­­­­­ **APPENDIX: The variance of AUC estimator based on summary statistics**

We calculate the variance of the AUC estimator  Note that

 (A1)

Some algebra shows that (A1) can be partitioned into the four parts:

 (A2)

 (A3)

 (A4)

and

 (A5)

Furthermore, (A3) can be simplified as:



Let for and 2. It is easy to verify that  and Thus, (A3) is simplified as

 (A6)

Similarly, (A4) can be simplified as

 (A7)

where , and 

Combining (A1), (A2), (A5), (A6) and (A7) leads to

 (A8)

Note that  and  assuming . This assumption together with the fact that  and  simplifies  as

 (A9)

where , and 