



Late HIV Diagnosis: Updated Definitions, Recent Trends and Strategic Directions

Aslıhan Candevir*

Department of Infectious Diseases, Cukurova University School of Medicine, Adana, Turkey

***Correspondence:** Aslıhan Candevir, Department of Infectious Diseases, Cukurova University School of Medicine, Adana, Turkey, E-mail: acandevir@gmail.com; DOI: <https://doi.org/10.56147/jidpc.2.2.15>

Citation: Candevir A (2025) Late HIV Diagnosis: Updated Definitions, Recent Trends and Strategic Directions. J Infect Dis & Pati Care 2: 15.

Received date: June 08, 2025; **Accepted date:** June 11, 2025; **Published date:** June 30, 2025

Description

Late Diagnosis (LD) of HIV continues to be a major global health challenge, resulting in poorer outcomes as increased morbidity, mortality and ongoing transmission risk despite decades of advances in testing and treatment [1-3]. Recent years have seen advancements in how LD is defined and a growing knowledge on the epidemiology, risk factors and strategies for improvement across diverse regions.

The standard definition of LD presentation with a CD4 count below 350 cells/ μ L or with an AIDS-defining event has been used for surveillance for over a decade [1,4]. However, this definition may misclassify individuals with acute HIV infection as late presenters, particularly in settings with expanded testing and Pre-Exposure Prophylaxis (PrEP) programs [5]. In response, the EuroTEST initiative and partners proposed an updated definition that reclassifies those with documented recent infection (such as a negative HIV test within 12 months or evidence of seroconversion illness) as not late [6]. This adjustment, now being adopted in some settings, aiming to avoid overestimation of LD and sharpen focus on missed diagnostic opportunities.

Across Europe, approximately 50% of newly diagnosed individuals continue to present late, with particularly high rates in Eastern Europe, parts of the Mediterranean and among older adults, migrants and certain key populations [2,7,8]. In a Turkish regional cohort, late diagnosis rates remained high 47% by the revised definition with a significant proportion diagnosed during the COVID-19 pandemic, highlighting the persistent burden of LD and the pandemic's disruptive impact on routine HIV services [9]. Similar rates have been documented in multi-center studies from Spain, Poland and other Turkish cohorts, supporting the global relevance of this challenge [10-12]. In China, recent analyses continue to show that over 60% of People Living With HIV (PLWH) are diagnosed at late stages, with older age and heterosexual transmission consistently

associated with increased risk [13-15]. In a study from northern India, 77.6% of People Living with HIV (PLHIV) presented late for care and we can see high prevalences of LD all over the world including Europe [16-21]. The COVID-19 pandemic has further exacerbated these trends. Interruptions in HIV testing and care have been associated with reduced diagnoses but an increase in the proportion of advanced cases and AIDS-related mortality in countries as diverse as Brazil, Germany, Turkey and Poland [22-25].

Risk factors for LD are well-documented. Older age, male gender, heterosexual transmission, lower educational attainment, being immigrant and intravenous drug use are associated with delayed diagnosis in multiple settings [9-12,14,26-28]. Stigma, discrimination, lack of knowledge, limited access to healthcare and low risk perception are recurring barriers, as are health system issues such as missed opportunities for testing in primary and emergency care [10,29-31]. Notably, a substantial proportion of late presenters had prior healthcare encounters where HIV testing was not offered, suggesting significant potential for improvement *via* provider-initiated testing guided by indicator conditions.

LD is linked to poorer virological and immunological outcomes, higher rates of opportunistic infections, increased healthcare costs and higher short-term and long-term mortality despite rapid ART initiation and modern regimens [3,9,32,33]. These consequences highlight the urgent need for earlier diagnosis and Antiretroviral Therapy (ART) to maximize individual and public health benefits. Mathematical models estimate that thousands of AIDS-related events and deaths could be averted each year in Europe alone if diagnosis and ART initiation occurred earlier [7,33]. Recent guidelines and studies emphasize a multifaceted approach to reduce LD:

- **Routine and opt-out testing:** Integrating HIV testing into routine healthcare, especially in primary care, emergency departments and for patients with indicator conditions, increases the chance of early detection [29,34,35].



- **Community and targeted testing:** Outreach to high-risk and underserved populations, including migrants, sex workers and intravenous drug users is essential for closing diagnostic gaps [14,26,36].
- **Reducing stigma and raising awareness:** Community engagement and education campaigns can mitigate stigma and improve risk perception in every aspect of population particularly the older heterosexual men, encouraging earlier testing [27,36].
- **Service integration and resilience:** Strengthening health system resilience, particularly in the face of public or global health disruptions like COVID-19, ensures continuity of HIV services and supports vulnerable groups [22,24].

As a conclusion late HIV diagnosis remains a critical public health issue that transcends national borders and healthcare systems. The adoption of revised LD definitions may allow more precise monitoring and a better focus on avoidable delays in diagnosis. Despite some regional progress, LD rates remain stubbornly high especially among older male adults, vulnerable populations and during periods of health system disruption. Reducing LD is essential not only for individual patient outcomes, but also for achieving global HIV control targets, including the UNAIDS 95-95-95 goals. Achieving progress in HIV control will require sustained investment in diverse and accessible testing, integration of HIV services with general healthcare, persistent efforts to reduce stigma and resilient health systems, all adapted to local needs.

References

1. Antinori A, Coenen T, Costagliola D, et al. (2011) Late presentation of HIV infection: A consensus definition. *HIV Med* 12: 61-64. [Crossref] [Google Scholar] [Indexed]
2. WHO Regional Office for Europe (2024) Under and late diagnosis of HIV is holding back progress to end AIDS in the European Region.
3. Mondì A, Cozzi-Lepri A, Tavelli A, Cingolani A, Giacomelli A, et al. (2024) Persistent poor clinical outcomes of people living with HIV presenting with AIDS and late HIV diagnosis - results from the ICONA cohort in Italy, 2009-2022. *Int J Infect Dis* 142: 106995. [Crossref] [Google Scholar] [Indexed]
4. Deeks SG, Overbaugh J, Phillips A, et al. (2015) HIV infection. *Nat Rev Dis Primers* 1: 15035. [Crossref] [Google Scholar]
5. Lodi S, Fisher M, Phillips A, et al. (2013) Symptomatic illness and low CD4 cell count at HIV seroconversion as markers of severe primary HIV infection. *PLoS One* 8: e78642. [Crossref] [Google Scholar] [Indexed]
6. Croxford S, Stengaard AR, Brännström J, et al (2022) Late diagnosis of HIV: An updated consensus definition. *HIV Med* 23: 1202-1208. [Crossref] [Google Scholar] [Indexed]
7. Late Presentation Working Groups in EuroSIDA and COHERE (2020) Estimating the burden of HIV late presentation and its attributable morbidity and mortality across Europe 2010-2016. *BMC Infect Dis* 20: 728. [Crossref] [Google Scholar] [Indexed]
8. Brännström J, Svedhem JV, Marrone G, et al. (2016) Deficiencies in the health care system contribute to a high rate of late HIV diagnosis in Sweden. *HIV Med* 17: 425-435. [Crossref] [Google Scholar] [Indexed]
9. Candevir A, Kuscü F, Kurtaran B, Kömür S, İnal AS, et al. (2023) Late diagnosis in HIV with new and old definitions: Data from a Regional Hospital in Turkey. *Int J Gen Med* 16: 4227-4234. [Crossref] [Google Scholar] [Indexed]
10. Gullón A, Verdejo J, de Miguel R, et al. (2016) Factors associated with late diagnosis of HIV infection and missed opportunities for earlier testing. *AIDS Care* 28: 1296-1300. [Crossref] [Google Scholar] [Indexed]
11. Jabłonowska E, Szetela B, Bielecki M, et al. (2021) Acquired Immune Deficiency Syndrome (AIDS) and late presentation in Poland - data from Test and Keep in Care (TAK) Polska project. *HIV Med* 22: 387-396. [Crossref] [Google Scholar] [Indexed]
12. Karaosmanoğlu HK, Mete B, Gündüz A, et al. (2019) Late presentation among patients with human immunodeficiency virus infection in Turkey. *Cent Eur J Public Health* 27: 229-234. [Crossref] [Google Scholar] [Indexed]
13. Xu Z, Li X, Yu L, Zhang M, Wang S, et al. (2023) Real-world data in late presentation of HIV infection in Suzhou, China: Results from four consecutive cross-sectional surveys, 2017-2020. *Front Public Health* 11: 1084840. [Crossref] [Google Scholar] [Indexed]
14. Zhou Y, Li D, Li X, et al. (2024) Unveiling trends in late diagnosis among 22,504 people living with HIV in Hunan, China. *Sci Rep* 14: 73648. [Crossref] [Google Scholar] [Indexed]
15. Tang L, Du YT, Kong WH, Liu P, Zhu ZR, et al. (2025) Late HIV/AIDS diagnosis among people living with HIV in Wuhan in 2023. *Front Microbiol* 16: 1594847. [Crossref] [Google Scholar] [Indexed]
16. Ajith AV, Khapre M, Sinha S, Bairwa M, Teja SRK (2025) Proportion of late presenters to HIV care and barriers to early presentation: A mixed-methods study at a tertiary care hospital in Uttarakhand India. *Cureus* 17: e82569. [Crossref] [Google Scholar] [Indexed]
17. Bendera N, Kisigo GA, Lutambi AM, Mmbaga BT, Mmbando BP, et al. (2024) Determinants of late HIV diagnosis and advanced HIV disease in Tanzania: Analysis of a nationally representative sample. *BMC Infect Dis* 24: 382. [Google Scholar]
18. Sakyi SA, Kwarteng S, Senu E, Effah A, Opoku S, et al. (2024) High prevalence of late presentation with advanced HIV disease and its predictors among newly diagnosed patients in Kumasi, Ghana. *BMC Infect Dis* 24: 764. [Crossref] [Google Scholar] [Indexed]
19. Bateman JP, Saxton PJW, de Gouw A, Kolodziej J, Priest PC, et al. (2023) Late presentation of HIV infection among adults in New Zealand from 2011 to 2020. *Int J STD AIDS*: 1-6. [Crossref] [Google Scholar] [Indexed]
20. Puła J, Kowalska J, Paciorek M, Bednarska A, Skrzat-Klapaczyńska A, et al. (2023) Late diagnosis of HIV infection in Warsaw: Estimating the scale of the problem and demographic trends. *HIV Med* 24: 75-81. [Crossref] [Google Scholar] [Indexed]
21. Scaia D, Fombellida K, Maes N, El Moussaoui M, Darcis G (2024) Risk factors for late HIV presentation in patients



- treated at a single belgian reference centre from 2018 to 2022. *Infect Dis Rep* 16: 239-248. [Crossref] [Google Scholar] [Indexed]
22. van Bremen K, Monin M, Schlabe S, et al. (2022) Impact of COVID-19 on HIV late diagnosis in a specialized German centre. *HIV Med* 23: 1209-1213. [Crossref] [Google Scholar] [Indexed]
23. Suchacz MM, Krankowska D, Cybula A, et al. (2022) Delayed HIV diagnosis during the COVID-19 pandemic in Poland: A call for targeted HIV testing for those under suspicion of SARS-CoV-2. *HIV Med* 23: 1173-1183. [Crossref] [Google Scholar] [Indexed]
24. Sevgi DY, Demirbas ND, Genc YI, Derin O, Oncul A, et al. (2023) Evaluation of the late presentation and associated factors of people living with HIV in Turkey. *J Med Virol* 95: e28781. [Crossref] [Google Scholar] [Indexed]
25. Andrade LA, et al. (2023) Reduced HIV/AIDS diagnosis rates and increased AIDS mortality due to late diagnosis in Brazil during the COVID-19 pandemic. *Sci Rep* 13: 23003. [Crossref] [Google Scholar] [Indexed]
26. Justice AC, Goetz MB, Stewart CN, et al. (2022) Delayed presentation of HIV among older individuals: A growing problem. *Lancet HIV* 9: e269-e280. [Crossref] [Google Scholar] [Indexed]
27. Conway AS, Esteve A, Fernández-Quevedo M, et al. (2019) Determinants and outcomes of late presentation of HIV infection in migrants in Catalonia, Spain: PISCIS cohort 2004-2016. *J Immigr Minor Health* 21: 920-930. [Crossref] [Google Scholar] [Indexed]
28. Lauscher P, Hanhoff N, Valbert F, Schewe K, Koegl C, et al. (2023) Socio-demographic and psycho-social determinants of HIV late presentation in Germany - results from the FindHIV study. *AIDS Care* 35: 1749-1759. [Crossref] [Google Scholar] [Indexed]
29. Salmerón-Béliz OJ, Pérez-Fernández E, Miró O, et al. (2022) Evaluation of emergency department visits prior to an HIV diagnosis: Missed opportunities. *Enferm Infecc Microbiol Clin*. [Crossref] [Google Scholar] [Indexed]
30. Wong CS, Wei L, Kim YS (2023) HIV late presenters in Asia: Management and public health challenges. *AIDS Res Treat* 2023: 9488051. [Crossref] [Google Scholar] [Indexed]
31. Tincati C, Fuscob FM, Santoro A, de Iacod F, Fabbrie A, et al. (2025) HIV screening in the emergency department: An opinion piece by the Italian Societies of Infectious Diseases and Emergency Medicine. *AIDS* 39: 927-934. [Crossref] [Google Scholar] [Indexed]
32. Ang LW, Toh MPHS, Wong CS, et al. (2021) Short-term mortality from HIV-infected persons diagnosed from 2012 to 2016: Impact of late diagnosis of HIV infection. *Medicine* 100: e26507. [Crossref] [Google Scholar] [Indexed]
33. Lundgren JD, Babiker AG, Gordin F, et al. (2015) Initiation of antiretroviral therapy in early asymptomatic HIV infection. *N Engl J Med* 373: 795-807. [Crossref] [Google Scholar] [Indexed]
34. HIV Indicator conditions.
35. Calpe DP, Muñoz P, Pizarro PA, Álvarez RV, Díaz SÁI, et al. (2025) Characterization of new HIV diagnoses made in hospital emergency departments through the "Leave Your Mark" program. *Enferm Infecc Microbiol Clin*. [Crossref] [Google Scholar] [Indexed]
36. van Opstal SEM, van der Zwan JS, Wagener MN, et al. (2018) Late presentation of HIV infection in the Netherlands: Reasons for late diagnoses and impact on vocational functioning. *AIDS Behav* 22: 2593-2603. [Crossref] [Google Scholar] [Indexed]