

# [Hiv aids hiv aids (bhurgri). hiv structure: hiv is](https://assignbuster.com/hivaids-hiv-aids-bhurgri-hiv-structure-hiv-is/)

HIV/AIDS CasestudyIntroduction: HIV/AIDS is serioushealth issue across the globe. HIV is exceptionally epidemic, target of HIV ishuman line of defense i. e. our immune system. It has been seen that HIV/ AIDShas high prevalence rate in developing states. Poverty, lack of communityeducation, hunger, lack of medical measurements, high illiteracy ratio are keyfactors that triggered high incidence rates of HIV/ AIDS (Bhurgri).

HIVStructure: HIV is a retrovirus, categorized in separate genus lentiviruses and belongs to family Retroviridae. Thisgenus contains a large number of infectious agents particularly infectinganimals  Electron Microscopy reveals thatHIV has core shaped, core is made up of p25 (or p24) Gag protein (Leis et al., 1988). Nucleotide is inform of 2 identical RNA strands within which reverse transcriptase is present (Gelderblom et al., 1987; Haase, 1986; Levy, 1986). HIVGenome information: HIV is retrovirus, whichpacks two copies of unspliced RNA. Viral RNA as dimmer, both dimerization andpacking is mechanically coupled (Luet al., 2011).

It is believedthat due to cross specie events both HIV 1 and HIV 2 were evolved (Keele et al., 2006). Pandemic HIV isclassified into 9 subtypes. It has many recombinant forms, whereas 2 or morethan two subtypes encode their genetic makeup (Thomson  and Nájera, 2005). It’s a greatest challenge forTherapeutic companies to design effective therapeutic drug  against HIV 1 due to continuously changinggenetic makeup by HIV 1 (Korber et al.

, 2001). Dominant subtype C makesup 55 to 60% of worldwide HIVinfections (Thomson  and Nájera, 2005). Whereas Non subtype B isolates differ fromsubtype B isolates in terms of viral genetic makeup (Blackard et al., 2002; Centlivre et al., 2006; Laeyendecker et al., 2006).

Estimated size of HIV genome is 9. 8kb. Gag, Pol and Env are basic viral proteinsof HIV, translated by primary transcript of virus mRNA, which uponproteolytic cleavage give rise to different sets of proteins needed by HIV.

Synthesis ratio of Gag, Gag-pol products is 20: 1 (Luftig  and Lupo, 1994). Regulatory proteins Tat, Rev alsoknown as RNA binding proteins control optimal activity upon interacting withcellular factors. Negative factor Nef involved in down regulation of viralexpression. Vif, Vpr, Vpu/Vpx have important role in viral assembly, packing, budding and synthesis of viral infectious agents (Levy, 1993). HIVPathogenicity: HIV is capable of downregulating innate, adapted and intrinsic immunity (Bieniasz, 2004; Mahalingam et al.

, 2002). HIV life cycle is too complicated. Its time duration, possible damaging effects to cell depends upon type of celland cell activation (Johnson  and Coffin, 1999). Initially HIV upon reaching tocellular components (gp 120 is 1st protein that interacts withcell’s CD4+ receptor) posesno lethal effects but entry of HIV triggers intracellular transduction pathwayswhich in turn might be beneficial in viral genome replication (Balabanian et al., 2004; Cicala et al., 2002).

HIV is too clever to enter in humancells by neutralizing and hiding from different types of immunological factorsand pathways, systems (Barré-Sinoussi, 1996; Emerman  and Malim, 1998; Howley, 1996). HIVPrevalence globally: 38. 6 million people areestimated with HIV 1 globally.

25 million deaths have been reported up tillnow. South Africa is still hot spot of HIV pandemic with significantly highrate of HIV 1 infection (Simon et al., 2006).

S. NO Year New HIV infection HIV related Deaths People living with HIV 1 2001 3. 4 million 1. 9 million 30. 0 million 2 2002 3. 3 million 2. 1 million 31.

0 million 3 2003 3. 1 million 2. 2 million 31. 70 million 4 2004 3. 0 million 2. 3 million 32. 2 million 5 2005 2. 9 million 2.

3 million 32. 5 million 6 2006 2. 8 million 2. 3 million 32.

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3 million 1. 6 million 35. 3 million   S. NO Region New HIV infection HIV related Deaths People living with HIV 1 Eastern and southern Africa 79000 million 420000million 19. 4 million 2 Western and central Africa 370000million 310000million 6. 1 million 3 Middle East and North Africa 18000 million 11000million 230000million 4 Asia and the Pacific 270000million 170000million 5.

1 million 5 Latin America 97000 million 36000million 1. 8 million 6 Caribbean 18000 million 9400 million 310000million 7 Eastern Europe and central Asia 190000million 40000million 1. 6 million This data is according to(Organization, 2017) . HIVprevalence in Pakistan: Pakistan is largelyinfected by HIV/AIDS due to unsafe blood transfusions, sharing of commonsyringes and needles, unsafe sex, and with low level of condom usage, highnumber of afghan refugees on border areas, truck drivers who move to remoteareas and do not acknowledge safe sex measures, local migrants presence, highrate of sexually transmitted diseases and then there is no more proper sexuallytransmitted care centers to deal these issues (Bhurgri). S.

NO Year New HIV infection HIV related Deaths People living with HIV 1 2005 9400 <100 <100–<100 12000 2 2010 14000 1300  <1000–1800 66000 3 2015 19000 5500 4500–6600 13000 This data is according to(Johnston et al., 2015). Treatmentby Drugs: ART (antiretroviraltreatment) is best and most effective choice to control HIV/AIDS. It not onlylessens death ratio but also significantly suppresses viral replication withlong lasting impact. 20 antiretroviral drugs have been approved by FDA whichspecifically targets DNA dependent polymerase or proteases (Lalezari et al., 2003; Lazzarin et al.

, 2003). HIV 1 is prone tocontinuously changing its genome so only single drug is not effective against HIV. Highly active antiretroviral treatment is now being used because of highobserved genetic mutation rate in HIV. A combination of multiple potent drugsis being used to at least delay resistance against HIV.

HAART is being highlyused by modern and developed countries which ultimately resulted in low deathrates (Hogg et al., 1998; Mocroft et al., 1998; PalellaJr et al., 1998). Conclusion: HIV/AIDS is global issue.

HIV mainly targets cells that possess CD4 receptors. Every year millions ofpeople around the world are infected by HIV and millions of cases of deaths arereported. Local governments must take preventive measures and activeparticipation of community by providing community education is necessary tocontrol this infectious disease. People must be educated about transmissionroutes of HIV/AIDS including hetero transmission, intravenous drugs usage, sexual transmission. Proper diagnosis and antiviral treatment can reducemortality rate.