

## 2022 World AIDS day: Past achievements and future optimism

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Each year, countries around the World commemorates the World AIDS Day on December 1st. The day was first established in 1988 at the earliest years of the AIDS pandemic. Each year, the AIDS World Day is designed around a common theme. This year theme calls on countries around the globe to end the AIDS pandemic and to end inequalities. Making therapy affordable and available to treat those infected with the HIV. The World AIDS day also bring to the attentions the need to have further research to find a cure.

According to the World Health Organization (WHO), 38.4 million people are living with HIV in 2021 with a total death of 650,000 (Fig. 1). It had been shown that the global incidence of HIV among adolescents and young adults showed a reduction between 1990 and 2019 from 34.5 to 22.7 per 100,000 population [1]. The virus causing AIDS was discovered in 1983, Luc Montagnier's team at the Pasteur Institute in Paris [2] and since then a great progress had been made in the discovery of medications to treat the HIV infection. From the initial discovery of zidovudine (AZT) to the development of the highly active anti-retroviral therapy (HAART) in 1996 which resulted in significant reduction in opportunistic infections and hospitalization. The HAART and ART had resulted in an increase in the life expectancy of HIV patients with no other comorbid disease from 36.1 in early 2000's to 51.4 years in mid-2000's [3]. The currently approved HIV medications (ART) had

increased to > 30 different medications in multiple classes including a daily pill to the two injections every 2 months [4]. These medications had extended the life expectancy of HIV patients from 35 years to a range of 54 to 80 years, indicating a normal life expectancy [5]; and other researchers found a gap of only 8 years between HIV-infected and non-infected individuals [6]. In addition, currently there are few options for the prevention of HIV transmission among discordant partners [7] as well as the mother to child transmission (MTCT). MTCT of HIV is one of the priorities and according to WHO, there is about 1.3 million women and girls living with HIV who become pregnant annually with rate of MTCT of 15-45% with no interventions [8]. Despite the fact that 85% of women and girls globally had access to ART to prevent MTCT, there is continued transmission requiring further interventions.

One of the obstacles to the eradication and cure of HIV infection is the presence of the virus in sanctuary sites leading to dormancy and then re-emergence of the virus upon discontinuation of therapy [9,10].

In addition, the development of an effective HIV vaccine would be a breakthrough. Few studies had been completed in this regard and to date there is no approved vaccine. Few studies had been completed in phase I clinical trials [11-13].

As it had been stated by Dr. Fauci about the COVID-19 pandemic "It Ain't Over Till It's Over ... but It's Never Over" in relation to emerging infectious diseases [14]. The same holds true for the current AIDS pandemic. Further research is needed as well collaborative global and public health initiatives are all needed to have this pandemic ends. Thus, the 90-90-90 strategy to have 90% of HIV-infected individuals to be diagnosed by 2020, 90% of them to be on ART and 90% to achieve sustained

## Abbreviations

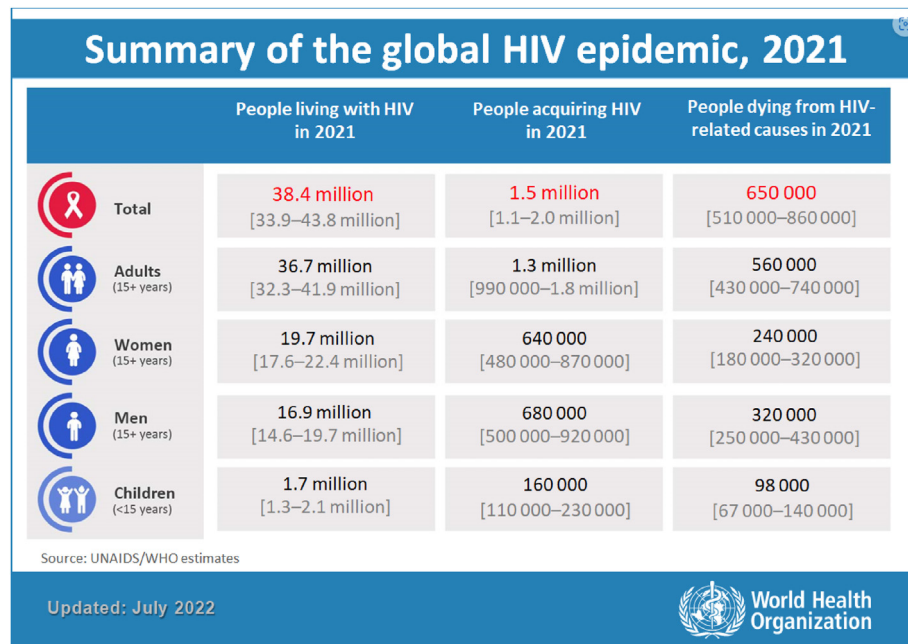
HIV	Human Immunodeficiency virus
AIDA	Acquired immunodeficiency syndrome
AZT	Zidovudine
HAART	Highly active anti-retroviral therapy
ART	Anti-retroviral therapy

## Declaration of competing interest

The authors declare that they have no competing interests.

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**FIG. 1.** World Wide Estimates of the HIV Burden According to the World Health Organization (WHO) (From Ref. [19]).

virologic suppression would put an end to the HIV pandemic by 2030 [15]. However, the road is full with challenges such as the needed manpower and supply of medications [16,17]. Despite these barriers, the future is optimistic as scientists and policy makers are putting "the end of the AIDS pandemic" as a priority in addition to the hope of having the mRNA-vaccine technology to help in developing anti-HIV vaccine which had achieved a significant progress [18].

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Not applicable.

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