

Abstract

Background: Monitoring and evaluation (M&E) of HIV care and treatment programs is impacted by losses to follow-up (LTFU) in the patient population. The severity of this effect is undeniable but its extent unknown. Tracing all lost patients addresses this but census methods are not feasible in programs involving rapid scale-up of HIV treatment in the developing world. Sampling-based approaches and statistical adjustment are the only scaleable methods permitting accurate estimation of M&E indices.

Methodology/Principal Findings: In a large antiretroviral therapy (ART) program in western Kenya, we assessed the impact of LTFU on estimating patient mortality among 8,977 adult clients of whom, 3,624 were LTFU. Overall, dropouts were more likely male (36.8% versus 33.7%; $p = 0.003$), and younger than non-dropouts (35.3 versus 35.7 years old; $p = 0.020$), with lower median CD4 count at enrollment (160 versus 189 cells/ml; $p, 0.001$) and WHO stage 3–4 disease (47.5% versus 41.1%; $p, 0.001$). Urban clinic clients were 75.0% of non-dropouts but 70.3% of dropouts ($p, 0.001$). Of the 3,624 dropouts, 1,143 were sought and 621 had their vital status ascertained. Statistical techniques were used to adjust mortality estimates based on information obtained from located LTFU patients. Observed mortality estimates one year after enrollment were 1.7% (95% CI 1.3%–2.0%), revised to 2.8% (2.3%–3.1%) when deaths discovered through outreach were added and adjusted to 9.2% (7.8%–10.6%) and 9.9% (8.4%–11.5%) through statistical modeling depending on the method used. The estimates 12 months after ART initiation were 1.7% (1.3%–2.2%), 3.4% (2.9%–4.0%), 10.5% (8.7%–12.3%) and 10.7% (8.9%–12.6%) respectively.

Conclusions/Significance Abstract: Assessment of the impact of LTFU is critical in program M&E as estimated mortality based on passive monitoring may underestimate true mortality by up to 80%. This bias can be ameliorated by tracing a sample of dropouts and statistically adjust the mortality estimates to properly evaluate and guide large HIV care and treatment programs.