Key Summary of Published Article

HIV-1

Drug Resistance Trends

Has resistance to HIV-1 antiretrovirals changed since 2018?

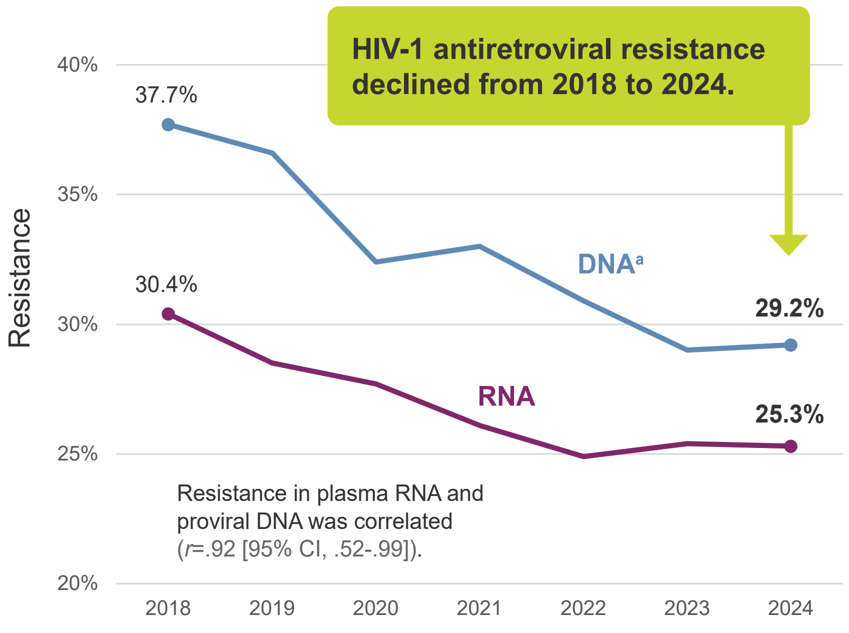
Background

Though treatment of HIV-1 infection has improved, drug resistance is still a challenge. New antiretroviral drugs have become available since 2018, but no large studies of resistance to antiretroviral treatment for HIV-1 have been published since then.

Methods and Results

Investigators retrospectively analyzed the prevalence of drug-resistance mutations for multiple classes of HIV-1 antiretroviral drugs. Specimens were submitted to Quest Diagnostics between January 2018 and May 2024 for plasma RNA (active infection) or proviral DNA (integrated into host) genotypic resistance testing; HIV-1 protease, reverse transcriptase, and integrase genes were sequenced.

Prevalence of HIV-1 Antiretroviral Resistance, 2018 to 2024[1]



- Resistance to newer NNRTIs (eg, rilpivirine, doravirine) remained low.
- Multidrug resistance declined but was more common in older adults, who are more likely to have been on 1st- or 2nd-generation treatments.
- Resistance to INSTIs decreased; however, the frequency increased for a mutation (R263K) associated with resistance to 2nd-generation INSTIs.

INSTI, integrase strand transfer inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor.

[a] Clinical minority variant cutoff of 10%.

Overall resistance to HIV-1 antiretroviral drugs decreased between 2018 and 2024, which correlates with increased use of improved treatment regimens. The increased frequency of mutations like R263K shows that surveillance of resistance is important.

1. Kagan RM, Baxter JD, Kim T, Marlowe EM. HIV-1 drug resistance trends in the era of modern antiretrovirals: 2018-2024. *Open Forum Infect Dis*. 2025;12(8):ofaf446. doi:10.1093/ofid/ofaf446

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