DEPARTMENT OF MICROBIOLOGY
INFECTIOUS DISEASE BULLETIN
VOLUME 1 ISSUE 12 December 2022

World AIDS Day: 1st December

World AIDS Day 2022 is being marked under the theme "Equalize"

The global HIV response is in danger, even as HIV remains a major public health issue that affects millions of people worldwide. Over the last few years progress towards HIV goals has stalled, resources have shrunk, and millions of lives are at risk as a result. Division, disparity and disregard for human rights are among the failures that allowed HIV to become and remain a global health crisis.

On 1 December WHO joins partners to commemorate World AIDS Day 2022, under the theme "Equalize". WHO is calling on global leaders and citizens to boldly recognize and address the inequalities which are holding back progress in ending AIDS; and equalize access to essential HIV services particularly for children and key populations and their partners - men who have sex with men, transgender people, people who use drugs, sex workers, and people in prisons .

As per UNAIDS 2021 global report, an estimate of 37.6 million (30.2 to 45 million) people are living with HIV (PLHIV) with considerable variation in the numbers of PLHIV between countries. Approximately 1.5 million people (1.1 to 2.1 million) acquired HIV worldwide in 2020, of whom an estimated 690,000 (480,000 to 1 million) lives were lost due to AIDS-related illnesses worldwide in 2020. An estimated 27.4 million (26.5 to 27.7 million) PLHIV were accessing antiretroviral therapy (ART) in 2020 globally.1 Despite this great achievement, the challenge remains to put the rest on ART to reduce mortality and comorbidities, and to prevent further transmission of HIV.

As per India HIV estimation report 2020,2 national adult (15–49 years) HIV prevalence was estimated at 0.22% (0.17%–0.29%) in 2020; 0.23% (0.18%–0.31%) among males and 0.20% (0.15%– 0.26%) among females. The national adult prevalence continued to decline from an estimated peak level of 0.54% in 2000–2001 through 0.33% in 2010 to 0.22% in 2020. This corresponds to a 33.3% decline in the last 10 years.

-- National guidelines for HIV care and treatment 2021

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NACO
National AIDS Control Organisation
India's Voice against AIDS
Ministry of Health & Family Welfare, Government of India
www.naco.gov.in

NACO in Action

National AIDS Control Organisation's work and programme evolve and revolve around its twin objective of bringing about HIV prevention and providing treatment to people living with HIV.

In this mission, NACO establishes an interface with the health service organisations through meetings, seminars and training programmes in sensitising and training healthcare providers, and augmenting services for prevention and treatment of HIV/AIDS.

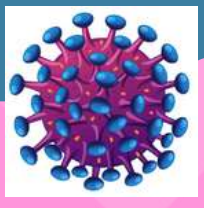
Through the State AIDS Prevention and Control Societies (SACS) and various NGOs, NACO guides prevention programme at state, district and village level that reaches out to health workers, high risk groups, bridge population and general people, particularly women.

To improve the visibility and acceptance of its prevention messages NACO seeks active participation of public idols and political leaders. Over the years, it has developed innovative means to spread awareness and bring about behaviour change among various high risk groups.

NACO also works with various school education boards in reaching out HIV education and life skills to highly vulnerable adolescent population of the country. It is also working with various government organisations in spreading the message of prevention and addressing the vulnerability of the personnel.

Key facts - WHO

- To reach the new proposed global 95–95–95 targets set by UNAIDS, we will need to redouble our efforts to avoid the worst-case scenario of 7.7 million HIV-related deaths over the next 10 years, increasing HIV infections due to HIV service disruptions during COVID-19, and the slowing public health response to HIV.
- HIV continues to be a major global public health issue, having claimed 40.1 million [33.6–48.6 million] lives so far.
- In 2021, 650 000 [510 000–860 000] people died from HIV-related causes and 1.5 million [1.1–2.0 million] people acquired HIV.
- There is no cure for HIV infection. However, with increasing access to effective HIV prevention, diagnosis, treatment and care, including for opportunistic infections, HIV infection has become a manageable chronic health condition, enabling people living with HIV to lead long and healthy lives.
- There were an estimated 38.4 million [33.9–43.8 million] people living with HIV at the end of 2021, two thirds of whom (25.6 million) are in the WHO African Region.



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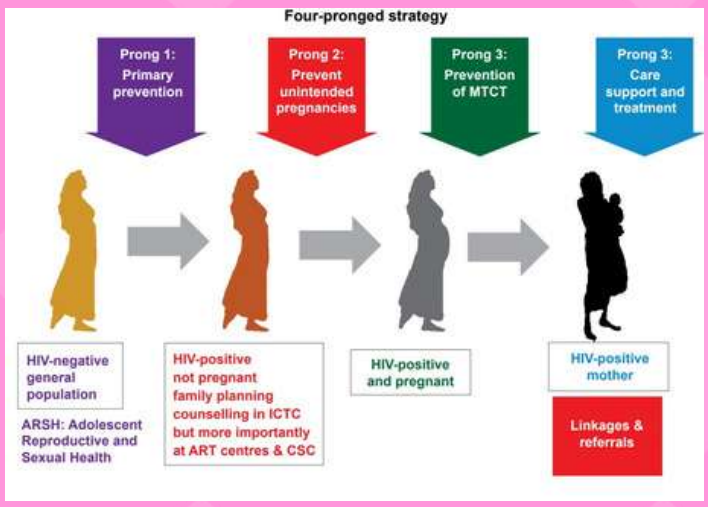
PPTCT Services in India

- The PPTCT services provide access to all pregnant women for HIV diagnostic, prevention, care and treatment services and have the reach to a wide area, including sub-district level.
- As such, the key objective is to ensure integrated PPTCT services delivery with existing Reproductive and Child Health (RCH) programme. Vision: Women and children, alive and free from HIV Goal:
- To work towards elimination of Paediatric HIV and improve maternal, newborn and child health and survival in the context of HIV infection
- The programme will strive to detect HIV-infected pregnant women and provide ART to all of them. Further, it will ensure access to early infant diagnosis (EID) to HIV-exposed infants, ARV prophylaxis or ART.



Pregnant women presenting in active labour

Maternal Status	Intra-partum	Post-partum
Presenting in active labour, no prior ART	Initiate TLD TDF (300 mg) + 3TC (300 mg) + DTG (50 mg)	Continue TLD TDF (300 mg) + 3TC (300 mg) + DTG (50 mg)

Target Population	Preferred ART Regimen	Remark
Pregnant or breastfeeding women with HIV	Tenofovir + Lamivudine + Dolutegravir TDF + 3TC + DTG (TLD)	• FDC of TDF (300 mg) + 3TC (300 mg) + DTG (50 mg) • To be given once daily • Including HIV-1, HIV-2, HIV-1 & 2, women exposed to single-dose NVP in the past and co-infected with TB or Hepatitis • Pregnant women with HIV should be educated about the benefits and risks of DTG to help informed choice

LET'S STOP HIV TOGETHER

ARV for Pregnant Women and Exposed Infant

- All HIV-positive pregnant women including those presenting in labour and breastfeeding should be initiated on a triple-drug ART regardless of CD4 count and clinical stage (Treat all), for preventing MTCT and should continue lifelong ART.
- ARV Prophylaxis is advised to the infant based on the risk of HIV transmission.
- Single-drug ARV Prophylaxis is advised in infants with low risk for HIV transmission for 6 weeks (regardless of type of feeding).
- Dual-drug ARV Prophylaxis is advised in infants with high risk for HIV transmission, the duration of which depends on the type of feeding (for 6 weeks if on replacement feeding and 12 weeks if on breastfeeding)

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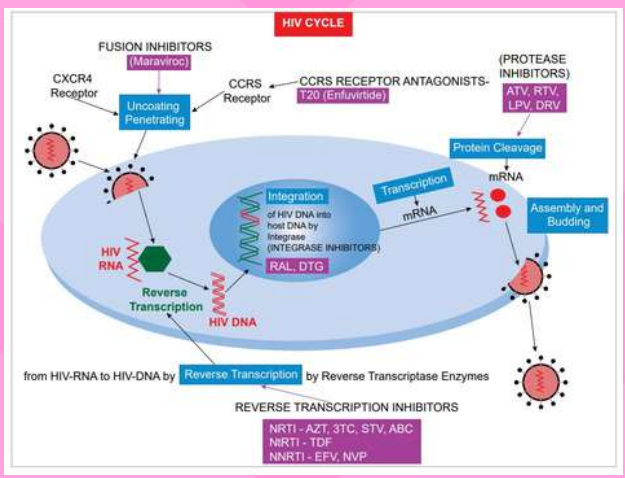
Antiretroviral Therapy (ART)

- Clinical goals: Prolongation of life, improvement in quality of life
- Virological goals: Greatest possible sustained reduction in the viral load
- Immunological goals: Immune reconstitution; both quantitative & qualitative improvement
- Transmission goals: Reduction of HIV transmission from infected persons to others

Indication to start ART:

TREAT ALL; i.e. ART has to be started in all patients irrespective of CD4 count, clinical stage, age, population or associated OIs



Highly active antiretroviral therapy (HAART) :

Referred to the use of combination of at least three antiretroviral drugs - suppress the HIV - stop the progression of the disease.

Monotherapy with single drug - contraindicated - inefficacy and chance of development of resistance.

Problems Pertaining to use of ART

- Toxicity and adverse side effects of ARTs - lipid abnormalities and drug interactions
- High cost of the regimen
- Risk of development of drug resistance and dissemination of resistant virus
- Limited therapeutic options.
- IRIS- Immune reconstitution inflammatory syndrome

NACO recommended first line HAART regimen:

Principle: Three drugs (2NRTIs/ NtRTI + 1NNRTI) - first line regimen.

Protease inhibitor - added in place of NNRTI for HIV-2 infection

Monitoring: CD4 count and viral load - monitored every 3–6 months to monitor the response to treatment

Code	First-line ART regimen	Indication
TLE*	Tenofovir + Lamivudine + Efavirenz	HIV-1 infection in adults (body weight > 30 kg)
ALE	Abacavir + Lamivudine + Efavirenz	HIV-1 patients with abnormal serum creatinine values HIV-1 infection in children (body weight < 30 kg)
TL + LR	Tenofovir-Lamivudine + Lopinavir-Ritonavir	HIV-2 or HIV- 1 and HIV-2 co-infection Women received with single dose nevirapine in past pregnancy Post-exposure prophylaxis for healthcare workers
ZLN	Zidovudine + Lamivudine + Nevirapine	These old regimens if already initiated earlier, need to be continued on the same regimen unless failing
ZLE	Zidovudine + Lamivudine + Efavirenz	

* TLE regimen is available as Fixed Dose Combination (FDC), as a single pill to be taken once a day.

Monitoring Tool	When to Monitor
Body weight Height / length in children	Every visit
Treatment adherence	Every visit
Clinical monitoring and T-staging	Every visit
4-symptom TB screening	Every visit
Screening for common NCD; Hypertension, Diabetes mellitus	Every 6 months or symptom directed
Laboratory evaluation based on ART regimen	Every 6 months or symptom directed
CD4 Count	CD4 must be done every 6 months*
Viral load	At 6 months, 12 months and then every 12 months**

*CD4 Count:

1. As routine virological monitoring is available, CD4 testing should be done every 6 months and can be discontinued in PLHIV (except those with HIV-2 infection) when CD4 count reaches greater than 350 cells/mm³ and viral load is less than 1000 copies/ml (when both tests are conducted at the same time).
2. CD4 monitoring should be restarted for any patient if
   a. the patient has been switched due to treatment failure, that is, virologic failure (Plasma Viral Load ≥1000 copies/ml or
   b. when deemed necessary for clinical management by the clinician at any point in time

**For patients on second/third-line ART, Plasma Viral Load testing to be done every 6 months

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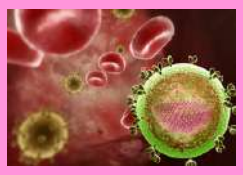
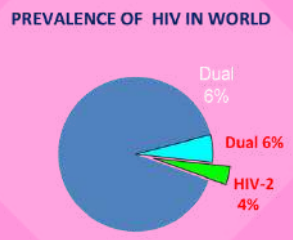
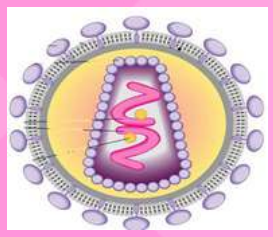
KNOW about HIV 2



HISTORY UNPLUGGED:-

- Clavel et al: first isolated HIV-2 In 1986,from AIDS patients in West Africa.
- The first case of HIV-2 infection in the United States was diagnosed in 1987.
- In India HIV-2 first case reported from Mumbai in 1991.





GLOBAL SCENARIO

- Predominantly found in Africa.
- West African nations with a prevalence of HIV-2 of more than 1%.
- Cape Verde, Gambia, Mali, Mauritania, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone.
- Angola and Mozambique are other African nations where the prevalence of HIV-2 is more than 1%.

INDIAN SCENARIO

- Introduction of HIV-2 in India may be related to trading connection of India & West Africa.
- Infection has been reported from several states from India.Tamilnadu, Maharashtra, Orissa more affected states.
- HIV-2 prevalence in India approx. 2.47 % of all HIV diagnoses cases.
- In India HIV-2 more commonly seen in high risk groups & professional blood donors.

•Unprotected sex with HIV-2 positive pts.
•Sharing of drug injection equipment with HIV-2 positive pts.
•Individuals who have travelled to, Western Africa & have engaged in HIV-related risk behaviors.
•Infants born to mothers with HIV-2.
•Recipients of blood products in an HIV-2 endemic region

•Clinical manifestations of HIV-2 AIDS are similar to HIV-1 .
•Female have better prognosis than male.
•Weight loss > 10%,
•Diarrhoea or fever or chronic cough > 1 month,
•Generalized lymphadenopathy (mc)
•Generalized pruritic dermatitis.
•Opportunistic infection: oral candidiasis,TB, intestinal parasitosis.
•Encephalitis & kaposi's sarcoma seen more with HIV-2 .
•Immunodeficiency develops more slowly & is milder in persons with HIV-2.

Western blot test:
considered to be confirmatory for HIV-2 also. Detect gp36 & gp 125.
DNA PCR :
used to detect HIV-2 virus.

•Which drugs not to be used?
•HIV-2 is intrinsically resistant to two of the major classes of antiretroviral drugs:
•Nonnucleoside reverse transcriptase inhibitor-(NNRTI): e.g nevirapine, and efavirenz.
•Fusion inhibitor. e.g Enfurvitide (T20)

•When to Start?
•initiating treatment for HIV-2CD4< 350/mm3 or possibly higher, instead of < 200/mm3.

•Which drugs to be used?
a) Nucleos(t)ide reverse transcriptase inhibitors (NRTIs):
e.g. zidovudine,lamivudine,emtricitabine,tenofovir,abcavir,
b) Protease inhibitors(PI):
e.g. lopinavir, saquinavir, indinavir, darunavir ,ritonavir.
c) Coreceptor binding inhibitors: block the CCR5 receptor.
e.g. Maraviroc

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NEWS UPDATE

Heavy rain and floods pave the way for higher HIV prevalence

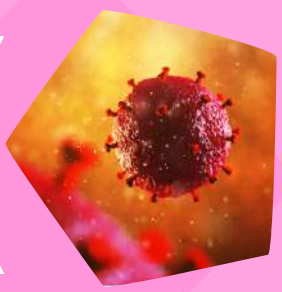
https://www.aidsmap.com/news/dec-2022/heavy-rain-and-floods-pave-way-higher-hiv-prevalence

Japanese Encephalitis in Australia

https://wwwnc.cdc.gov/travel/notices/alert/japanese-encephalitis-australia

Viral Protein Behind Chronic Inflammation in People with HIV: Study

https://www.the-scientist.com/news-opinion/viral-protein-behind-chronic-inflammation-in-people-with-hiv-study-70829

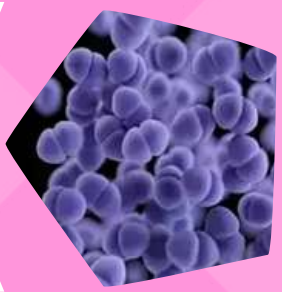


Brush Up: Quorum Sensing in Bacteria and Beyond

https://www.the-scientist.com/sponsored-article/brush-up-quorum-sensing-in-bacteria-and-beyond-70711

Breakthrough in bacterial vaginosis treatment

https://health.economictimes.indiatimes.com/news/diagnostics/womens-health-breakthrough-in-bacterial-vaginosis-treatment/95856083



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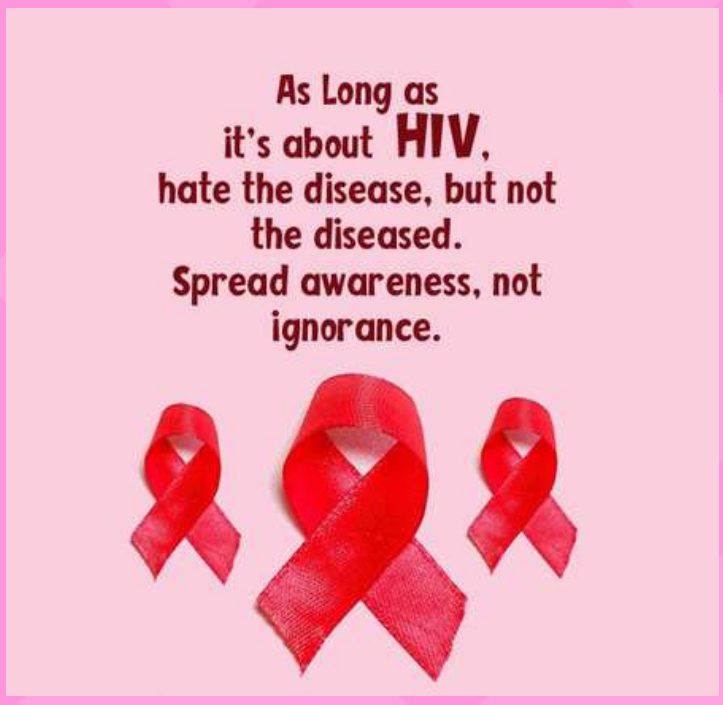

End of Volume 1: E-bulletin 2022

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