The authors also asked about the severity of HIV in our cohort, including the viral load and CD4 counts and whether patients were receiving antiretroviral therapy. The inclusion criteria for all kidney and liver transplant recipients included the requirements for a CD4 count more than 200 (CD4 count, >100 for liver given splenic sequestration in the setting of portal hypertension) and an undetectable viral load on a stable antiretroviral regimen. These policies were adopted from the original clinic trial that looked at outcomes of transplant in HIV-positive patients.4,5

Finally, the authors mention that it may be useful to implement time- covariate interaction terms or use inverse propensity treatment weighting to estimate time-varying propensity scores. We appreciate this suggestion and look forward to examining it further with our future work in this field, particularly as more data become available for HIV/hepatitis C co-infected transplant recipients since the advent of hepatitis C direct-acting agents.6

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In Reply We appreciate the Letter from Goet et al regarding our recent publication.1 They raise a number of questions and concerns related to the article that we would like to address.

First, they emphasize the importance of reporting characteristics of the unmatched HIV-negative population. Regarding unmatched data, we used full matching, which makes use of many more observations than does pair or fixed matching by optimally assigning all treated participants and all comparison participants into variably sized matched sets. By using the full sample, full matching avoids bias due to incomplete matching and issues around generalizability.2 However, we set the variable ratio matching maximum to 10 matches and could have increased the maximum to include more of the full sample in the matched sample. For kidney transplant patients, we went from 122 prematching to 119 postmatching and for liver transplant patients from 83 to 80 postmatching; therefore, there was not a large loss of HIV-positive patients.

Second, Goet et al mention that matching can result in the loss of patients at the extremes of the propensity score distribution, which could disproportionately skew toward HIV-positive patients with fewer comorbidities. While this is a valid concern for all propensity matching, the authors then go on to state in their next comment that HIV-positive patients are known to have a higher prevalence of comorbidities such as peripheral arterial disease and cardiovascular disease. Although it would be ideal to match on all covariates, matching on diseases such as cardiovascular and peripheral arterial disease is complicated as these are not binary choices but rather a spectrum of disease severity with complicated nuances between patients. As the authors observe, alcohol misuse is a known risk factor for liver failure, and cardiovascular disease can affect transplant outcomes. That is why our center and many others have strict criteria for at least 6 months of abstinence and rehabilitation prior to wait-listing3 regardless of HIV status. Similarly, the cardiovascular status of all potential recipients requires corrected coronary artery disease and a cardiac output sufficient to tolerate the cardiovascular stress of transplant surgery.