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# The need for standardisation of the HIV continuum of care

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In July, 2014, the Joint UN Programme on HIV/AIDS (UNAIDS) proposed an ambitious new target calling for 90% of HIV-infected individuals to be diagnosed, 90% of them to be on combination antiretroviral therapy (ART), and 90% of them to achieve sustained virological suppression, worldwide.[1] Achieving this 90-90-90 target by 2020 would, by 2030, decrease the burden of HIV/AIDS by 90% from that in 2010. However, to meet these targets standardised and continuous global monitoring of HIV care outputs should become a priority.

The HIV continuum of care provides a framework for the quantification of attrition as HIV-infected individuals move along a series of HIV-care related steps, from being diagnosed with HIV, to linkage and retention in HIV care, to initiating ART, and finally, to achieving sustained virological suppression (the ultimate goal of ART). The HIV continuum of care has become a key approach to monitoring in numerous HIV programmes.[2, 3, 4, 5, 6, 7] However, with little standardisation of the definitions of steps in the continuum comparisons between programmes are difficult, if not inappropriate. Here, we use the definitions and outputs of four continuums from the USA;[2] British Columbia (BC), Canada;[4] France;[5] and Denmark[3] to argue for a standardisation in continuum step definitions (appendix).

Numerous and substantial differences exist in these four continuums for the definitions of steps from the population of interest (or denominator) to viral suppression. The population of interest is the estimated HIV-positive population in the continuums from BC, France, and the USA; whereas, the number of diagnosed HIV cases is used in the Danish continuum. Thus the Danish continuum overestimates the proportion of individuals retained throughout.

Linkage and retention in care step definitions varied across the continuums from BC, Denmark, and the USA and included clinical, medical billing, and ART prescription requirements or inclusion in an established cohort. France was the only continuum not to distinguish between linkage and retention in care, instead showing a step referred to as “in care”. As a result, the linkage and retention in care steps could not be meaningfully compared. This deficit may be difficult to overcome given the heterogeneity of data used to

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characterise these steps in the various settings. The step known as “on ART” was defined in the USA and Denmark as any ART record within the year of interest. Alternatively, BC and France used more stringent definitions capturing long-term use of ART within the calendar year.

In their current form, the steps could not be compared, but this failing could be easily overcome with harmonisation. The only continuum to report on ART adherence was BC. For virological suppression, Denmark had the most liberal definition: latest viral load of less than 500 copies per mL. By contrast, BC had the most conservative definition of two or more measurements less than 50 copies per mL over a period of 3 months or longer within a calendar year. France defined suppression as having a viral load of less than 50 copies per mL within a calendar year. Finally, the USA defined suppression as a VL of 200 copies per mL or less at the latest available test. As a result, the reported proportion of patients suppressed was 35% in BC, 70% in Denmark, 52% in France, and 25% in the USA. Clearly, cross-continuum comparisons are problematic because of the different definitions.

Thus, we argue that continuum comparisons can only be made confidently with standardised guidelines for the development of continuums. Although defining a standardised universal HIV continuum will no doubt have its challenges, these are not insurmountable. A simpler continuum model that focuses on the UNAIDS 90-90-90 target could be comprised of three steps: the number of individuals diagnosed with HIV as a proportion of the estimated HIV-infected population (step 1), the number of HIV-diagnosed individuals on ART (step 2), and the number of individuals virologically suppressed among those on ART (step 3). Further consensus on the specific methods to estimate each of these stages in a given programme is needed. Establishing global monitoring of these three steps would allow for continuum comparisons. Certainly, further continuum steps (e.g., linkage to care, retention in care, ART eligibility, or adherence to ART) could be added to address the needs of any future research and surveillance efforts of individual programmes.

A concerted global effort to standardise and harmonise continuum definitions should begin immediately to facilitate the global monitoring of the UN 90-90-90 target, to identify specific areas requiring novel or enhanced public health interventions that will optimise outcomes for patients, and to enable direct comparisons of continuums between programmes.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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