

inflammation and long-term outcomes in survivors of critical illness warrants further study (7).

As presented in Table E2 of our online supplement, the median (interquartile range) protein C activity (as a percent of control) in our study population was 80% (53–119%) on study Day 1, 88% (59–127%) on study Day 3, and 93% (64–137%) on study Day 5. Whereas the median levels of protein C activity in our cohort were higher than those reported in more homogeneous cohorts of patients with septic shock (8) or acute respiratory distress syndrome (9), a substantial number of participants in our study had mildly to moderately decreased protein C activity. Because lower levels of protein C activity are associated with greater mortality (10, 11), the relatively higher levels observed in our follow-up cohort may be attributable to the fact that our study included only those who survived at least 3 months following the index critical illness.

Finally, we also agree with Yasuma and colleagues that protein C is but one part of the complex coagulation cascade. Further study of the relationship between coagulation pathways and long-term outcomes in survivors of critical illness should be conducted. As with inflammation, evidence suggests that coagulation pathways can remain active after clinical resolution of acute illness and that higher levels of coagulation markers, such as D-dimer and thrombin-antithrombin complexes, at hospital discharge are associated with greater 12-month mortality (12). Thus, the longitudinal study of relationships between markers of coagulation with long-term outcomes in survivors of critical illness should be conducted (7). ■

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## Neighborhoods with 25% Minority Residents Are Still Mostly White

To the Editor:

We applaud Borker and colleagues for bringing attention to the important subject of racial health disparities in the care of patients with obstructive sleep apnea (OSA) (1). Given the impact of OSA on overall health, disparities in OSA care can have massive societal health implications. The structural racism embedded in the healthcare system and in American neighborhoods that the authors highlight in the discussion is unquestionably an impediment to the health of Black and

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## Reply to Spector and Iweala



From the Authors:

We thank Drs. Spector and Iweala for their interest in our recent report demonstrating lower continuous positive airway pressure (CPAP) adherence in communities with higher proportions of Black or Hispanic residents (1). Spector and Iweala argued that one cannot conclude from our analysis that Black and Hispanic people had lower CPAP adherence rates. We did not make this claim. Instead, we concluded that neighborhoods with greater *proportions* of Black or Hispanic residents have lower rates, a conclusion that Spector and Iweala acknowledge is supported by our data.

A further concern was raised that, in our quintile analysis, the highest quintile for minority prevalence was 25–100%, which, they argue, suggests that the vast majority of residents in such neighborhoods are white. In fact, the mean proportion of minority residents across the zip-code tabulation areas in this category was 48% in both the Black and Hispanic neighborhood analyses. Furthermore, our secondary analyses that modeled the proportion of Black and Hispanic residents as continuous variables led to very similar conclusions.

Spector and Iweala argued for a comparison of residents from communities that are 99% white with those that are 99% Black to assess whether racial disparities exist. Such an analysis would be unrepresentative of individual racial differences because most Black (and Hispanic) Americans do not live in such highly segregated neighborhoods.

Overall, Spector and Iweala appear singularly focused on individual-level differences, but we believe that such a focus limits the ability to fully understand how structural racism produces health disparities. Evidence suggests that discrimination at multiple levels contributes to many health disparities (2). A primary goal of our work was to investigate the association between neighborhood-level exposures and CPAP adherence, given evidence that differences in social and physical environments are important drivers of racial health disparities due to the legacy of residential segregation (3, 4). Our results support the contention that neighborhood-level factors contribute to disparities in CPAP adherence and highlight the importance of identifying and addressing community-level barriers—rather than solely focusing on the individual—to achieve health equity in sleep medicine (5). ■

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Hispanic Americans, and we appreciate the discussion of all these factors as they contribute to disparities.

Unfortunately, as designed, this study does not answer the question about racial health disparities in continuous positive airway pressure (CPAP) adherence; thus, we object to the authors' conclusion that "our findings extend results from earlier studies which have reported consistently that Black patients have lower CPAP usage than White patients." The authors go on to conclude that they have "observed racial and ethnic differences in adherence," but they have not done so with the reported data. Although their conclusions about the differences in the neighborhoods may be valid, this study does not address racial or ethnic differences in adherence and should not be interpreted as evidence that Black and Hispanic patients are less adherent to CPAP.

This study compares neighborhoods that are <1% Black or Hispanic with those that are >25% Black or Hispanic. In other words, it compares majority non-Hispanic White neighborhoods with other majority non-Hispanic White neighborhoods. Given that the populations in these "minority" neighborhoods could be up to 74% non-Hispanic White, any findings from this study are more likely to reflect differences in the behavior of non-Hispanic White people than they are Hispanic or Black people. Based on the data presented in this study, it is equally logical to conclude that non-Hispanic White people who live among higher concentrations of Black and/or Hispanic neighbors are less likely to adhere to CPAP. It is the authors' assumption of disadvantage and healthcare "mistrust" that leads them to assume it is the CPAP usage by the Black and Hispanic patients rather than by the White patients that accounts for their findings.

To learn about racial differences in CPAP adherence, we suggest including comparisons with neighborhoods that are at least 50% Black or Hispanic, preferably percentages that mirror the percentages of White people (e.g., comparing neighborhoods that are 99% White with those that are 99% Black). Otherwise, it is inappropriate to make conclusions about the behaviors of Black and Hispanic patients by comparing two populations in which they are significant minorities. ■

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