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MORTALITY REDUCTION IN WESTERN KENYA DURING SCALE-UP OF HIV TREATMENT, 2011-2016

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Background: In the early years after ART introduction in Africa, there were marked declines in annual mortality, with reductions of 10-20% observed in various settings. There is limited information on the impact of the current rapidly expanding HIV treatment access on general population mortality in sub-Saharan Africa.

Methods: From 2011 to 2016, ART coverage in western Kenya increased from 34% to 60%. Data from a health and demographic surveillance system (HDSS) measured mortality and migration for the period; HIV home-based counselling and testing (HBCT) surveys took place in 2011, 2012, 2013, and 2016. Mortality trends were assessed in a closed cohort of residents.

Results: Seventy percent of HDSS residents in Gem, western Kenya, (22,688/32,467, aged 15-64 years) participated in the 2011 survey and comprised the cohort followed over time. All-cause mortality was 10.0 (95% confidence interval (CI) 8.4-11.7) per 1000 person-years (PY) in 2011, and declined to 7.5 (95% CI 5.8-9.1) per 1000 PY in 2016. Mortality was stable over the study period, at 5.7 per 1,000 PY among the non-HIV infected. Among HIV-infected persons, mortality declined from 30.5 per 1000 PY in 2011 to 15.9 per 1000 PY in 2016 (average decline 6% per year). Individuals on ART experienced higher mortality rates than non-HIV-infected individuals (rate ratio 2.8, 95% CI 2.2-3.4).

Conclusion: This study suggests mortality among HIV infected individuals declined substantially during ART expansion between 2011 and 2016, though less than the declines reported during early ART introduction. Mortality trends among HIV positive persons are critical to understanding epidemic dynamics. As ART use continues to expand, HDSS platforms offer a unique opportunity to monitor mortality alongside trends in HIV prevalence and incidence.