in the prepared group demonstrated significant improvements in HIV knowledge, sexual self-efficacy, and duration of condom use at both 6-month and 12-month follow-up compared with the control group [11]. Other randomized controlled trials are also being conducted in the United States to continue implementing prevention approaches. One example is the “*Respecting the Circle of Life: Mind, Body, and Spirit*” program developed by Tingey L. et al. (2021) and implemented on a rural reservation in Arizona among adolescents aged 11–19 years. The primary objectives were to improve the effectiveness of key facilitators of sexual and reproductive health behavior change, including knowledge, self-efficacy, intentions, negotiation skills, and communication skills with parents. Results showed that participants who completed the training significantly improved communication skills with parents, increased self-efficacy, stronger intentions to use condoms and abstain from sex, and improved negotiation skills for contraception with parents. The study identified a pressing need for culturally appropriate, empowerment-based sexual health promotion programs outside of formal education systems, particularly in states such as Arizona where school-based sexuality education is limited [49]. Peer involvement and the use of interactive formats increase student engagement in educational programs [72, 73]. Long-term follow-up programs have a more lasting effect on adolescent behavioral habits [55, 75].

Digitalization and mobile platforms in prevention

Digitalization is also being actively implemented in the field of sexuality education [22]. For example, in a study by Macharia P. et al. (2022), an application based on USSD (Unstructured Supplementary Service Data), providing anonymous access to information on sexual and reproductive health, was tested among adolescents in Kibera, Kenya. More than half of the participants used the application at least once, and a significant proportion noted an improvement in the quality of their decision-making. Women more often accessed information about STIs, and 21.6% of adolescents were able to recognize the symptoms and stated their willingness to seek treatment. These results demonstrate the potential of mobile platforms in increasing awareness and accessibility of prevention [29]. Similar studies of preventive measures using mobile applications were conducted in Russia, specifically in Novosibirsk. As part of the project, a mobile application (*Personal Sexual Health*) was developed based on the results of a sociological survey of 2,711 young people. The application contributed to an improvement in the level of knowledge and awareness of the participants [9].

According to a number of international studies, the Internet is becoming an increasingly popular source of health information among young people [15, 27]. According to one survey, approximately 80% of adolescents consider online sources to be reliable, which highlights the need to improve the quality of digital content [32]. In the context of e-health, an important area is the development of mobile technologies (mHealth), which would significantly improve the accessibility and quality of medical services [21]. In the USA, SMS messages on sexual health issues are actively used, but confidentiality remains a problem [53]. The National Health Service in the UK, in turn, created a library of certified medical applications - *My Sex Doctor*, aimed at a young audience [25].

A 2022 study in the United States focused on the use of an app to trace contacts of STI patients to prevent further spread of infection. The process involved identifying sources of infection and new cases, which effectively reduced transmission through testing, preventive measures, and treatment. Notifying partners of patients diagnosed with STIs played a key role, as these partners had significantly higher infection rates than those randomly screened. The *INTEGRATE Joint Action (2022) program* developed the *Risk Radar app* to promote STI prevention in high-risk groups such as men who have sex with men, migrants, and prisoners. Despite its high effectiveness, the project was fraught with ethical and legal challenges, as well as privacy and cost issues [24]. Personalized digital services can be tailored to the individual needs and knowledge levels of adolescents [56, 57]. Virtual consultants and chatbots can reduce privacy barriers and increase willingness to seek help [58].

The role of primary health care and screening

The effectiveness of prevention is also increased by notifying partners of infected individuals [54]. As shown by the study by Jamison CD et al. (2022), partners of patients who received information and treatment demonstrated lower rates of reinfection [23]. Furthermore, counseling and testing for STIs lead to positive changes in sexual behavior [30].

Particular attention is paid to the quality of primary health care, where the integration of sexual health issues, including education on safe behavior, increases condom use and reduces the risk of STIs [74]. Regular screening for STIs, especially in high-risk groups (men who have sex with men, transgender women, bisexuals), is recommended regardless of the presence of symptoms [37]. For men who have sex with men and bisexual people, regular multicenter screening is of particular importance, regardless of the presence of clinical symptoms [20]. Therefore, when resources are sufficient, monitoring should be carried out among different groups of young people depending on the location [38, 64].

Despite recognition of the importance of regular testing, its coverage among young people remains low. A systematic review by Riddell J. et al. (2024) analyzed 18 programs aimed at promoting testing. The findings showed that social marketing elements (taking into account target settings, visual style, motivational messages) significantly increase the effectiveness of prevention initiatives [40]. Integrating preventive consultations into routine medical visits increases the accessibility of services for young people [59, 60, 61]. The use of multidisciplinary teams allows for more effective detection and prevention of new cases of STIs [62, 63].

The situation in Kazakhstan

It is believed that comprehensive care for young people with STI prevention should include three strategic areas: individual and group prevention, diagnosis and treatment [3, 16]. Condom use, timely STI testing and vaccination are examples of the main components of STI prevention [4, 5, 7]. According to a *MyVoice survey* conducted in August 2019 in Massachusetts, which studied the opinions of 1115 young people aged 14 to 24 years regarding the availability of screening and treatment for sexually transmitted infections, it was shown that the majority of American adolescents (69%) consider testing accessible, 95% are ready to inform their partners about the diagnosis. This indicated a high social responsibility in matters of sexual health [18]. In contrast, in the study of Rahman T. et al. (2024) conducted among young

people aged 16–24 years, only 55% of respondents reported having ever been tested for STIs, and only 44% had access to relevant services. The main barriers were embarrassment and a feeling of not having to seek treatment [39].

A similar situation is observed in Kazakhstan, where the situation with young people's awareness of STIs is not improving. For example, in a medical and sociological study conducted by *Vuiko I.V. et al. (2022)*, adolescents' knowledge of sexually transmitted infections (STIs) was assessed and aspects of primary prevention were discussed. The study revealed that 53.4% could not name a single STI, which indicates a serious knowledge gap. The level of awareness of rural adolescents was significantly lower than that of their urban peers. The level of parental education, especially the father's, was an important factor determining awareness of STIs: adolescents from families with highly educated parents demonstrated better knowledge. Among STIs, the highest awareness was of HIV/AIDS (51.3%) and syphilis (36.3%), while awareness of gonorrhea (10.1%) and trichomoniasis (2.2%) was alarmingly low [1].

Despite a slight decrease in officially registered cases of STIs in Kazakhstan, this may be due to insufficient diagnosis rather than a true reduction in incidence [6]. The data indicate the need to continue comprehensive educational and preventive measures targeting young people, especially those from rural and socially vulnerable groups. This epidemiological situation differs from global trends typical of developed countries such as the United States and European countries, where an increase in STI incidence has been observed in recent years. A steady decrease in registrations in Kazakhstan may indicate a positive effect of measures aimed at prevention and public awareness. However, to consolidate the achieved results and further improve the epidemiological situation, it is necessary to continue implementing comprehensive preventive programs [66, 68]. Involving local leaders and cultural intermediaries can increase adolescent trust in preventive programs. Developing educational campaigns based on the local context can improve the effectiveness of prevention among rural youth [67].

Conclusions

The analysis of literary sources has allowed us to determine that effective prevention of STIs among young people requires an integrated, multicomponent approach. Regular testing, counseling, treatment of infected people and their partners, as well as promotion of the use of barrier methods of contraception are recognized as the most effective measures. In addition, the inclusion of social marketing principles and the active use of media platforms increase the reach of the target audience and the effectiveness of preventive measures. It is also important to consider various social and behavioral factors such as stress levels, access to services, and stigmatization, which affect the availability of testing and treatment. In Kazakhstan, the situation with youth awareness about STIs remains insufficient, especially among teenagers from rural areas. Given the epidemiological situation, research into the organization and implementation of preventive measures requires constant monitoring and improvement of existing programs. It is important to investigate the impact of various factors, such as the availability of medical services, youth awareness, and social stereotypes, on the effectiveness of STI prevention. The development and implementation of innovative methods, including digital

technologies and the expansion of training programs, will significantly improve the results in combating the spread of infections.

Acknowledgments: None.

Conflict of Interest: The authors declare no conflicts of interest.

Author Contributions: All authors contributed equally to the preparation of this material.

Publication Information: This material has not previously been submitted for publication elsewhere and is not under consideration by other publishers.

Funding: This study was not funded.

References:

1. Вуйко И.В., Абишев А.Т., Таубаева А.А., Кабадиева Г.Ш., Тонконогова Н.В., Касенова О.В., Джусупалиева М.Х. Информированность подростков об инфекциях, передаваемых половым путем. Вопросы дерматологии и венерологии. 2022. №1-2. Р. 47-51. <https://kncdiz.kz/files/00010796.pdf> (дата обращения: 02.03.2025)
2. Закон Республики Казахстан от 26 декабря 2022 года № 168-VII ЗПК. О внесении изменений и дополнений в некоторые законодательные акты Республики Казахстан по вопросам государственной молодежной политики и социального обеспечения. <https://adilet.zan.kz/rus/docs/Z2200000168/info>. (дата обращения: 02.03.2025).
3. Камалов А.И. и др. Современные подходы профилактики и лечения инфекций, передаваемых половым путем. Central Asian Journal of Education and Innovation. 2024. Т. 3, №. 10. Р. 28-32. URL: <https://cyberleninka.ru/article/n/sovremennye-podhody-profilaktiki-i-lecheniya-infektsiy-peredavaemyh-polovym-putem> (дата обращения: 30.01.2025).
4. Крайнова П.О. Представления российских учителей об актуальности и содержании комплексного сексуального образования. Мир психологии. 2022. №. 4. Р. 111. https://doi.org/10.51944/20738528_2022_4_51 (дата обращения: 25.12.2024).
5. Курбанов Н.Т. Особенности сексуального поведения молодежи, детерминирующие рост заболеваемости инфекциями, передающимися половым путем, в Республике Таджикистан. Здравоохранение Таджикистана. 2021. №. 3. Р. 27-33. <https://doi.org/10.52888/0514-2515-2021-350-27-33> (дата обращения: 12.02.2025).
6. Маханбеткулова Д.Н., Лигаи З.Н. Репродуктивное здоровье девочек-подростков – как медико-социальная проблема Казахстана. Актуальные проблемы теоретической и клинической медицины. 2021. Т. 31. № 1. Р. 69-74. <https://doi.org/10.24412/2790-1289-2021-16974> (дата обращения: 28.02.2025).
7. Солтан М.М., Слайковская Л.А., Шукан В.М. Совершенствование социально-медицинской работы с подростками уязвимых групп в организациях здравоохранения. Вопросы организации здравоохранения. 2021. №3. Р. 1-9. <https://ies.unitech-mo.ru/files/upload/publications/15597/e4770c493c8dd73196700a9683ecb103.pdf> (дата обращения 05.03.2025).
8. Статистические сборники «Здоровье населения Республики Казахстан и деятельность организаций здравоохранения» URL:

http://www.rcrz.kz/index.php/ru/?option=com_content&view=article&id=973. (дата обращения: 01.03.2025).

9. Хрянин А.А., Русских М.В. Использование мобильного приложения в профилактике ИППП и ВИЧ-инфекции среди молодежи. Современные аспекты формирования здорового образа жизни. 2022. P. 198-204. https://www.elibrary.ru/download/elibrary_48601961_72055947.pdf (дата обращения: 06.03.2025).

10. Arakawa S. Education for prevention of STIs to young people (2021 version) Standardized slides in youth education for the prevention of sexually transmitted infections-for high school students and for junior high school students // Journal of Infection and Chemotherapy. 2021. T. 27. №. 10. P. 1375-1383. <https://doi.org/10.1016/j.jiac.2021.05.008> (accessed on: 25.02.2025)

11. Bauman L.J. et al. Reducing HIV/STI risk among adolescents aged 12 to 14 years: a randomized controlled trial of project prepared. Prevention Science. 2021. P. 1-13. <https://doi.org/10.1007/s11121-021-01203-0> (accessed on: 26.02.2025)

12. Boyer C.B. et al. A renewed call to action for addressing the alarming rising rates of sexually transmitted infections in US adolescents and young adults. Journal of Adolescent Health. 2021. T. 69. №. 2. P. 189-191. <https://doi.org/10.1016/j.jadohealth.2021.05.002> (accessed on: 27.02.2025)

13. De Peder L.D. et al. Prevalence of sexually transmitted infections and risk factors among young people in a public health center in Brazil: a cross-sectional study. Journal of Pediatric and Adolescent Gynecology. 2020. T. 33. №. 4. P. 354-362. <https://doi.org/10.1016/j.jpjg.2020.02.008> (accessed on: 28.02.2025)

14. Du M. et al. Increasing incidence rates of sexually transmitted infections from 2010 to 2019: an analysis of temporal trends by geographical regions and age groups from the 2019 Global Burden of Disease Study. BMC Infectious Diseases. 2022. T. 22. №. 1. P. 574. <https://doi.org/10.1186/s12879-022-07544-7> (accessed on: 01.03.2025)

15. Gan J. et al. What do young people in high-income countries want from STI testing services? A systematic review. Sexually Transmitted Infections. 2021. T. 97. №. 8. P. 574-583. <https://doi.org/10.1136/sextrans-2021-055044> (accessed on: 02.03.2025)

16. Getachew M. et al. Magnitude of self-reported syndromes of sexually transmitted infections and its associated factors among young incarcerated persons (18–29 years) in correctional facilities of Gamo Gofa zone, southern Ethiopia. Risk Management and Healthcare Policy. 2021. P. 21-29. <https://doi.org/10.2147/RMHP.S285289> (accessed on: 03.03.2025)

17. Global Accelerated Action for the Health of Adolescents (AA-HAI): guidance to support country implementation. Summary. Geneva: World Health Organization; 2017. P. 2-44. <https://iris.who.int/bitstream/handle/10665/255418/WHO-FWC-MCA-17.05-eng.pdf?sequence=1> (accessed on: 04.03.2025)

18. Gogineni V. et al. The future of STI screening and treatment for youth: a National Survey of youth perspectives and intentions // BMC Public Health. 2021. T. 21. P. 1-8. <https://doi.org/10.1186/s12889-021-12091-y> (accessed on: 05.03.2025)

19. Gottlieb S.L. et al. WHO global research priorities for sexually transmitted infections // The Lancet Global Health. 2024. T. 12. №. 9. С. e1544-e1551. [https://doi.org/10.1016/S2214-109X\(24\)00266-3](https://doi.org/10.1016/S2214-109X(24)00266-3) (accessed on: 06.03.2025)

20. Harvey-Lavoie S. et al. Community-Based prevalence estimates of Chlamydia trachomatis and Neisseria gonorrhoeae infections among gay, bisexual, and other men who have sex with men in Montréal, Canada. Sexually Transmitted Diseases. 2021. T. 48. №. 12. P. 939-944. <https://doi.org/10.1097/OLQ.0000000000001486> (accessed on: 07.03.2025)

21. Jackson L. et al. Exploring young people's preferences for STI screening in the UK: a qualitative study and discrete choice experiment. Social Science & Medicine. 2021. T. 279. P. 113945. <https://doi.org/10.1016/j.socscimed.2021.113945> (accessed on: 08.03.2025)

22. Jakob R. et al. Factors influencing adherence to mHealth apps for prevention or management of noncommunicable diseases: systematic review. Journal of Medical Internet Research. 2022. T. 24. №. 5. P. e35371. <https://doi.org/10.2196/35371> (accessed on: 09.03.2025)

23. Jamison C.D. et al. Youth knowledge and perspectives on expedited partner therapy. Journal of Adolescent Health. 2022. T. 70. №. 1. P. 114-119. <https://doi.org/10.1016/j.jadohealth.2021.06.021> (accessed on: 10.03.2025)

24. Kakalou C. et al. A GDPR-compliant partner notification service. Informatics and Technology in Clinical Care and Public Health. IOS Press, 2022. P. 460-464. <https://doi.org/10.3233/SHTI210957> (accessed on: 20.02.2025)

25. King A.J. et al. User experiences of an AI application for predicting risk of sexually transmitted infections. Digital Health. 2024. T. 10. P. 20552076241289646. <https://doi.org/10.1177/20552076241289646> (accessed on: 21.02.2025)

26. Leslie R. Walker-Harding, Deborah Christie, Alain Joffe. Young Adult Health and Well-Being: A Position Statement of the Society for Adolescent Health and Medicine. Journal of Adolescent Health. 2017. T. 60. P. 758-759. [https://www.jahonline.org/article/S1054-139X\(17\)30164-7/pdf](https://www.jahonline.org/article/S1054-139X(17)30164-7/pdf) (accessed on: 22.02.2025)

27. Ludwick T. et al. Moving towards online-based STI testing and treatment services for young people: who will use it and what do they want? Sexually Transmitted Diseases. 2023. P. 10.1097. <https://doi.org/10.1097/OLQ.0000000000001899> (accessed on: 23.02.2025)

28. Mahar F., Sherrard J. Sexually transmitted infections // Sexual Health and the Menopause. 2024. P. 55-62. <https://doi.org/10.1097/Somehing> (accessed on: 24.02.2025)

29. Macharia P. et al. An unstructured supplementary service data-based mHealth app providing on-demand sexual reproductive health information for adolescents in Kibra, Kenya: randomized controlled trial. JMIR mHealth and uHealth. 2022. T. 10. №. 4. P. e31233. <https://doi.org/10.2196/31233> (accessed on: 25.02.2025)

30. Malama K. et al. Evolution of condom use among a 5-year cohort of female sex workers in Zambia // AIDS and Behavior. 2022. P. 1-8. <https://doi.org/10.1007/s10461-021-03403-9> (accessed on: 26.02.2025)

31. Martin K. et al. Uptake of and factors associated with testing for sexually transmitted infections in community-based

settings among youth in Zimbabwe: a mixed-methods study // *The Lancet Child & Adolescent Health*. 2021. T. 5. № 2. P. 122-132. [https://doi.org/10.1016/S2352-4642\(20\)30335-7](https://doi.org/10.1016/S2352-4642(20)30335-7) (accessed on: 27.02.2025)

32. *Martin P. et al.* Young people's proposals for a web-based intervention for sexual health promotion: a French qualitative study. *BMC Public Health*. 2023. T. 23. № 1. P. 1389. <https://doi.org/10.1186/s12889-023-16257-8> (accessed on: 28.02.2025)

33. *Mitchell A., Moore S., Rosenthal D.* Youth, AIDS and sexually transmitted diseases. – Routledge, 2020. <https://doi.org/10.4324/9781315788111> (accessed on: 01.03.2025)

34. *Mokgatle M.M., Madiba S., Cele L.* A Comparative Analysis of Risky Sexual Behaviors, Self-Reported Sexually Transmitted Infections, Knowledge of Symptoms and Partner Notification Practices among Male and Female University Students in Pretoria, South Africa. *Int J Environ Res Public Health*. 2021. T. 18. № 11. P. 5660. <https://doi.org/10.3390/ijerph18115660> (accessed on: 02.03.2025)

35. *Molla G., Desalegn A., Tigu F.* Prevalence of Gonorrhea and Associated Knowledge, Attitude and Risky Behaviors and Preventive Practices Among High School Students: A Cross-Sectional Study. *J Community Health*. 2021. T. 46. № 2. P. 358-366. <https://doi.org/10.1007/s10900-020-00945-2> (accessed on: 03.03.2025)

36. *Peltzer K., Pengpid S.* Health risk behaviours among adolescents in Argentina: trends between 2007, 2012 and 2018 national cross-sectional school surveys. *BMC Pediatrics*. 2021. Vol. 21, Article 464. <https://doi.org/10.1186/s12887-021-02929-0> (accessed on: 04.03.2025)

37. *Poteat T. et al.* Characterising HIV and STIs among transgender female sex workers: a longitudinal analysis. *Sexually Transmitted Infections*. 2021. T. 97. № 3. P. 226-231. <https://doi.org/10.1136/sextrans-2019-054414> (accessed on: 05.03.2025)

38. *Qu Z. et al.* Effect of screening young men for Chlamydia trachomatis on the rates among women: a network modelling study for high-prevalence communities // *BMJ Open*. 2021. T. 11. № 1. P. e040789. <https://doi.org/10.1136/bmjopen-2020-040789> (accessed on: 06.03.2025)

39. *Rahman T. et al.* Increasing awareness of sexually transmitted infections (STI) testing and addressing stigma may improve STI testing in Aboriginal and Torres Strait Islander youth: Evidence from the Next Generation Youth Wellbeing Study. *Australian and New Zealand Journal of Public Health*. 2024. T. 48. № 6. P. 100203. <https://doi.org/10.1016/j.anzjph.2024.100203> (accessed on: 07.03.2025)

40. *Riddell J. et al.* Social marketing and mass media interventions to increase sexually transmissible infections (STIs) testing among young people: social marketing and visual design component analysis. *BMC Public Health*. 2024. T. 24. № 1. P. 620. <https://doi.org/10.1186/s12889-024-18095-8> (accessed on: 08.03.2025)

41. *Sawyer S.M., Azzopardi P.S., Wickremarathne D., Patton G.C.* The age of adolescence. *Lancet Child Adolesc Health*. 2018. T. 2. № 3. P. 223-228. [https://doi.org/10.1016/S2352-4642\(18\)30022-1](https://doi.org/10.1016/S2352-4642(18)30022-1) (accessed on: 09.03.2025)

42. *Sharma S.K., Vishwakarma D.* Transitions in adolescent boys and young men's high-risk sexual behaviour in India. *BMC Public Health*. 2020. T. 20. P. 1-14. <https://doi.org/10.1186/s12889-020-09191-6> (accessed on: 10.03.2025)

43. *Silva C.F. et al.* Young people awareness of sexually transmitted diseases and contraception: a Portuguese population-based cross-sectional study. *International Journal of Environmental Research and Public Health*. 2022. T. 19. № 21. P. 13933. <https://doi.org/10.3390/ijerph192113933> (accessed on: 20.02.2025)

44. *Szucs L.E. et al.* The CDC's Division of Adolescent and School Health approach to sexual health education in schools: 3 decades in review. *Journal of School Health*. 2022. T. 92. № 2. P. 223-234. <https://doi.org/10.1111/josh.13115> (accessed on: 21.02.2025)

45. *Taylor M.M. et al.* Assessment of country implementation of the WHO global health sector strategy on sexually transmitted infections (2016–2021). *PLoS One*. 2022. T. 17. № 5. C. e0263550. <https://doi.org/10.1371/journal.pone.0263550> (accessed on: 22.02.2025)

46. *Thepthien B., Celyn.* Risky sexual behavior and associated factors among sexually-experienced adolescents in Bangkok, Thailand: findings from a school web-based survey. *Reproductive Health*. 2022. T. 19. № 1. C. 127. <https://doi.org/10.1186/s12978-022-01429-3> (accessed on: 23.02.2025)

47. *Ti A. et al.* Contraceptive values and preferences of adolescents and young adults: a systematic review. *Contraception*. 2022. T. 111. C. 22-31. <https://doi.org/10.1016/j.contraception.2021.05.018> (accessed on: 24.02.2025)

48. *Tien V., Punjabi C., Holubar M.K.* Antimicrobial resistance in sexually transmitted infections. *Journal of Travel Medicine*. 2020. T. 27. № 1. P. 101. <https://doi.org/10.1093/jtm/taz101> (accessed on: 25.02.2025)

49. *Tingey L. et al.* Prevention of sexually transmitted diseases and pregnancy prevention among Native American youths: a randomized controlled trial, 2016–2018. *American Journal of Public Health*. 2021. T. 111. № 10. P. 1874-1884. <https://doi.org/10.2105/AJPH.2021.306447> (accessed on: 26.02.2025)

50. *Tirado V. et al.* "One-time interventions, it doesn't lead to much" – healthcare provider views to improving sexual and reproductive health services for young migrants in Sweden. *BMC Health Services Research*. 2022. T. 22. № 1. C. 668. <https://doi.org/10.1186/s12913-022-07945-z> (accessed on: 27.02.2025)

51. *Tohit N.F.M., Haque M.* Forbidden conversations: A comprehensive exploration of taboos in sexual and reproductive health. *Cureus*. 2024. T. 16. № 8. C. e66723. <https://doi.org/10.7759/cureus.66723> (accessed on: 28.02.2025)

52. *Torres-Cortés B. et al.* Shared components of worldwide successful sexuality education interventions for adolescents: a systematic review of randomized trials. *International Journal of Environmental Research and Public Health*. 2023. T. 20. № 5. C. 4170. <https://doi.org/10.3390/ijerph20054170> (accessed on: 01.03.2025)

53. Traeger M., Stoové M. Why risk matters for STI control: who are those at greatest risk and how are they identified? *Sexual Health*. 2022. <https://doi.org/10.1071/SH22053> (accessed on: 02.03.2025)
54. Tuddenham S., Hamill M.M., Ghanem K.G. Diagnosis and treatment of sexually transmitted infections: a review. *JAMA*. 2022. T. 327. № 2. P. 161-172. <https://doi.org/10.1001/jama.2021.23487> (accessed on: 03.03.2025)
55. Valentine J.A. et al. Improving sexual health in US rural communities: reducing the impact of stigma. *AIDS and Behavior*. 2022. T. 26. № Suppl 1. C. 90-99. <https://doi.org/10.1007/s10461-021-03416-4> (accessed on: 04.03.2025)
56. Vallejo-Ortega M. T. et al. A systematic review of the prevalence of selected sexually transmitted infections in young people in Latin America. *Revista Panamericana de Salud Pública*. 2023. T. 46. C. e73. <https://doi.org/10.26633/RPSP.2022.73> (accessed on: 05.03.2025)
57. Van Gerwen O.T., Muzny C.A., Marrazzo J.M. Sexually transmitted infections and female reproductive health. *Nature Microbiology*. 2022. T. 7. № 8. C. 1116-1126. <https://doi.org/10.1038/s41564-022-01177-x> (accessed on: 06.03.2025)
58. VanBenschoten H.M., Woodrow K.A. Vaginal delivery of vaccines. *Advanced Drug Delivery Reviews*. 2021. T. 178. P. 113956. <https://doi.org/10.1016/j.addr.2021.113956> (accessed on: 07.03.2025)
59. Versloot-Swildens M.C. et al. Effectiveness of a comprehensive school-based sex education program for young adolescents in the Netherlands. *Journal of Youth and Adolescence*. 2024. T. 53. № 4. C. 998-1014. <https://doi.org/10.1007/s10964-023-01903-6> (accessed on: 08.03.2025)
60. Vincent R., Krishnakumar K. School-based interventions for promoting sexual and reproductive health of adolescents in India: a review. *Journal of Psychosexual Health*. 2022. T. 4. № 2. C. 102-110. <https://doi.org/10.1177/26318318221089621> (accessed on: 09.03.2025)
61. Voyiatzaki C. et al. Awareness, knowledge and risky behaviors of sexually transmitted diseases among young people in Greece // *International Journal of Environmental Research and Public Health*. 2021. T. 18. № 19. P. 10022. <https://doi.org/10.3390/ijerph181910022> (accessed on: 10.03.2025)
62. Vrankovich S., Hamilton G., Powell A. Young adult perspectives on sexuality education in Australia: implications for sexual violence primary prevention. *Sex Education*. 2025. T. 25. № 5. C. 615-630. <https://doi.org/10.1080/14681811.2024.2367216> (accessed on: 20.02.2025)
63. Wanga V. et al. Cost of pre-exposure prophylaxis delivery in family planning clinics to prevent HIV acquisition among adolescent girls and young women in Kisumu, Kenya. *PLoS One*. 2021. T. 16. № 4. C. e0249625. <https://doi.org/10.1371/journal.pone.0249625> (accessed on: 21.02.2025)
64. Whelan J. et al. Gonorrhoea: a systematic review of prevalence reporting globally // *BMC Infectious Diseases*. 2021. T. 21. № 1. C. 1152. <https://doi.org/10.1186/s12879-021-06381-4> (accessed on: 22.02.2025)
65. Wong J.Y.H. et al. An interactive web-based sexual health literacy program for safe sex practice for female Chinese university students: multicenter randomized controlled trial // *Journal of Medical Internet Research*. 2021. T. 23. № 3. C. e22564. <https://doi.org/10.2196/22564> (accessed on: 23.02.2025)
66. Workowski K.A., Bachmann L.H. Centers for Disease Control and Prevention's sexually transmitted diseases infection guidelines. *Clinical Infectious Diseases*. 2022. T. 74. № Supplement 2. C. S89-S94. <https://doi.org/10.1093/cid/ciab1055> (accessed on: 24.02.2025)
67. World Health Organization. WHO expands guidance on sexually transmitted infections and reviews country progress on policy implementation [Electronic resource]. WHO. 2025. Available at: <https://www.who.int/news/item/26-07-2025-who-expands-guidance-on-sexually-transmitted-infections-and-reviews-country-progress-on-policy-implementation>. (Accessed on: 10.03.2025)
68. World Health Organization. Sexually transmitted infections (STIs) [Electronic resource]. WHO. 2025. Available at: <https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-%28stis%29>. (Accessed on: 11.03.2025)
69. World Health Organization. Six actions to improve adolescent health [Electronic resource]. WHO. – 2025. – Available at: <https://www.who.int/news-room/spotlight/six-actions-to-improve-adolescent-health>. (Accessed on: 11.03.2025)
70. World Health Organization. Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030 [Electronic resource]. WHO. – 2022. – Available at: <https://www.who.int/reproductivehealth/publications/rtis/ghss-stis/en/>. (Accessed on: 01.03.2025)
71. World Health Organization. Report on sexually transmitted infections [Electronic resource]. – 2024. – Available at: [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)). (Accessed on: 01.03.2025)
72. Young Holt B., Turpin J.A., Romano J. Multipurpose prevention technologies: opportunities and challenges to ensure advancement of the most promising MPTs. *Frontiers in Reproductive Health*. 2021. T. 3. C. 704841. <https://doi.org/10.3389/frph.2021.704841> (accessed on: 25.02.2025)
73. Young S.D., Crowley J.S., Vermund S.H. Artificial intelligence and sexual health in the USA. *The Lancet Digital Health*. 2021. T. 3. № 8. C. e467-e468. [https://doi.org/10.1016/S2589-7500\(21\)00117-5](https://doi.org/10.1016/S2589-7500(21)00117-5) (accessed on: 26.02.2025)
74. Zaneva M. et al. What is the added value of incorporating pleasure in sexual health interventions? A systematic review and meta-analysis. *PLoS One*. 2022. T. 17. № 2. P. e0261034. <https://doi.org/10.1371/journal.pone.0261034> (accessed on: 27.02.2025)
75. Zhang J. et al. Global, regional, and national burdens of HIV and other sexually transmitted infections in adolescents and young adults, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet Child & Adolescent Health*. 2022. T. 6. № 3. C. 201-215.

[https://doi.org/10.1016/S2352-4642\(21\)00386-2](https://doi.org/10.1016/S2352-4642(21)00386-2) (accessed on: 28.02.2025)

References: [1-9]

1. Vuyko I.V., Abishev A.T., Taubaeva A.A., Kabazieva G.Sh., Tonkonogova N.V., Kasenova O.V., Dzhusupgalieva M. Kh. Informirovannost' podrostkov ob infektsiyakh, peredavaemykh polovym putem [Awareness of sexually transmitted infections among adolescents] // Voprosy dermatologii i venerologii [Issues of dermatology and venereology] 2022. №1-2. pp. 47 - 51. <https://kncdiz.kz/files/00010796.pdf> [in Russian].

2. Zakon Respubliki Kazakhstan ot 26 dekabrya 2022 goda № 168-VII ZRK. O vnesenii izmenenii i dopolnenii v nekotorye zakonodatel'nye akty Respubliki Kazakhstan po voprosam gosudarstvennoi molodezhnoi politiki i sotsial'nogo obespecheniya. [Law of the Republic of Kazakhstan dated December 26, 2022 No. 168-VII ZPK. On Amendments and Supplements to Certain Legislative Acts of the Republic of Kazakhstan on State Youth Policy and Social Security]. <https://adilet.zan.kz/rus/docs/Z2200000168/info>. [in Russian].

3. Kamalov A. I. i dr. Sovremennye podkhody profilaktiki i lecheniya infektsiy, peredavaemykh polovym putem [Modern approaches to the prevention and treatment of sexually transmitted infections] // Central Asian Journal of Education and Innovation. 2024. T. 3, №. 10. S. 28-32. [in Russian].

4. Kraynova P.O. Predstavleniya rossiyskikh uchiteley ob aktual'nosti i sodержanii kompleksnogo seksual'nogo obrazovaniya [Russian teachers' views on the relevance and content of comprehensive sexuality education] // Mir psikhologii [The world of psychology]. 2022. №. 4. S. 111. [in Russian].

5. Kurbanov N.T. Osobennosti seksual'nogo povedeniya molodezhi, determiniruyushchie rost zabolevaemosti

infektsiyami, peredayushchimisya polovym putem, v Respublike Tadjikistan [Features of sexual behavior of young people that determine the increase in the incidence of sexually transmitted infections in the Republic of Tajikistan] // Zdravookhranenie Tadjikistana [Healthcare in Tajikistan]. 2021. №. 3. S. 27-33. [in Russian].

6. Makhanbetkulova D.N., Ligay Z.N. Reproaktivnoe zdorov'e devochek-podrostkov-kak mediko-sotsial'naya problema Kazakhstana [Reproductive health of adolescent girls as a medical and social problem in Kazakhstan] // Aktual'nye problemy teoreticheskoy i klinicheskoy meditsiny [Current problems of theoretical and clinical medicine]. 2021. T. 31. № 1. S. 69-74. [in Russian].

7. Soltan M.M., Slaykovskaya L.A., Shukan V.M. Sovershenstvovanie sotsial'no-meditsinskoy raboty s podrostkami uyazvimykh grupp v organizatsiyakh zdavookhraneniya [Improving social and medical work with adolescents of vulnerable groups in healthcare organizations] // Voprosy organizatsii i informatizatsii zdavookhraneniya [Issues of organization and informatization of healthcare]. 2021. №3. pp. 1-9. [in Russian].

8. Statisticheskie sborniki «Zdorov'e naseleniya Respubliki Kazakhstan i deyatel'nost' organizatsiy zdavookhraneniya» URL: http://www.rcrz.kz/index.php/ru/?option=com_content&view=article&id=973. (data obrashcheniya: 01.03.2025). [in Russian].

9. Khryanin A. A., Russkikh M. V. Ispol'zovanie mobil'nogo prilozheniya v profilaktike ippp i vich-infektsii sredi molodezhi [The use of a mobile application in the prevention of STIs and HIV infection among young people] // Sovremennye aspekty formirovaniya zdorovogo obraza zhizni [Modern aspects of healthy lifestyle formation]. 2022. S. 198-204. [in Russian].

Information about author

Turekhanova Aizhan Jambulbayevna - master of Medical Sciences, doctoral student in the specialty "Public Health", Kazakhstan Medical University "KSPH", assistant of the Department "Obstetrics and gynecology", Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan, tel.: 87089680232, e-mail: Aizhan_tt@mail.ru, ORCID <https://orcid.org/0000-0001-6040-4187>

Turdaliyeva Botagoz Seitovna - doctor of Medical Sciences, Professor, Deputy Director for scientific activity and strategic development of the RSE on PCV "Kazakh scientific center of Dermatology and Infectious Diseases", Almaty, Republic of Kazakhstan, tel.: 874741264725, e-mail: bot.turd@gmail.com, ORCID <https://orcid.org/0000-0001-9884-0777>

Jusupgaliyeva Marziya Khakimovna - candidate of biological sciences, specialist-Statistician of the Department of information and analytical monitoring and strategic development of the RSE on PCV "Kazakh scientific center of Dermatology and Infectious Diseases", Almaty, Republic of Kazakhstan, tel.: 87079635002, e-mail: dzhusupgalieva@mail.ru, ORCID <https://orcid.org/0009-0002-2229-5682>

Imasheva Bayan Imashkyzy - (corresponding author) - master of Health, doctoral student in the specialty "public health", Kazakhstan Medical University "KSPH", assistant of the Department "Obstetrics and gynecology", Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan, tel.: 87011333359, e-mail: imasheva_bayan@nbox.ru, ORCID <https://orcid.org/0000-0003-2261-4428>

Corresponding author:

Imasheva Bayan Imashkyzy - master of Health, doctoral student in the specialty "public health", Kazakhstan Medical University "KSPH", assistant of the Department "Obstetrics and gynecology", Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan;

Address: 050000, Republic of Kazakhstan, Almaty, Utepova 19 A.

E-mail: imasheva_bayan@nbox.ru

Phone: +7 701 133 33 59