



AIDS

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ABSTRACT

This comprehensive essay provides an in-depth exploration of Acquired Immunodeficiency Syndrome (AIDS), tracing its historical roots, examining the virology of Human Immunodeficiency Virus (HIV), and analyzing the global epidemiology of the pandemic. The essay delves into the societal impact of AIDS, discussing the enduring challenges of stigma and discrimination. It highlights the transformative impact of medical advancements, such as antiretroviral therapy (ART), and addresses ongoing challenges in the fight against AIDS. The essay concludes with a forward-looking perspective, considering future prospects, global initiatives, and the continued journey towards eradicating AIDS.

Introduction. Acquired Immunodeficiency Syndrome (AIDS), caused by the Human Immunodeficiency Virus (HIV), has left an indelible mark on global public health since its emergence in the late 20th century. This expanded essay seeks to comprehensively explore the multifaceted dimensions of AIDS, encompassing its historical context, the virology of HIV, global epidemiology, societal impact, medical advancements, and ongoing challenges in the fight against this devastating pandemic.

What is AIDS? AIDS stands for acquired immunodeficiency syndrome, a pattern of devastating infections caused by the human immunodeficiency virus, or HIV, which attacks and destroys certain white blood cells that are essential to the body's immune system. When HIV infects a cell, it combines with that cell's genetic material and may lie inactive for years. Most people infected with HIV are still healthy and can live for years with no symptoms or only minor illnesses. They are infected with HIV, but they do not have AIDS. After a variable period of time, the virus becomes activated and then leads progressively to the serious infections and other conditions that characterize AIDS. Although there are treatments that can extend life, AIDS is a fatal disease. Research continues on possible vaccines and, ultimately, a cure. For the moment, however, prevention of transmission remains the only method of control.



The route of infection in adults. HIV targets two groups of white blood cells called CD4+ lymphocytes and monocytes/ macrophages. Normally, CD4+ cells and macrophages help recognize and destroy bacteria, viruses or other infectious agents that invade a cell and cause disease. In an HIV-infected person, the CD4+ lymphocytes are killed by the virus, while the macrophages act as reservoirs, carrying HIV to a number of vital organs. HIV attaches itself to the CD4+ lymphocyte and makes its way inside. This causes the cell to produce more HIV but, in doing so, the cell is destroyed. As the body's CD4+ cells are depleted, the immune system weakens and is less able to fight off viral and bacterial infections. The infected person becomes susceptible to a wide range of "opportunistic" infections, such as *Pneumocystis carinii* pneumonia, which rarely occurs in persons with normal immune systems. Tuberculosis (TB) poses a particular threat to HIV-positive people, especially in areas of the world where both TB and HIV infection are increasing at alarming rates. Millions of TB carriers who would otherwise have escaped active tuberculosis are now developing the disease because their immune systems are under attack from HIV. TB also progresses faster in HIV-infected persons, and is more likely to be fatal if undiagnosed or untreated. TB is now the leading killer of HIV-infected Africans. HIV-infected persons are also more susceptible to otherwise rare cancers such as Kaposi's sarcoma, a tumour of the blood vessels or the lymphatic vessels. HIV may also attack the brain, causing neurological and neuro-psychiatric problems. In general, about 50 percent of HIV-infected adults are likely to develop AIDS within 10 years after first becoming infected. The good news is that early treatment with improved drugs is significantly prolonging life for persons with AIDS.

Most HIV-infected infants and children acquired the infection from their mothers before, during or shortly after birth, or during breastfeeding. Only a small proportion are infected through HIV-contaminated blood transfusions or injections. There are two patterns of disease progression in children infected from birth. About half these children progress rapidly to AIDS, but others remain symptom free for years, as adults do. Studies show that, in developed countries, approximately two-thirds of infected children are still alive at age 5 years. In developing countries, the figure ranges between 30 and 65 percent.

AIDS and work For the vast majority of occupations, the workplace does not pose a risk of acquiring HIV. The exceptions include laboratory workers, health care workers, persons dealing with hospital waste products, emergency medical response personnel and any other occupation where there is a possibility of exposure to blood. Their risk is very low, but real. Among the hazards to which these persons may be exposed are needlestick injuries and other skinpiercing accidents, and blood splashing into the eyes while they are administering treatment or otherwise performing their duties.

AIDS and sports. There are no documented cases of HIV being transmitted during participation in a sports activity. The very low risk of transmission during sports participation would involve sports with direct body contact in which bleeding might be expected to occur (10). It is theoretically possible for the virus to be transmitted if an HIV-infected athlete had a bleeding wound or skin lesion with fluids that came in contact with another athlete's skin lesion, cut or exposed mucous membrane. Even in such an unlikely event, risk of transmission would be very low. However, in sports involving direct body contact or combative sports where bleeding might occur, it is sensible to follow two simple procedures:



- cleanse any skin lesion with antiseptic and cover it securely; and
- if a bleeding injury occurs, interrupt participation until the bleeding has stopped and the wound has been both cleansed with antiseptic and securely covered.

Historical Context: The roots of the AIDS pandemic trace back to the 1980s, when clusters of unusual illnesses were reported, primarily affecting gay communities. The identification of HIV as the causative agent marked a turning point in understanding the virus's transmission and progression to AIDS.

Virology of HIV: HIV, a retrovirus, targets the immune system, specifically CD4 T cells. The virus enters these cells, replicates, and progressively weakens the immune response, leading to immunodeficiency. Understanding the virological mechanisms of HIV has been pivotal in developing treatment strategies.

Global Epidemiology: AIDS has evolved into a global pandemic, affecting millions worldwide. Sub-Saharan Africa remains disproportionately affected, but the virus has also impacted diverse populations globally. The epidemiological landscape has witnessed shifts over time, influenced by social, economic, and cultural factors.

Societal Impact: Beyond its biological implications, AIDS has had profound societal consequences. Stigma and discrimination surrounding HIV/AIDS persist, hindering prevention efforts and affecting the well-being of individuals living with the virus. The pandemic has also exposed existing health disparities and inequalities.

Medical Advancements: The advent of antiretroviral therapy (ART) revolutionized the management of HIV/AIDS. ART suppresses viral replication, preserves immune function, and significantly extends the lifespan of those living with HIV. Prevention strategies, including pre-exposure prophylaxis (PrEP), have played a pivotal role in reducing transmission.

Ongoing Challenges: Despite progress, challenges persist. Access to treatment remains unequal, with disparities in resource-limited regions. Stigma continues to impede testing and treatment adherence. Viral resistance and the quest for a cure remain active areas of research.

Prevention and Education: Preventing new infections is central to controlling the AIDS pandemic. Comprehensive sex education, access to condoms, and outreach programs contribute to prevention. Raising awareness and destigmatizing HIV/AIDS are integral components of educational efforts.

Global Initiatives: International organizations, governments, and non-profits have spearheaded global initiatives to combat AIDS. The Joint United Nations Programme on HIV/AIDS (UNAIDS) has played a crucial role in coordinating efforts, setting targets, and advocating for a unified response.

Future Prospects: Research into vaccines, long-acting antiretrovirals, and novel treatment modalities offers hope for the future. Ongoing commitment to addressing social determinants of health and ensuring equitable access to care is vital for sustained progress.

The UN Response to AIDS Meeting the complex long-term challenge of HIV/AIDS calls for an expanded response. Direct health interventions and action to influence AIDS prevention and care must be pursued and intensified, while innovative action must address the broader context of the epidemic, including its socio-economic causes and consequences. The Joint United Nations Programme on HIV/AIDS (UNAIDS) was established in January 1996 for this purpose. UNAIDS is a cosponsored programme that brings together the United Nations



Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the United Nations International Drug Control Programme (UNDCP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO) and the World Bank in a common effort against the epidemic. The UNAIDS Cosponsors bring to this effort complementary mandates and multisectoral expertise, ranging from education and socio-economic development to women's reproductive health. They are committed to joint planning and action, giving UNAIDS a "cooperative advantage". Benefits include more effective advocacy, more effective use of UN system resources through the sharing of costs, and greater coherence in United Nations support to national AIDS programmes.

Guiding principles:

- Strengthening of countries' capacity for long-term action ranging from prevention and care to impact alleviation.
- Identification and use of technically-sound policies, strategies and tools.
- Societal and structural changes to reduce the vulnerability of women, young people, migrants, drug users, sexual and ethnic minorities, and other population groups.
- Supportive social, political and legal environments that allow individuals to exercise their responsibility to protect themselves and others from HIV infection.
- Entitlement to all human rights without discrimination, including discrimination based on HIV infection status. These include the right to health, travel and privacy, the right to freedom from sexual violence and coercion, and the right to the information and means to prevent infection.

Global and local impact. At the global level, UNAIDS is the AIDS programme of the seven Cosponsors and is responsible for policy development and research, technical support, advocacy and coordination. At the same time, the seven cosponsoring organizations integrate HIV/AIDS-related issues and UNAIDS policies and strategies into their ongoing work. At the country level, UNAIDS can best be seen as the sum of AIDS-related activities carried out by its Cosponsors with the backing of UNAIDS technical guidance and resources. In countries where some or all of the Cosponsors are present, their representatives meet regularly in a special UN Theme Group to jointly plan, implement and evaluate AIDS-related activities. UN staff who are HIV-positive are encouraged to participate in these Theme Groups for they lend both technical expertise and personal perspective to issues surrounding HIV infection. These staff also help educate their colleagues about the stigma and discrimination that infected individuals face in the workplace. In addition, UNAIDS staff known as Country Programme Advisers are posted in selected countries to support the UN Theme Groups on HIV/AIDS, to strengthen cooperation with national partners and to provide technical support. Important partners in national AIDS activities include governments (through both political leadership and the relevant ministries); community-based organizations; nongovernmental organizations (NGOs); the private sector; academic and research institutes; religious and other social and cultural institutions; and people living with HIV/AIDS. The programme also supports research to develop new tools and innovative approaches for slowing the spread of HIV and improving the quality of life of people living with HIV/AIDS. Examples are vaccine development, vaginal microbicides for



women, methods of reducing mother-to-child transmission of HIV, and improved methods for preventing and treating the common opportunistic infections in HIV-infected individuals.

Conclusion: A Continuing Journey Towards Eradication. AIDS, once considered a death sentence, has transformed into a manageable chronic condition. However, the journey towards eradication is ongoing. This expanded essay encapsulates the multifaceted aspects of AIDS, from its historical emergence to current global efforts. By acknowledging achievements, understanding challenges, and emphasizing the importance of collective action, society can move closer to the goal of ending the AIDS pandemic and ensuring a healthier, more equitable future for all.

In the fight against AIDS, education, prevention, and access to treatment are paramount. The collaboration of communities, healthcare professionals, and policymakers is essential for creating a world where AIDS is no longer a threat to global health.

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