Reviewer’s report

Title: Disparities of Care for African-Americans and Caucasians with Community-Acquired Pneumonia: A Retrospective Cohort Study

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Reviewer: Kimberly Johnson

Reviewer’s report:

Thank you for the opportunity to review this manuscript. Given documented disparities between African Americans and Caucasians in the treatment of many conditions, this work is interesting and important. Examining the presence or absence of disparities in the VA provides an opportunity to determine how access to care influences outcomes.

Major Revisions

Background:

• The authors appropriately review literature on previous studies of racial disparities in CAP care, LOS, and 30-day mortality. A number of the studies cited were done within the VHA population. Per the background, based on these studies, there is no racial difference in receipt of guideline-concordant antibiotic therapy, lower adjusted mortality rates for African Americans, and longer lengths of stay among African Americans. Based on these data from prior studies, it is not clear in the background, what this particular study adds to what is already known. The outcomes that the authors mention have been previously studied and described. Why undertake this study? What is different about this study compared to others? What does it add to existing knowledge?

Methods

• Pneumonia Processes of Care: The authors use the ATS and IDSA consensus guidelines published in 2007. However, their retrospective cohort includes those hospitalized from 2002-2007. What guidelines were in effect prior to 2007 given the time frame for the cohort? Do the 2007 guidelines differ from the previous guidelines? Why evaluate abx use based on guidelines that were not yet published at the time patients were actually admitted with CAP?

• Statistical Analysis: Why did the authors exclude all VHA patients who died within 30 days of discharge from the LOS analyses?

Results

• Antibiotic Prescribing: The authors mention that guideline-concordant abx prescribing increased over time. How is this trend affected by the fact that the guidelines were not published until 2007 and cohort assembled from 2002-2007?
Discussion

• In the second paragraph of the discussion, the authors mention that African Americans admitted to VHA ICU’s experienced a “survival advantage”. This may be misleading. I would recommend making it clear that they are referring to 30 day mortality among those discharged as opposed to survival in the ICU. Is this correct? Are all of the patients in the cohort discharged alive?

• At the end of the first page, the authors mention that it may be useful to compare healthcare costs by race as a marker of greater disease severity or more intensive management to help tease out the reason that African American patients admitted to VHA ICU’s had a lower 30 day mortality. I am not sure how this would be helpful since based on their greater use of mechanical ventilation and pressors, African Americans are likely to have higher costs.

• On p. 15, the authors discuss how preferences for care may impact 30-day mortality among ICU patients. It is true that African Americans are more likely to prefer mechanical ventilation and CPR regardless of prognosis. However, how would this have impacted 30-day mortality? Weren’t all of the patients in the cohort discharged alive? If so, how would preferences for care in the ICU have impacted 30-day mortality?

Conclusions:

• The authors begin their conclusions with “contrary to previous research…” Are the findings in this study contrary to previous research? In the background, the authors mention that the there is evidence from previous studies that there are no racial differences in guideline-concordant therapy and lower mortality rates for African Americans. What does this work add to prior studies? What are the practice and policy implications?

Minor Revisions

Methods

• Patient Eligibility: I would suggest adding a brief statement citing reasons for exclusions. (i.e. hospital or nursing home admission within 90 days—exclude healthcare associated pneumonia; no antibx within 48 hours--??Exclude hospital acquired cases??

• VHA Priority Scores: It is not clear how the VHA priority groups relate to socioeconomic status. Besides VHA priority group 5, are any of the other group assignments based on income?

• Statistical Analysis: It would also be helpful for the authors to provide information about how to interpret the hazard ratios for length of stay. What is actually modeled? Is it time to discharge? How was this indicated? Will smaller values (HR < 1 represent shorter LOS or longer LOS?

Results
• Baseline Characteristics by Patient Race: In the last sentence of the paragraph, the authors mention that “socioeconomic status as measured by priority group, also differed between the two cohorts”. What do these differences reflect? Did African Americans have lower incomes?

• Length of Stay: In table 2a, the median LOS and range are exactly the same for African Americans and Caucasians (4 (3-7)). However, the P-value is 0.0015 (Table 2a) and LOS is significantly different by race in the multivariable model (Table 31). Are these numbers correct (medians and ranges)?

Also, the authors exclude those who died within 30 days of discharge (why?) from the LOS analysis. How many veterans died in this time period?

Discussion
• The authors mention unmeasured comorbidity that may explain mortality differences. What are some possible comorbidities that may explain mortality difference observed in this study?

• What are reasons for the trends observed in Figure 1 and Figure 2?

• In the limitations paragraph, how might the accuracy of the VHA vital status file have impacted findings?

Abstract
• Authors state in background that African Americans with CAP are less likely than Caucasians to receive recommended care for CAP. Based on the information in the background, this is not true for many processes of care, including receipt of guideline-concordant abx or blood cultures. It would be helpful for the authors to be more specific about the existing disparities.

• In the conclusions, authors begin with “contrary to previous research…” See comment above. Prior research has reported lower adjusted mortality rates per work cited by authors. Would also clarify what is meant by survival advantage in the ICU. I think the authors are referring to 30-day mortality among those discharged alive rather than survival among those in the ICU.

Discretionary Revisions

Results
• Statistical Analysis: This section may be easier to follow if you describe the bivariate and multivariate analyses in different paragraphs.

• Intensive Care Units: Figure 2: The authors note that antibiotic prescribing rates did not differ significantly overall. However, figure 2 is interesting. By 2007, there appear to be no racial differences in antibiotic prescribing. However, from 2002 – 2007 (by year), there seem to be significant differences by race. Also, in 2002, Blacks had higher rates of guideline-concordant abx use and this reversed from 2003-2007. Could the authors comment on this?
Tables and Figures

• Figures 1 and 2: These figures are confusing. The y-axis is different for each. In Figure 1, the range for the y axis is 90 – 100%, and in Figure 2, it is 73% to 83%. Could these be standardized from 0 to 100%? I think it will make reading them easier.

• In Table I, the authors state that the results reflect bivariate statistical tests—chi square and student’s t-test. The t-test compares sample means. For which variable did the authors use the t-test? They list median and interquartile range (not mean) for age.

• Table 2a, 2b, 3a, 3b. For ease of reading, would have the multivariable analyses for non-ICU patients follow bivariate analyses for non-ICU patients (change 3a to 2b) and the multivariable analyses for ICU patients follow bivariate analyses for ICU patients (change 2b to 3a).

• In Tables 3a and 3b, the authors list HR/OR in the second column of the tables. It would be helpful to indicate which analyses used OR and which HR--? LOS.

Discussion

• The authors discuss the possible contribution of differences in frailty to the mortality differences observed. Would also include discussion of how differences in functional status may explain difference in mortality.

• On p. 16, the authors mention that placement issues or lack of adequate support systems may account for differences in length of stay. I would expect for these factors to result in longer lengths of stay. Is there data to suggest that these factors are more common among Whites (longer lengths of stay in the study).

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.