Manuscript Title: Approaches for the Utilization of Multiple Criteria to Select a Working Correlation Structure for Use Within Generalized Estimating Equations Manuscript Author: Westgate Manuscript ID: LSSP-2017-0496

Response to Comments from Reviewer 1

- Comment 1: IT IS KNOWN THAT THE DIFFERENT METHODS IN THE LITERATURES ARE PROPOSED FROM DIFFERENT POINTS OF VIEWS AND THE AUTHORS SHOULD PROVIDE MORE MOTIVATION FOR THE NEW METHOD. IN OTHER WORDS, WHY THE NEW METHOD WOULD WORK BETTER, ARE THERE ANY MORE INTUITIVE EXPLANATION ABOUT IT?
 - Response: Thank you for pointing this out. More intuitive explanation is now provided in the first bold paragraph on page 13 of the revised manuscript. We also explain in the first two bold paragraphs on page 13 that we cannot expect the proposed approaches to always work best.
- Comment 2: We know that some selection criteria for working correlation structures may also be applied to variable selection. Could this method may also be employed in the variable selection?
 - Response: Thank you for asking this. We address this question in the last bold paragraph on page 14 of the revised manuscript.

Response to Comments from Reviewer 2

- Comment 1: LINE 3 OF PAGE 2: IT IS GOOD THAT THE AUTHORS ARE NOW CITING CROWDER AND SU-TRADHAR AND DAS UP FRONT. HOWEVER, PERHAPS THIS SENTENCE COULD BE SLIGHTLY REWORDED TO SAY THAT "HOWEVER, THIS STRUCTURE TYPICALLY DOES NOT NEED TO BE THE TRUE STRUCTURE BECAUSE AN EMPIRICAL SANDWICH ESTIMATOR CAN PROVIDE CONSISTENT ESTIMATION OF THE TRUE COVARIANCE MATRIX OF REGRESSION PARAM-ETERS EVEN IF THE WORKING AND TRUE STRUCTURES ARE NOT EQUAL, WITH SOME EXCEPTIONS (CROWDER, 1995; SUTRADHAR AND DAS, 1999)." BY REORGANIZING THIS SENTENCE SLIGHTLY, IT WILL BE MORE CLEAR THAT CONSISTENCY CAN BE AT STAKE WHEN THE WORKING CORRELATION STRUCTURE IS MISSPECIFIED.
 - Response: Thank you. We have reworded this sentence.
- Comment 2: Your idea of proposing two practical approaches that combine information across criteria is very creative. You are correct in your critique of the approach suggested by prior authors, of selecting the correlation structure that is chosen by most criteria. While that was a simple approach that is easy to apply, you are correct that it provides no guidance regarding what one should do in the case of a tie.

- Comment 3: Providing the R function that implements GEE and outputs results including the studied correlation selection criteria values and proposed approaches will be very helpful for your readers.
 - Response: R functions have been uploaded as Supplementary Material.
- Comment 4: When choosing a correlation structure, it is helpful (I think) to also consider biological plausibility. For example, an AR(1) structure might be more biologically plausible in a longitudinal study than an exchangeable structure because we anticipate that two measurements on a subject will be less similar, and therefore less highly correlated, if they are measured further apart in time. Biological plausibility might be especially helpful as a criterion when you are doing simulations to evaluate power, when planning a study, because at that time you may not have preliminary data on which you can evaluate multiple working structures. This might be helpful to mention at some point in your paper.
 - Response: I agree. Thank you for pointing this out. We now discuss this issue beginning at the bottom of page 13 of the revised manuscript.