Supplementary Online Content


**eAppendix.** Details of Creation of Analysis Weights

This supplementary material has been provided by the authors to give readers additional information about their work.
eAppendix. Details of Creation of Analysis Weights

Time-varying covariates such as ART use and adherence, viral load, CD4, and alcohol and drug use may both confound and mediate the effect of depression burden on outcomes. As such, adjustment for these covariates through traditional multivariable regression models would be expected to bias effect estimates. Therefore we used inverse probability of exposure weights (IPEW) to fit marginal structural regression models. We combined the IPEW with inverse probability of censoring weights (IPCW) to address informative censoring and inverse probability of visit weights (IPVW) to address differing frequencies of measurement of appointments and viral loads.

We calculated IPEW by dividing percent of days with depression (PDD) into deciles and fitting a pooled ordinal logistic regression model to predict the probability an individual would experience the PDD decile they actually experienced given their covariates. Explanatory variables included baseline site, age, gender, race/ethnicity, and chart diagnoses, and baseline and time-varying alcohol and drug use, ART use and adherence, viral suppression, and CD4 count.

IPCW were calculated analogously using pooled logistic regression to predict censoring as a function of the same variables as well as time spent under observation and time-varying PDD. IPVW were calculated using pooled logistic regression to predict whether the participant had a scheduled appointment (or viral load) on each day as a function of the same explanatory variables. All weights were stabilized with baseline values of covariates. The IPEW, IPCW, and (depending on the analysis) IPVW were multiplied to produce a final set of weights. All weights were well distributed with mean close to 1. To assess sensitivity to outliers, primary results were compared to results using weights trimmed at the 1st and 99th percentiles and no substantive differences were observed.