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EDITORIAL COMMENTARY

European Union, HIV, and Coronavirus Disease 2019 (COVID-19): Progress and Lessons Learned From the HIV Pandemic

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The coronavirus disease 2019 (COVID-19) pandemic has rightfully captured our attention—with 11 688 913 confirmed infections and 539 993 deaths in over 185 countries and regions (19 May 2020) [1]. The impact on our public and individual health and economies is staggering [2–5]—there are many questions including how did we find ourselves in deep economic and public health crisis in so many settings and what can we do to successfully survive the COVID-19 pandemic? The COVID-19 testing debacle and response in many countries also raises pointed questions regarding global and national preparedness for a major pandemic that has been predicted for at least 2 decades [6, 7]. Before COVID-19, Europe struggled to contain an ongoing human immunodeficiency virus (HIV) pandemic, and the article by Vourli et al in this issue of *Clinical Infectious Diseases* presents progress toward the global HIV 90-90-90 target [8].

The HIV response offers important insights into the challenges and opportunities for a successful pandemic response. After nearly 40 years, the HIV pandemic is now amongst the deadliest in history. HIV is 100% fatal without treatment, has infected over 75 million people so far, and has caused over 32 million deaths [9]. Despite the availability of rapid HIV testing and treatment that prevents illness, death, and transmission, HIV remains a significant problem with 1.7 million new infections and 770 000 deaths in 2018 [10]. Although the European HIV epidemic varies by country with some doing very well, UNAIDS reports that between 2010 and 2018, there was a 30% increase in HIV infections in Eastern Europe and Central Asia [11].

HIV treatment prevents illness, death, and transmission, and the decades long "test and wait until you are severely immunocompromised" strategy was disastrous [12]. Globally, 13 million people still do not have access to treatment [10], and the delay in access to earlier diagnosis and treatment continues to result in millions of avoidable infections and deaths [13–16]. In 2018, in Eastern Europe and Central Asia 896 000 (64%) of people living with HIV were not accessing treatment, and 1 036 000 (74%) were not virally suppressed [11]. In 2014, UNAIDS established the 90-90-90 target (90% of people living with HIV tested, 90% of those who are positive on treatment, and 90% of those on treatment virally suppressed) [17], and in 2015 the World Health Organization issued their "test and treat" recommendations [18]. The 90-90-90 target relies on rapid diagnostic tests and polymerase chain reaction-based viral load testing, translating into at least 73% of people living with HIV being virally suppressed (95-95-95 represents 86% of people living with HIV on successful treatment) [17]. Biological, ecological, observational, randomized control trials, program data, and population-based surveillance, support the focus on ensuring universal access to early HIV diagnosis and treatment to both keep people healthy and to prevent transmission. European Centers for Disease Control, along with its key stakeholders, have adopted this metric and have worked diligently to adopt the 90-90-90 target across the region [19].

The large number of authors and many national entities involved in pulling together the Vourli et al article give an indication as to the complexity of the European HIV response. Each country has a sovereign surveillance system and stitching them together so that the result compares *apples to apples* is a major undertaking. Compiling the results required nuanced decision-making including estimating how many people are infected with HIV, numbers of men who have sex with men, and people who inject drugs, the impact of antiretroviral treatment coverage on incidence, counting people on treatment, estimating out and in-migration, and understanding

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the meaning of country-specific viral load testing protocols. Given significant uncertainties, the estimations are well-reasoned and approximate the actual counts of people diagnosed, on treatment, and virally suppressed.

National HIV responses are important to stop HIV. However, in the context of the European Union where movement of people across borders pre-COVID-19 was relatively fluid, it is also critical to take a regional perspective. Similar to European COVID-19 control, the European Union cannot afford to have member states that are failing in their HIV control efforts. This paper on HIV control progress in 11 countries is a step forward in terms of standardizing the methodology, routinizing the reporting, examining trends, and helping countries be transparent and accountable for their progress. However, the inclusion of a limited number of mostly western European countries and data that are now 4 years old is of considerable concern. COVID-19, with its daily case detection and death counts, has illustrated the importance of near real-time data in addressing major pandemics. Although the modes of transmission for HIV are different, waiting months to years to analyze data is an increasingly unacceptable standard for the European Union and other regions [10, 11].

Measuring progress toward the 90-90-90 target is an essential marker of program success—it captures a snapshot of the continuum from diagnosis to treatment and viral suppression in general and among key populations [17, 20, 21]. The best programs are able to maintain a national cohort that registers people who are diagnosed and follows outcomes including treatment, viral suppression, illnesses, death, and lost to follow-up. Successful programs provide support and encourage continuity for people on treatment who move through the use of unique identifiers to register transfers by location. Although monitoring and evaluation guidelines are standardized, the global measurement of 90-90-90 within and between countries is not [20]. Acknowledging this challenge, the authors use estimates to compare progress from 2013 to 2016 for 11 EU countries overall and by key population and sex (representing 73% of the population in the EU). They estimate that, on average, 11 countries have achieved 73% viral suppression among people estimated to be living with HIV. However, variation across countries was observed with viral suppression ranging from 59% to 86%. The authors are too politic to rank the 11 countries; however, in the future, rankings of all the countries in the region could help the collective drive to regional success. The good news is that they conclude that comparison of proportions and, most importantly, of absolute numbers of treated and virally suppressed individuals give optimism that a decline in the number of new infections, as a result of an increase of people living with HIV virally suppressed, is most likely in the participating EU countries.

Diagnosis, treatment coverage, and viral suppression are critical for preventing transmission and eliminating HIV in Europe [19]. After decades of foot-dragging, the recent *U=U* campaign [22] has successfully leveraged previous calls for use of treatment as prevention and the clear scientific evidence that people who are virally suppressed do not transmit HIV [23, 24]. Increased treatment coverage drives down incidence and allows for targeting of more challenging prevention interventions such as condom use, behavior change, and pre-exposure prophylaxis. Although most countries have adopted science-based policies regarding HIV prevention including testing and offering immediate treatment irrespective of CD4 cell count, some are struggling to deliver the new policies [19]. This important study

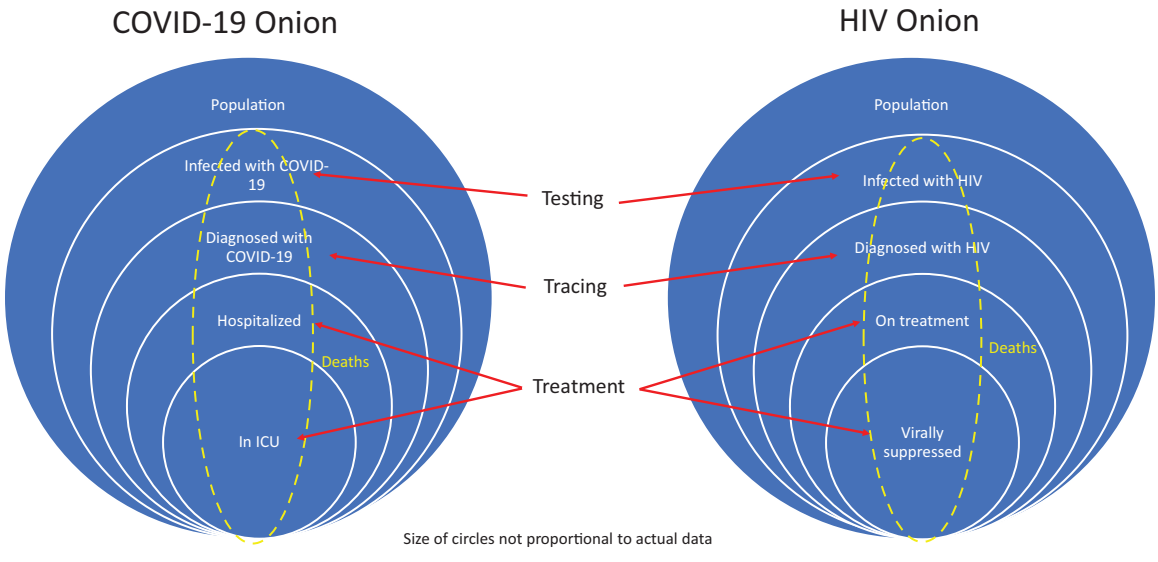

Figure 1. HIV and COVID-19 conceptual diagram showing testing, tracing, and treatment interventions. Abbreviations: COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus; ICU, intensive care unit.

raises important questions for HIV control in the 27 countries in the European Union and their regional neighbors. Will it be possible to move to standardized reporting based on national cohorts that does not require large teams of scientists and complex estimations for the numerators and denominators? Can leadership and the community move to real-time use of data to accelerate access to earlier diagnosis and treatment to stop HIV transmission? How will disparities in HIV control efforts impact overall EU efforts to end the epidemic? Although labeled as "ambitious" by many, including UNAIDS, the 90-90-90 target is a minimal objective as it translates into 27% of people living with HIV not virally suppressed and being at risk of illness, death, and transmitting HIV to their partners and children. Can countries in the European Union move beyond this minimal 73% viral suppression among all people living with HIV to the more humane at least 95-95-95 (86%) target?

Ironically, the latest zoonotic pandemic COVID-19 may provide valuable answers to the above questions. Simplification and standardization of the metrics including a move away from complex estimates to near real-time program data should help further focus pandemic control efforts (Figure 1). Perhaps the growing awareness and demand for sound public health policies based on data will support the HIV control community's push for improved data sharing in near real-time combined with application of sound disease control principles including increased access to testing, human rights-based tracing efforts, and treatment.

Note

Potential conflicts of interest. The authors: No reported conflicts of interest. Both authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest.

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