THE HISTORY AND PRESENCE OF HIV/AIDS

IN THE CONTEXT OF THE CURRENT SITUATION

THESIS IN PREVENTIVE MEDICINE

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ABSTRACT

HIV infection in humans is considered pandemic by the World Health Organization (WHO). It is the most common cause of death worldwide, in the age group from 18 to 45 years.

In this thesis, I will try to clarify the problems and possible solutions and outcomes of the fight against the HIV pandemic. I will specifically go into the origin of the epidemic, how it was introduced to the western world, the current worldwide situation, and a comparison between Scandinavian countries and neighboring countries, such as Russia, where the epidemic is escalating. I will also briefly explain the facts around the Human Immunodeficiency Virus, and finally; the next step in fighting the virus and its global complications.

INTRODUCTION

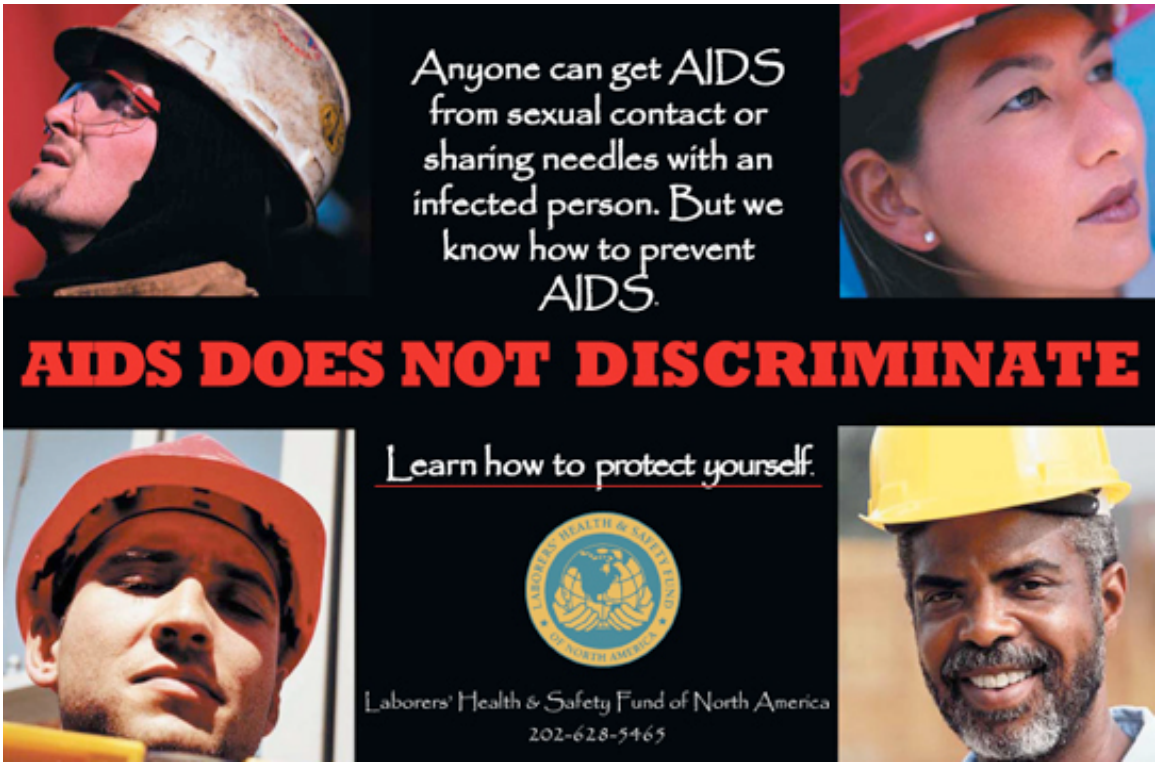
From its discovery in 1981 to 2006, AIDS has killed more than 25 million people. HIV infects about 0.6% of the world's population. In 2005 alone, AIDS claimed an estimated 2.4–3.3 million lives, of which more than 570,000 were children. A third of these deaths are occurring in sub-Saharan Africa, retarding economic growth and increasing poverty. According to current estimates, HIV is set to infect 90 million people in Africa, resulting in a minimum estimate of 18 million orphans. Antiretroviral treatment reduces both the mortality and the morbidity of HIV infection, but routine access to antiretroviral medication is not available in all countries.

Several factors contribute to the spread of the HIV virus, all of which I will go into in the following text.

Numerous theories are linked to the cause of the spread. For example; a stigma is attached to admitting to HIV infection and to using condoms. Some peoples even deny that the HIV virus causes AIDS; for example the political leader Robert Mugabe have suggested that AIDS stems from poverty rather than HIV infection. And finally, many myths are attached to the use of condoms, such as the ideas that a conspiracy wants to limit the

growth of the African population.

The HIV pandemic has become a global problem, and the struggle to fight this pandemic will need enormous economic resources, especially from the developed countries.



AIDS information campaign poster

THE ORIGIN OF THE AIDS EPIDEMIC

Scientists have always had a number of different theories about the origin of HIV. The earliest known case of HIV was from a blood sample collected in 1959 from a man in Kinshasha, Democratic Republic of Congo. How he became infected is not known. The most embraced theory is that the virus mutated from the Simian Immunodeficiency Virus (SIV), which is known to infect monkeys. The virus may then have been transmitted from monkeys to human beings, in a transmission route not known.

We do know that the virus has existed in the United States since at least the mid to late 1970s. From 1979-1981 rare types of pneumonia, cancer, and other illnesses were being reported by doctors in Los Angeles and New York. A number of their gay male patients were presenting with these uncommon illnesses and many died soon after. These were conditions not usually found in people with healthy immune systems.

1981 saw the emergence of Kaposi's Sarcoma and Pneumocystis among gay men in New York and California. When the Centers for Disease Control reported the new outbreak they called it "GRID" (gay-related immune deficiency), stigmatizing the gay community as carriers of this deadly disease. However, cases started to be seen in heterosexuals, drug addicts, and people who received blood transfusions, proving the syndrome knew no boundaries.

In 1982 public health officials began to use the term "acquired immunodeficiency syndrome," or AIDS, to describe the occurrences of opportunistic infections, Kaposi's sarcoma, and Pneumocystis carinii pneumonia in previously healthy men. Formal surveillance of AIDS cases began that year in the United States.

In 1983, researchers at the Pasteur Institute in France isolated a retrovirus that they believed was related to the outbreak of HIV/AIDS. Thirty-three countries around the world had confirmed cases of the disease that was once limited to New York and

California. Controversy arise a year later when the US government announces that their scientist, Dr Gallo isolated a retrovirus HTLV-III, that he too claims is responsible for AIDS. Two years later it's confirmed that HTLV-III and the Pasteur retrovirus are indeed the same virus, yet Gallo is still credited with its discovery. An international committee of scientists rename the virus HIV.

In 1984 A Canadian flight attendant, nicknamed "patient zero" dies of AIDS. Because of his sexual connection to several of the first victims of HIV/AIDS, it is believed that he is responsible for introducing the virus into the general western population.
In 1987, after 6 years of watching people die, a new treatment emerges that is seen as the first huge step in beating HIV/AIDS. The drug AZT or Zidovudine is approved and begins to be used in high doses to treat people infected with HIV. Politically, HIV/AIDS is a topic that most avoid. But in response to public pressure, President Ronald Reagan finally acknowledges the HIV/AIDS problem and for the first time uses the term "AIDS" in a public speech.

WHAT IS HIV/AIDS?

AIDS is the abbreviation for ***a****cquired* ***i****mmuno****d****eficiency* ***s****yndrome*, a condition that has become a major worldwide epidemic. As of 2001, about 40 million people worldwide were infected, and the number today is far greater.

AIDS is an infectious, contagious disease caused by *HIV (human immunodeficiency virus)*, a virus belonging to a group called the retroviruses. HIV progressively destroys a person's ability to fight infections and certain cancers by killing or damaging cells of the immune system. The term AIDS applies to the most advanced stages of HIV infection, when opportunistic diseases are appearing.

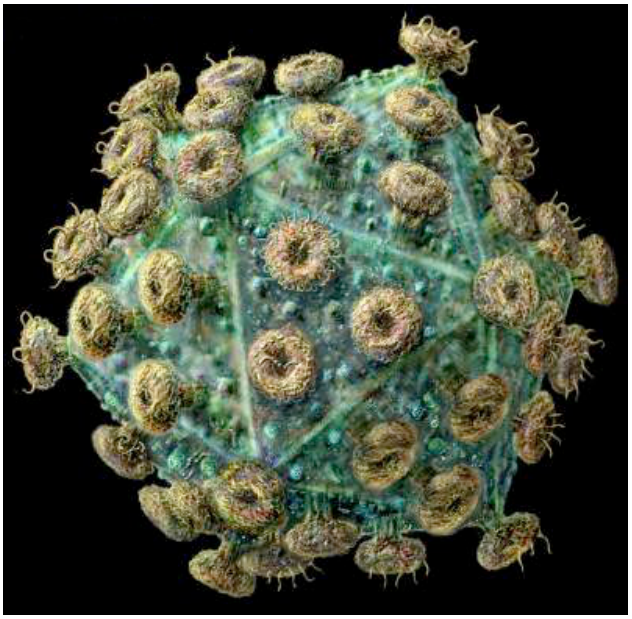
There are two forms of the HIV virus: HIV-1 and HIV-2. The two types are spread the same way, and both lead to AIDS. They have some differences;

Both HIV-1 and HIV-2 have the same modes of transmission, and both cause immunosuppressant in the same way. But in people infected with HIV-2, immunosuppression seems to progress more slowly, and the degree of immunosuppression is less than that caused by HIV-1.

The distinction between HIV-1 and HIV-2 is important since some early blood tests for HIV did not detect infection caused by HIV-2. This allowed HIV-2 to penetrate into the U.S. blood supply before 1992. Since 1992, however, all U.S. blood donors are tested for both HIV-1 and HIV-2.

HIV-1 is the original virus identified in the U.S. in 1983. It currently accounts for the most worldwide disease, with over 99.6% of HIV cases caused by HIV-1.

HIV-2 was isolated in 1986 from people with AIDS in west Africa. It is thought to have been present in the population for a long time previously. It is still found mostly in West Africa. Immune system damage in HIV-2 patients tends to come more slowly than it does in HIV-1.



Electron microscope photograph picture of the HIV

AIDS is caused by the retrovirus HIV. HIV is different from most other viruses that infect humans, because it attacks immune

cells that are part of the body's defence against infections and against the development of certain cancers. HIV infects primarily CD4+ Lymphocytes (also called T-helper cells).
Once HIV enters a T-helper cell, the cell becomes a factory to make more HIV. HIV particles bud off from the surface of the T-helper cell and infect other cells. The T-helper cell eventually dies. If enough T-helper cells die, the immune system becomes impaired and is unable to respond adequately to infections caused by other organisms. This immunosuppressed state is a hallmark of AIDS.

Diagnosis of HIV infection
There are several tests that can be used to determine whether someone has been infected with HIV. The most common test used is the HIV antibody test. This is a blood test that detects antibodies that are made by the body in an attempt to fight off HIV. Antibodies to HIV typically appear two to eight weeks after the initial infection. Thus, this test is usually not useful in the diagnosis of acute or early HIV infection. The test most commonly used for detecting antibodies is the ELISA test. If the ELISA is positive, a confirmatory test is done called a Western blot. ELISA tests can also be used to detect anti-HIV antibodies in other body fluids such as urine.

Another test that is used to detect HIV infection is the HIV antigen test. Antigens are proteins that are made by the virus, or parts of the structure of the virus. These antigens can be detected by a number of tests, which assess the disease's activity. A high level of HIV antigen in the blood, or *viremia*, indicates that the virus is very active. This is typically seen soon after infection occurs, and later in the illness when the immune system has become weakened. This test is most useful as a measure of the patient's response to antiretroviral therapy. It has also been found to be a predictor of disease outcome.

Diagnosis of AIDS
The diagnosis of AIDS is made by following the criteria made by the Center of Disease Control (CDC). Although these are

surveillance guidelines, the criteria are used in clinical practice to make a diagnosis of AIDS.

To meet the case definition of AIDS, a person must have the following:

- Infection with HIV-1 or HIV-2 as determined by a blood test (see below), and either
- A opportunistic disease indicative of a severely weakened immune system or
- A CD4+ T-lymphocyte count less than 200 cells/μL.

The T-cell count is a measure of the number of circulating CD4+ T-lymphocytes, can be used to measure the severity of immune damage caused by HIV. CD4+ T-lymphocytes are important cells in the immune system. Among other things, they are responsible for helping the immune system recognize and attack certain types of microbes and cancer cells. When these cells are destroyed by HIV, the end result is a severe weakening of the immune system and increased susceptibility to infections and certain types of cancer.

Treatment

Therapies for AIDS involve two distinct areas: treatment of HIV directly with antiretroviral drugs, and treatment of opportunistic infections and related conditions.

Antiretroviral therapy

Treatment for AIDS and HIV infection has improved steadily since the advent of combination antiretroviral therapy in 1996. Antiretroviral agents are medications that have been found to inhibit HIV. Recently, new classes of drugs have been developed that offer new ways of inhibiting HIV, added effectiveness, dosing convenience, and fewer side effects. At the present time, no antiretroviral drug cures HIV. Also, these drugs do *not* prevent a person infected with HIV from spreading the virus to others.

After the first antiretroviral agents were used, it became clear that HIV could quickly develop resistance to these agents. One

approach to delaying the appearance of resistance has been to use combinations of antiretroviral drugs. No antiretroviral drug should be used alone—more than one drug should always be taken at once. Blood tests have also been developed which can detect the presence of mutations in HIV that can lead to resistance.

Using information from CD4+ T-lymphocyte counts, the level of virus in the blood (antigen tests) and the information gained from resistance assays, a combination antiretroviral drug regimen can be developed that potentially provides long-term HIV control, few side effects, ease of administration and an improved quality of life. The number of antiretroviral agents that are FDA-approved is quite large.

Classes of drugs used to treat HIV infection include the following:

Nucleoside reverse transcriptase inhibitors (NRTIs)

NRTIs inhibit HIV by interfering with a viral enzyme called *reverse transcriptase* that HIV needs to make copies of itself. The first FDA-approved drug for the treatment of HIV infection, zidovudine (AZT, ZDV, Retrovir), was in this class. As with all antiretroviral medications, NRTIs should not be used alone. They must be used in combination with other anti-HIV drugs. Other NRTIs include for example Lamivudine.

Non-nucleoside reverse transcriptase inhibitors (NNRTIs)

NNRTIs also inhibit the reverse transcriptase enzyme of HIV, but do so in a different way than the NRTIs. Non-nucleoside reverse transcriptase inhibitors are *not* effective against HIV-2 strains.

Protease inhibitors (PIs)

The approval of protease inhibitors in 1995 led to a major change in the outcome of the disease for most people with HIV. The use of PIs in combination regimens has led to an increase in life span, improved quality of life, reduced viral burden and improvements in the immune system for people infected with HIV.

Protease inhibitors are structurally similar to the protease

enzyme of HIV, and this enzyme is necessary for HIV to build copies of itself. The protease inhibitors block binding sites that the HIV protease uses, and thereby interfere with the production of infectious virions. PIs are effective against HIV-1 and HIV-2, and they inhibit HIV found in chronically infected cells. The NRTIs and NNRTIs are generally only effective against HIV that is being produced from newly infected cells, not HIV found in chronically infected cells.

Protease inhibitors include saquinavir.

Integrase inhibitors

Integrase inhibitors were approved by the FDA in 2007, for use with other anti-HIV agents in the treatment of HIV infection. Drugs in this class inhibit HIV by blocking an HIV enzyme called *integrase*, an enzyme that is used to insert HIV genetic code into the host cell's genetic code. Currently, there is only one integrase inhibitor, raltegravir.

Entry and fusion inhibitors

The FDA approved entry inhibitors for use with other anti-HIV agents in the treatment of HIV infection in 2007. Selzentry is currently the only approved drug in this class. It works by preventing HIV from attaching to a receptor on the surface of T-helper cells called CCR5. For most isolates of HIV, binding to the CCR5 receptor is a necessary step in the process of entering (infecting) the T-helper cell.

CURRENT SITUATION

HIV/AIDS IN NORWAY

The first case of HIV in Norway was probably a sailor who was assumingly heterosexually infected in Africa in the 1960s. He developed HIV- related symptoms in 1966. His wife had symptoms of HIV from 1967. Their daughter went sick in 1969. All three of them died of opportunistic diseases of AIDS in 1976. That they really had the HIV, was not proven until many years after, and was proven because samples of their blood had been stored after their death. From the middle of 1970s, several sailors died, probably because of AIDS, after being infected heterosexually in Africa. The HIV epidemic among Norwegian homosexuals probably started around the same time. Most of them were infected in USA. The numbers of infected homosexuals increased throughout the 1970/1980s. In the middle of the 1980s, the spread among intravenous drug abusers began, and somewhat later among the heterosexuals.

In Norway a broader HIV testing was introduced in the middle of the 1980s, more specifically in the spring of 1985.

Since 1985 there was developed a system of surveillance in Norway, called MSIS. Before this system was developed it was difficult to know the prevalence of HIV infected individuals in Norway. After this system was established, and also that every doctor in the country had to report about each new case of HIV positive patient, the control of all cases has been much easier to follow.

The numbers of newly infected individuals has been stable in the last decade. It was thought in the mid 1980s that the numbers of cases should be much higher than the actual numbers of cases are today.

The main groups which are most responsible for newly diagnosed today are; between homosexuals, an increase in HIV positive refugees, and also there has been an increase in newly diagnosed in men travelling to high risk areas such as Asia and

Africa; these mostly being heterosexually infected. A positive development is that the incidence, and spread, among intravenous drug abusers has dramatically decreased. The spread between heterosexuals in Norway is still rare.

It is estimated that there is around 250 new cases of HIV every year. Around 70% are infected abroad and 30% within Norway.

I will here use 2007 as an example; 248 new cases of HIV infection were diagnosed in 2007, a moderate decrease from the previous year. The HIV epidemic shows the same spread pattern as before. The preventative efforts must continue. In total, in 2009; 4175 people are diagnosed with HIV infection in Norway. Of these 1049 were infected within Norway.

In 2007; newly diagnosed cases of HIV in “the men who have sex with men group”(homosexual transmission) was 77, compared to 90 in the previous year. It is impossible to comment with certainty whether the trend with many newly infected people is changing. The majority claim to have been infected in Oslo where there has been a continuous outbreak of HIV infection in this group.

Most who are infected heterosexually were infected before arrival in Norway.

The number of injecting drug addicts with HIV remains at a stable low level (13). There is still very little HIV transmission among young heterosexuals in Norway.

The number of AIDS-cases has decreased the last few years, possibly due to treatment options that have become more available.

There has been a huge interest among both the government and the public to reduce the HIV prevalence the last two decades. And many actions have been undertaken.

These include:

- development of regional HIV centres, which can offer rapid testing and supply patients with HIV with information about

treatment, prevention and how to reduce the degree of transmission.

- School education about STDs and how to prevent to be infected; the use and positive outcome of using condoms etc.

- Extradition of clean needles to I.V drug abusers. There has both been established centers in the big cities and also there are busses travelling around to the areas where drug abusers are, with the purpose to educate and hand out clean needles. This action has had a major impact on the huge decrease in HIV positives among the drug abusers.

- Increased knowledge among health workers, especially among general practinsioners.

- The duty among GPs to report every new case to the MSIS.

- Increase in knowledge among the general public that treatment is now very effective in increasing the life expetancy.

- Huge campaigns in how to prevent transmission in schools; also with the aim to inform the public that, with treatment; ”you usually die with the disease, not from it!” This has stimulate the public to test themselves more frequently

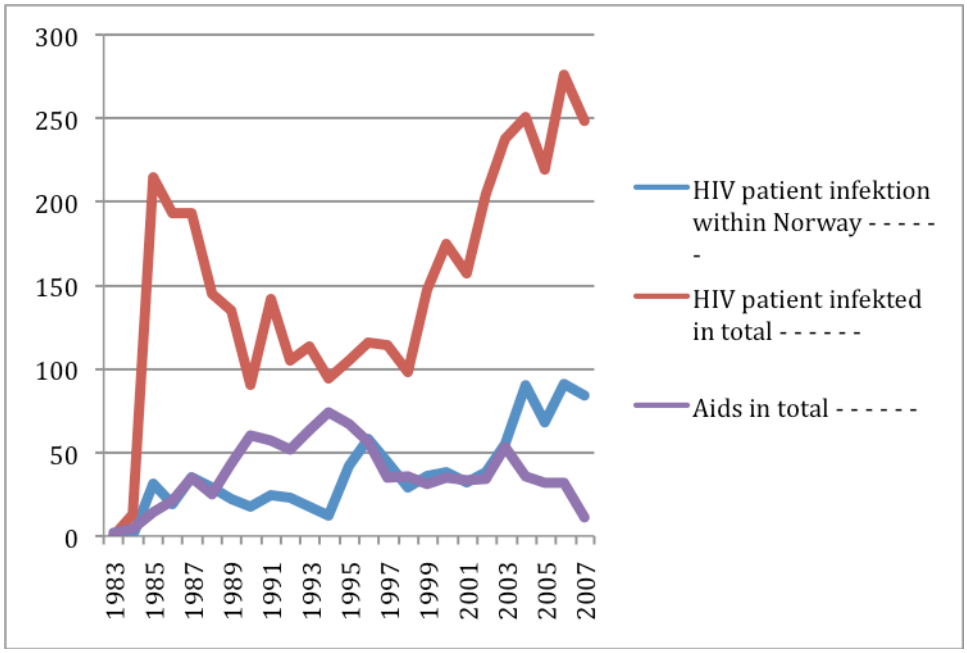
- Increase in the interest in the media and among politicians

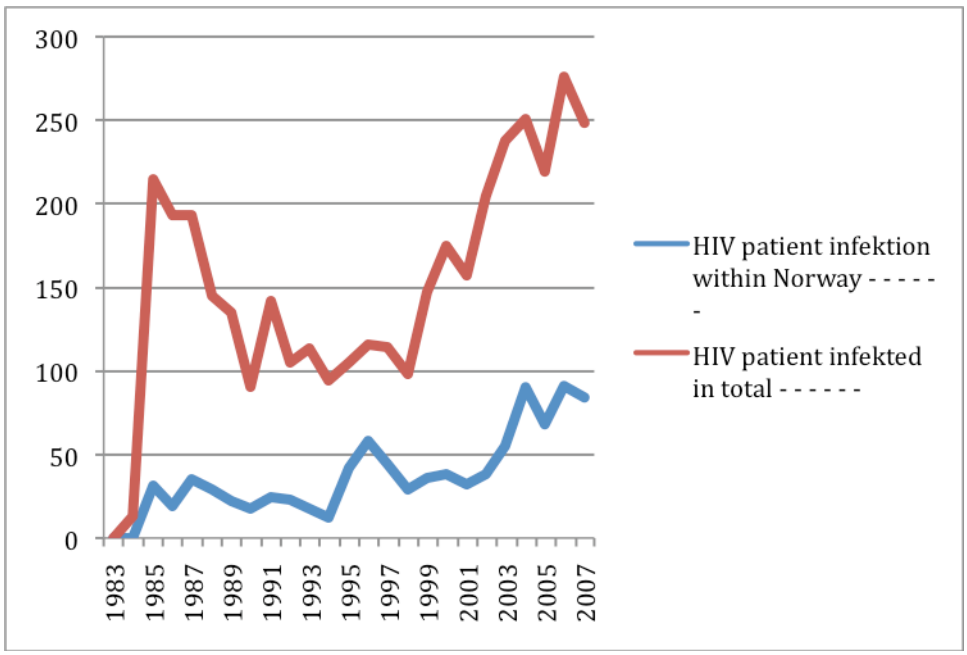
- The development of Metadon assisted rehabilitation of drug abusers. This has decreased the numbers of addicts, thus also the transmission among this group.

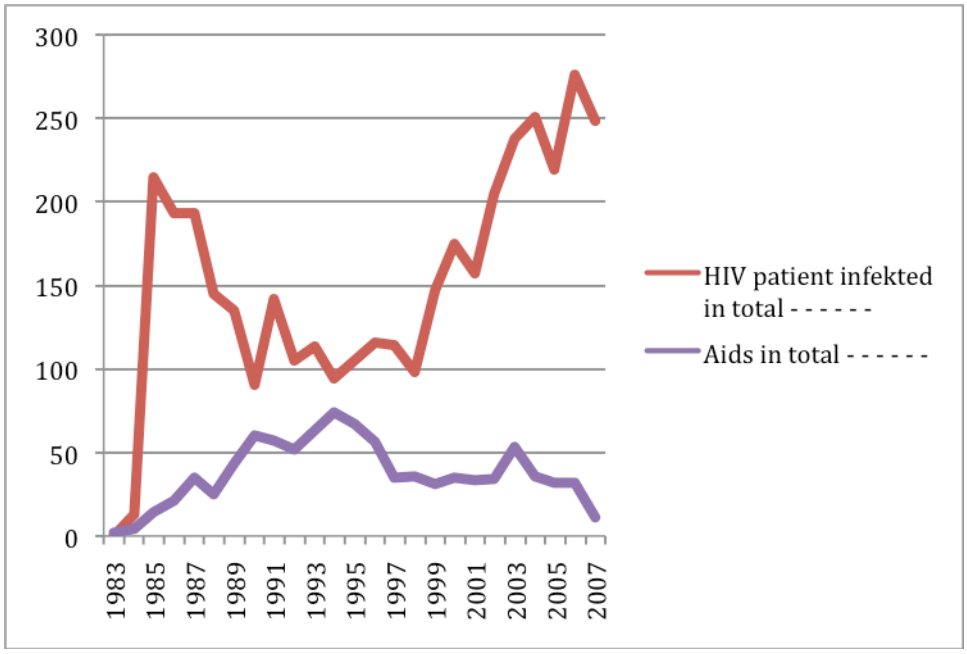
År	HIV-infektion in Norway	HIV-infektion in total	Aids
1977	-	-	-
1978	-	-	-
1979	-	-	-
1980	-	-	-
1981	-	-	-
1982	-	-	-
1983	-	-	2
1984	-	13	4
1985	31	215	14
1986	19	193	21
1987	35	193	35
1988	29	145	25
1989	22	135	43
1990	17	90	60
1991	24	142	57
1992	23	105	52
1993	17	113	63
1994	12	94	74
1995	42	105	67
1996	58	116	56
1997	44	114	35
1998	29	98	36
1999	36	147	31
2000	38	175	35
2001	32	157	33
2002	38	205	34
2003	55	238	53
2004	90	251	36
2005	68	219	32
2006	91	276	32
2007	84	248	11
2008	80	299	18
2009	35	89	3
Totalt	**1049**	**4175**	**962**

Table: The first collumn is individuals infected by HIV within Norway, seen in the next 3 graphs as the blue line. The second collumn is the total number of HIV infected individuals in total, in Norway, seen in the next 4 graphs as the red line. The third collumn is the total number of individuals with AIDS, in Norway. Seen as the purple line in the next 4 graphs.

REMARK; The count was made in the middle of 2009; thus reflecting the low number of cases compared to the previous year (2008).






300
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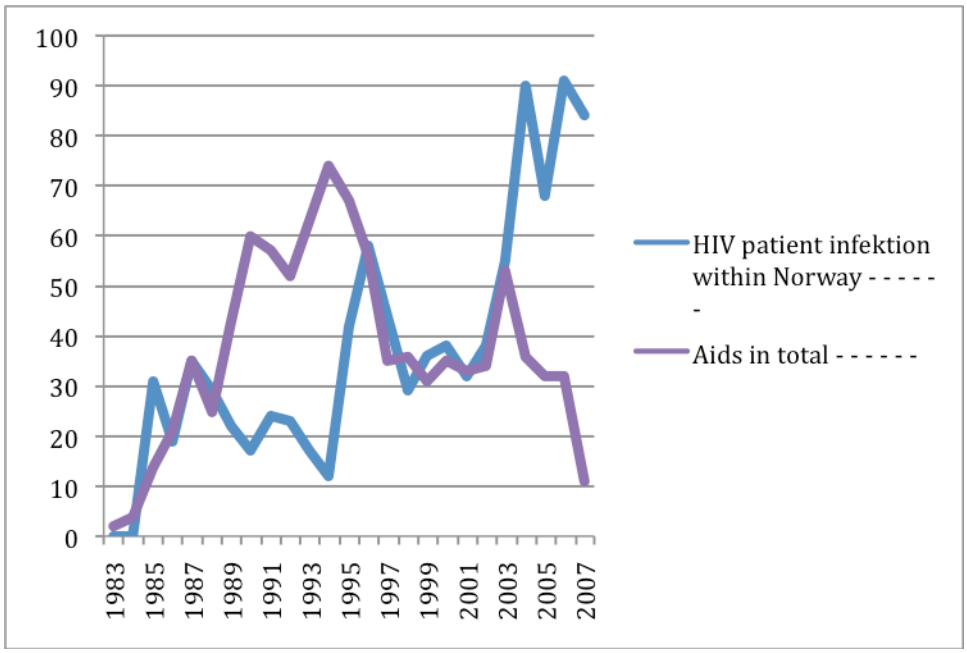
HIV patient infekted in total - - - - - -
Aids in total - - - - - -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2007
HIV patient infektion within Norway - - - - - -
Aids in total - - - - - -

COMPARISON WITH NEIGHBOURING COUNTRIES

After the dissolution of the Soviet Union in 1991, there has been a huge increase in interest related to the HIV epidemic. This was followed by a dramatic increase in the official numbers of infected individuals.

Before the dissolution, many prominent politicians said in public that the HIV epidemic was a ”western world problem”.

RUSSIA is today the country in the world with the highest rising numbers of newly diagnosed cases.

There are many theories, why and how, this has happen, but recently there has been a general acceptance that the increase in unemployment, the low eco-social standard and the dramatic increase in drug abusers have all contributed to this development.

A lack of reporting from GPs to the government also probably has been a major implicating factor.

The main cause to the dramatic increase in HIV patients is the huge numbers of I.V drug abusers, thereby sharing HIV infected needles being the main factor for transmission.

From 1991 to 2004, 87% of newly diagnosed cases have been due to transmission among I.V drug abusers. Since 2004 these numbers has decreased to 76%. It is estimated that as much as 30% of all I.V drug abusers in Russia are HIV positive. In total, the numbers of I.V drug abusers was in 2003 estimated to be around 3,1 million people. That means that there in 2003 were approximately 1 million I.V drug abusers that are HIV positive. This number is probably much higher today.

Nevertheless, the numbers of new cases are still rising. It may be because the numbers among women has increased dramatically. Are we seeing a starting rise in heterosexual transmission in Russia?

Also, there are still a lot of ”hidden cases” or ”black numbers”. In Russia the stigmatization towards the gay community is still a

huge problem; this means that the actual numbers of cases can be dramatically more than what we know today!

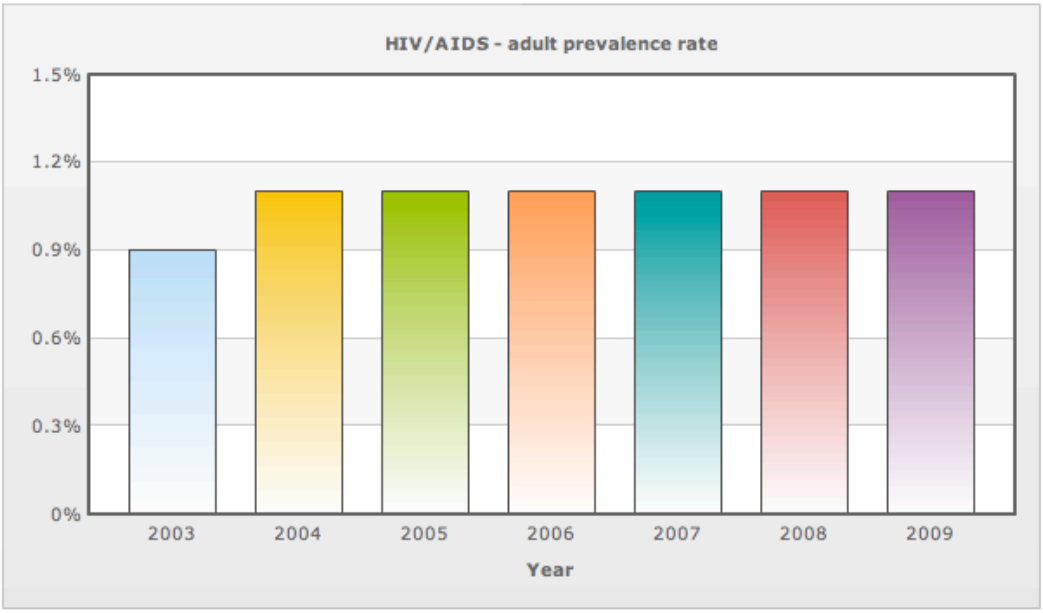
Due to the economic and social problems mentioned earlier, there has been a dramatic increase in all Sexually Transmitted Diseases (STDs). STDs are known to facilitate transmission of HIV more easily. Is this the cause that the numbers among heterosexuals (especially women) has increased?

Another contributing factor may be that Russia does not have the same rehabilitation system towards drug abusers as we have in Scandinavia. After the start of Metadon-assisted rehabilitation in for example Poland, the numbers of newly diagnosed HIV among drug abusers has fallen!

In Russia, the interest among health workers to HIV is low; which may also contribute to the poor follow-up of this group of patients.

In Russia; sharing needles is by far, the most common route of transmission of HIV infection.

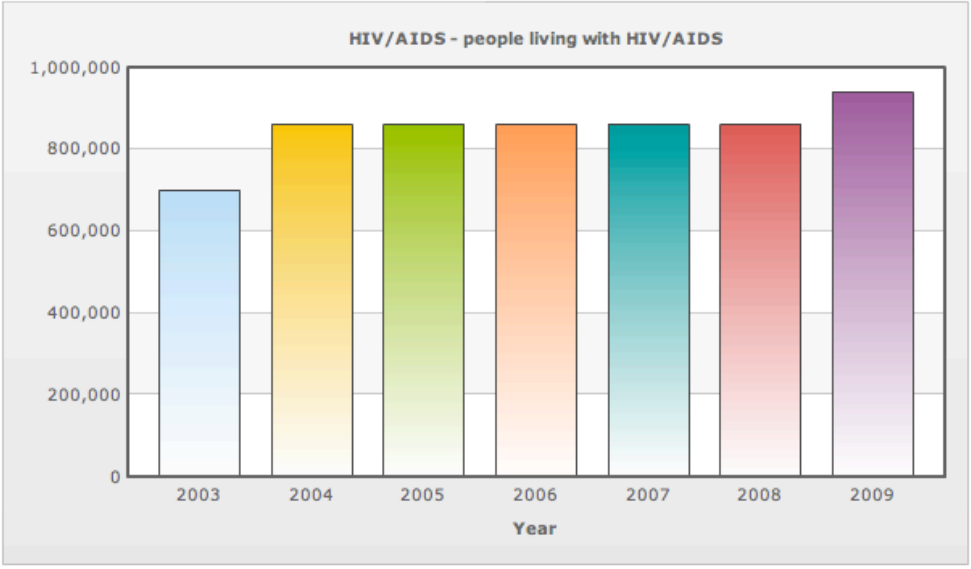
Russia: HIV/AIDS - adult prevalence rate: 1.1% (2007 est.)



Year	HIV/AIDS - adult prevalence rate	Rank	Percent Change	Date of Information
2003	.90 %	59		2001 est.
2004	1.10 %	57	22.22 %	2001 est.
2005	1.10 %	57	0.00 %	2001 est.
2006	1.10 %	56	0.00 %	2001 est.
2007	1.10 %	56	0.00 %	2001 est.
2008	1.10 %	56	0.00 %	2001 est.
2009	1.10 %	52	0.00 %	2007 est.

Definition: *This entry gives an estimate of the percentage of adults (aged 15-49) living with HIV/AIDS. The adult prevalence rate is calculated by dividing the estimated number of adults living with HIV/AIDS at yearend by the total adult population at yearend*

Russia: HIV/AIDS - people living with HIV/AIDS: 940,000 (2007 est.)



Year	HIV/AIDS - people living with HIV/AIDS	Rank	Percent Change	Date of Information
2003	700,000	16		2001 est.
2004	860,000	13	22.86 %	2001 est.
2005	860,000	13	0.00 %	2001 est.
2006	860,000	13	0.00 %	2001 est.
2007	860,000	13	0.00 %	2001 est.
2008	860,000	13	0.00 %	2001 est.
2009	940,000	12	9.30 %	2007 est.

Definition: *This entry gives an estimate of all people (adults and children) alive at yearend with HIV infection, whether or not they have developed symptoms of AIDS.*

HIV/AIDS – people living with HIV/AIDS (top 20) in 2007

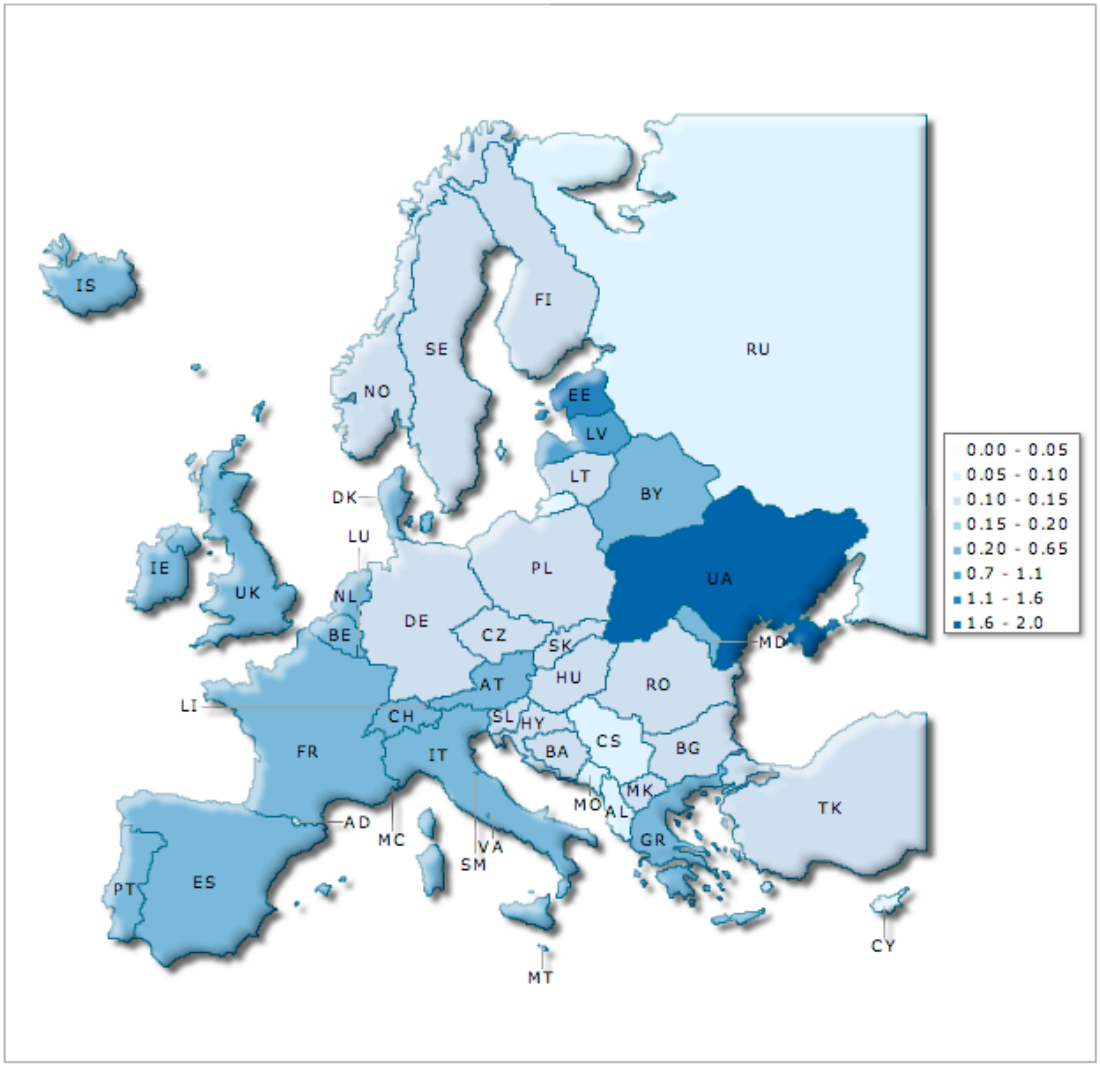
Rank	Country	HIV/AIDS - people living with HIV/AIDS
1	South Africa	5,700,000
2	Nigeria	2,600,000
3	India	2,400,000
4	Mozambique	1,500,000
5	Tanzania	1,400,000
6	Zimbabwe	1,300,000
7	Kenya	1,200,000
8	United States	1,200,000
9	Zambia	1,100,000
10	Congo, Democratic Republic of the	1,100,000
11	Ethiopia	980,000
12	Russia	940,000
13	Uganda	940,000
14	Malawi	930,000
15	Brazil	730,000
16	China	700,000
17	Thailand	610,000
18	Cameroon	540,000
19	Cote d'Ivoire	480,000
20	Ukraine	440,000

Definition: *This entry gives an estimate of all people (adults and children) alive at yearend with HIV infection, whether or not they have developed symptoms of AIDS.*

In the rest of **SCANDINAVIA** the situation is similar to the one we have in Norway. Like in Norway, the transmission between homosexuals, people infected abroad (travellers to especially in Asia and Africa) and HIV positive refugees that accounts for the majority of the newly diagnosed cases the last decade. It has also been a decline in the numbers of transmission between I.V drug abusers. The only exception is a small increase in drug abuser-transmission in Finland around year 2000, for which the cause is unknown.

Transmission between heterosexuals is still rare in the Scandinavian countries, accounting for only about 2% each year.

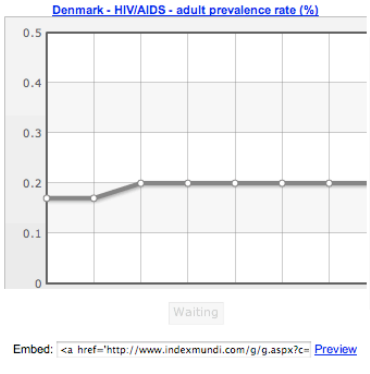
HIV/AIDS - adult prevalence rate – Europe:



Definition: *This entry gives an estimate of the percentage of adults (aged 15-49) living with HIV/AIDS. The adult prevalence rate is calculated by dividing the estimated number of adults living with HIV/AIDS at yearend by the total adult population at yearend.*

This demographic map shows that for example; the prevalence rate in Ukraine, is much higher than in Russia. But it should be remembered that the population in Russia is much higher than in Ukraine; meaning that there are far much more HIV-positive individuals in Russia.

Historical Data Grahps per Year: Denmark, Norway, Russia:



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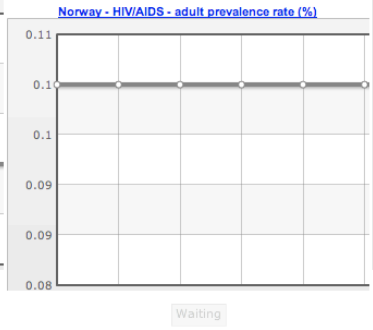
Year	HIV/AIDS - adult prevalence rate (%)
2001	0.17
2002	0.17
2003	0.2
2004	0.2
2005	0.2
2006	0.2
2007	0.2
2008	0.2
2009	0.2



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Year	HIV/AIDS - adult prevalence rate (%)
2003	0.1
2004	0.1
2005	0.1
2006	0.1
2007	0.1
2008	0.1
2009	0.1

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Year	HIV/AIDS - adult prevalence rate (%)
2001	0.18
2002	0.18
2003	0.9
2004	0.9
2005	1.1
2006	1.1
2007	1.1
2008	1.1
2009	1.1

Definition of HIV/AIDS - adult prevalence rate: *This entry gives an estimate of the percentage of adults (aged 15-49) living with HIV/AIDS. The adult prevalence rate is calculated by dividing the estimated number of adults living with HIV/AIDS at yearend by the total adult population at yearend.*

NEXT STEP

IN NORWAY

In Norway, as in most other countries, even European, there has been a slight rise in the newly infected HIV victims in the last decade compared to the 1980s. Although the number of cases regarding I.V drug abusers has fallen, the other affected groups in risk has risen in numbers.

The Norwegian strategy in the years to come is to address these groups. The actions described above will continue, and there will be an increased effort to reach out to the risk groups that rise in cases. Especially, there will be a focus on, to reach the homosexuals, and also the refugees will be a priority in the following years. The exact methods that will be used are uncertain, but according to publications in the Norwegian Medical Journal, an increase in testing and also to generate information to these risk groups will be a main priority.

When the parliament election of 2009 came up last fall, almost all of the political parties had an increase in their budget towards fighting the HIV epidemic, not only in Norway, but also to increase funding the fight against HIV spread in the developing countries.

There will also be an increase in the funding to the International Organizations concerned with the HIV pandemic.

The numbers of cases in Russia is of great concern in the Scandinavian countries because of the vicinity, and also because the border, in the long term view, probably will be more open. Still, up to this date, the situation in Russia has probably not influenced the situation in Norway.

IN RUSSIA

As mentioned, Russia is the country in the world with the highest rise in HIV positive among the population. Their main priority is to decrease the numbers of I.V drug abusers, and by this method, decrease the total number of HIV positives, since this is by far the most common form of transmission of HIV.

Several measures are already being planned, these include:

- increase the extraditions of clean needles

- establish more voluntary organizations which can educate and, in general, assist the government in health-related issues.

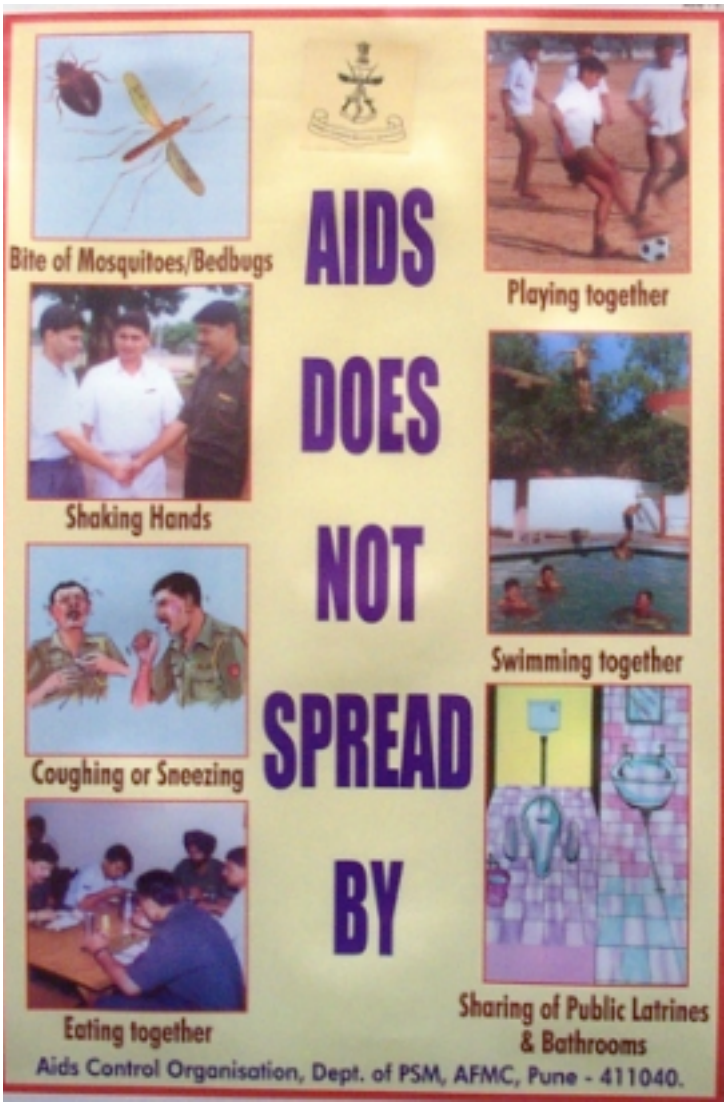
- HIV-campaigns; based on getting out information about HIV/AIDS, both on a national and a local level

- Increase testing of HIV

- Establish regional HIV/AIDS centres

- The Scandinavian countries each funds HIV preventive measures with 2 million Euros every year.

Unfortunately, these measures address several difficult issues. Although it is positive that it will be easier to obtain clean needles, it is estimated, by UNAIDS, that less than 5% of the I.V drug abusers will have access to these needles. Another concern is that the general education of all STDs are still minimal. Since these diseases increase the chance of being infected during heterosexual intercourse, it is scepticism in the neighbouring countries around the fact that these diseases are somewhat neglected.



An HIV/AIDS information campaign poster

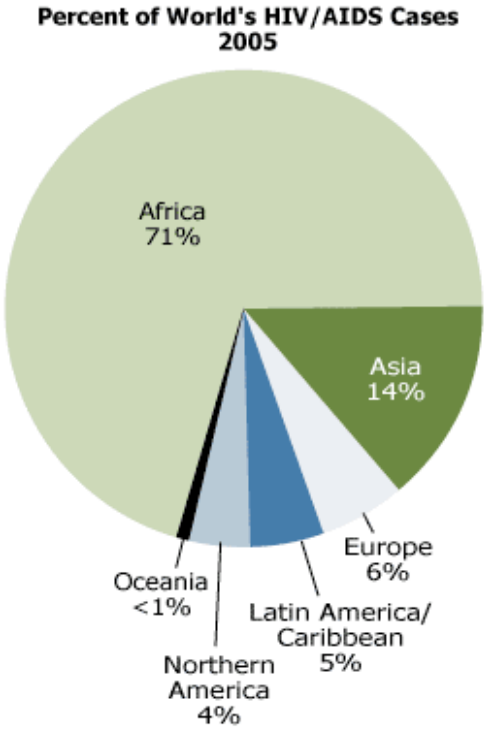
Scandinavian countries, together with UNAIDS, also wants the Russian government to focus more on increasing the level of surveillance, on a national level.

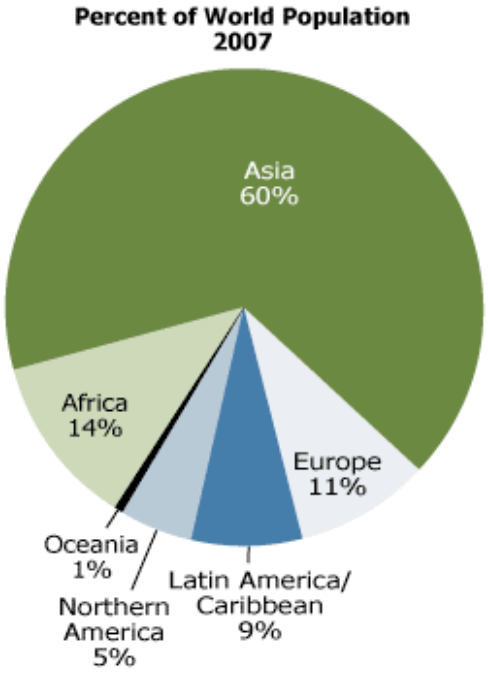
There are also positive aspects that will be important in the following years, regarding new HIV cases in Russia. The general economy, and thereby possibly, the general healthcare system, has seen a rise in the past 9 years since the millennium. This will hopefully decrease the unemployment and increase general health among the population, which will hopefully have a positive impact on the new cases of HIV positive in the following years to come.

Russia and St.Petersburg was also hosting the G8 meeting in 2006. One of the main subjects of that meeting was the HIV/AIDS situation, both worldwide and in Russia. Hopefully this will, in a long-term aspect, have a positive impact on the situation, on a regional level, in Russia.

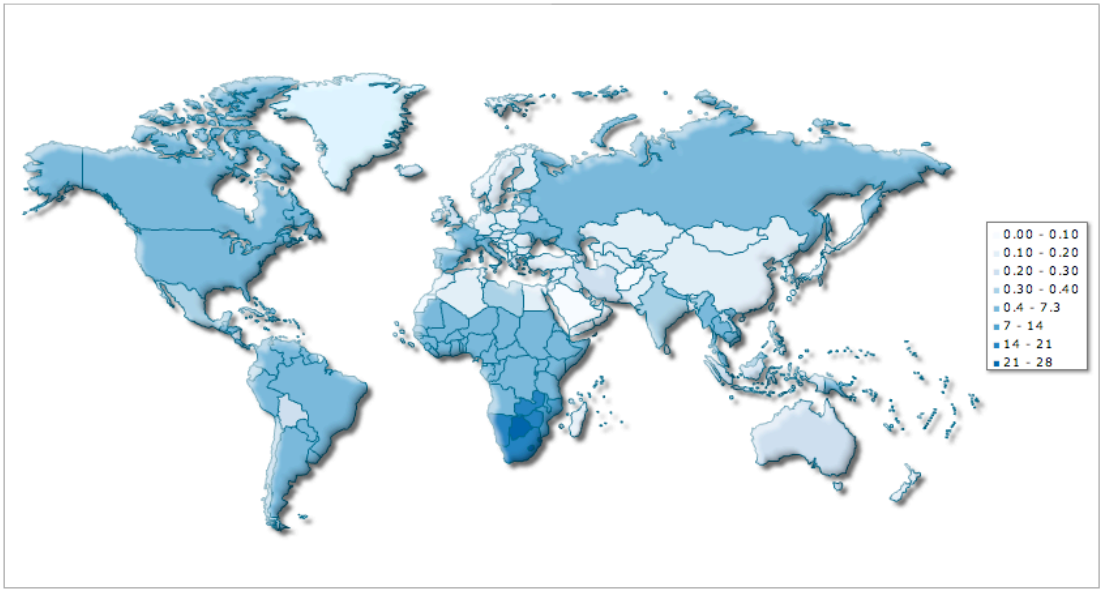
WORLDWIDE

In the world, Africa is by far, the most affected region. It was estimated that around 30million people were HIV positive in 2005, accounting for 71% of all HIV positive in the world. This region only accounts for 14% of the worlds population!! Each year this number is probably rising**.** See map on page 27.





HIV/AIDS - adult prevalence rate

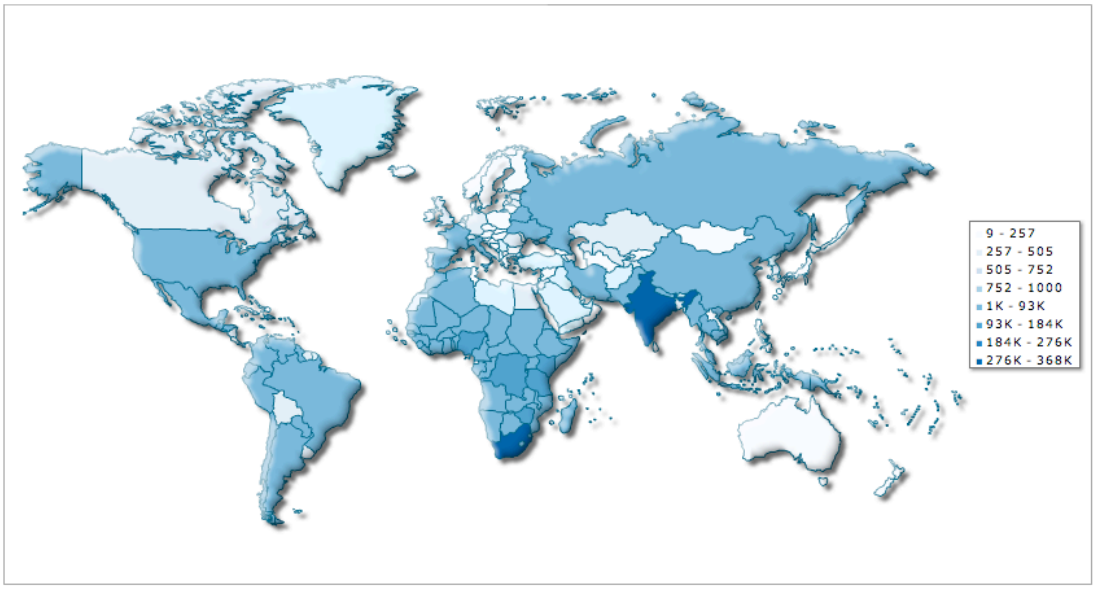


Definition: *This entry gives an estimate of the percentage of adults (aged 15-49) living with HIV/AIDS. The adult prevalence rate is calculated by dividing the estimated number of adults living with HIV/AIDS at yearend by the total adult population at yearend.*

HIV/AIDS - people living with HIV/AIDS

Definition: *This entry gives an estimate of all people (adults and children) alive at yearend with HIV infection, whether or not they have developed symptoms of AIDS.*

HIV/AIDS - deaths



Definition: *This entry gives an estimate of the number of adults and children who died of AIDS during a given calendar year.*

There is also a big concern around the emerging resistance to drug therapy, and also the rise in HIV patients contracting Tuberculosis.

Many countries and regions are donating funds to fight the pandemic in the most affected regions, especially African countries.

For example; the USA in collaboration with CDC presented an Emergency Plan in 2003, called the Global AIDS Program (GAP).

The plan was a five-year, $15 billion initiative to combat the global HIV/AIDS pandemic focused with new resources primarily in 15 of the most afflicted countries. The Emergency Plan objective was to treat 2 million HIV-Infected people, prevent 7 million new infections, and care for 10 million HIV-infected individuals and AIDS orphans.

GAP focuses its work within three program areas using evidence-based strategies:

Prevention**:** HIV counselling and testing; prevention of medical transmission of HIV; prevention and care of sexually transmitted infections; most-at-risk populations; public-private partnerships; and, behaviour change communications.

Care and Treatment**:** Tuberculosis prevention and care; prevention and care of opportunistic infections; palliative care; prevention of mother-to-child HIV transmission; and, antiretroviral therapy.

Surveillance and Infrastructure Development**:** surveillance, laboratory capacity building, informatics, monitoring and evaluation, and training.

MY OPINION

The HIV pandemic poses a lot of problems to the developing countries, as well as the developed western world. Not only as a humanitarian crisis, but it also has a huge economic impact on the whole world.

Joint United Nations Programme on HIV/AIDS (UNAIDS) has statistically tried to estimate the spread in the future; at least in the most affected areas; the sub-Saharan area;

In this area UNAIDS has predicted outcomes for the region to the year 2025. These range from a plateau and eventual decline in deaths beginning around 2012 to a catastrophic continual growth in the death rate with potentially 90 million cases of infection.

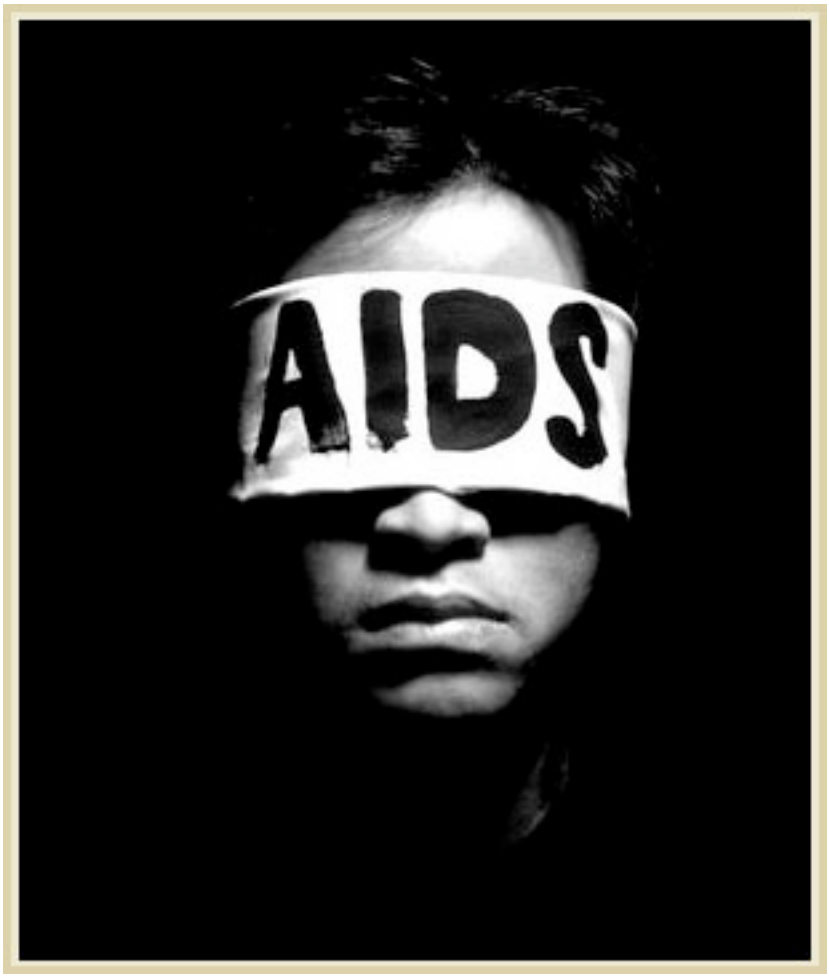
It is difficult to predict the outcome for the future, regarding the spread of the disease. Most organizations related to the pandemic have different numbers and outcomes regarding the newly infected individuals in the next decade. But most are agreeing that the spread in Africa will be halted, at least compared to the last two decades. The problem is that the disease rise in numbers in other parts of the world, most disappointing is the increase in previous countries of the Soviet Union, such as Russia.

A huge problem that will require long time and a lot of resources is to combating the stigma associated with the disease. In many countries, religious beliefs pose a problem. For example; in Russia, South-American countries and the Muslim world; giving out condoms and clean needles, are regarded as encouraging sexual misbehaviour and drug-addiction. As these methods are regarded as the most important effort in combating the disease in for example Scandinavia, this is a major problem that the world is facing. Fortunately, at least in Russia, this problem is declining. Hopefully, with time, this also will change in other affected areas in the world.

As eradication of the disease, if ever possible requires global cooperation, the need of global information campaigns is crucial in fighting the spread. In my opinion, information regarding

potential life-prolonging treatment and the fact that HIV usually not any longer necessarily reduces life expectancy is crucial information that needs reach out to the most affected areas. This will hopefully reduce the stigma around the disease, and also possibly reduce the “black numbers” of affected individuals.

Governments and pharmaceutical companies are continuously trying to find the cure for HIV and AIDS. But until this happens; preventive methods in reducing the newly infected still holds the most promising effort in combating the spread of this pandemic, that to this date, is one of the most challenging issues of our generation.



REFERENCES/ SOURCES:

- Centre of Disease Control (CDC)
- UNAIDS
- WORLD HEALTH ORGANIZATION (WHO)
- THE NORWEGIAN MEDICAL JOURNAL
- MEDIPEDIA.COM
- " Medisinsk mikrobiologi og infeksjonssykdommer" by Tjade (Norwegian textbook in microbiology and infectious medicine)

"The global HIV/AIDS epidemic is an unprecedented crisis that requires an unprecedented response. In particular it requires solidarity -- between the healthy and the sick, between rich and poor, and above all, between richer and poorer nations. We have 30 million orphans already. How many more do we have to get, to wake up?"

Kofi Annan

“ HIV does not make people dangerous to know, so you can shake their hands and give them a hug: Heaven knows they need it “

Princess Diana