A prediction model for 30-day mortality of sepsis patients based on intravenous fluids and electrolytes

**General Recommendation:** Reconsider after major corrections

**Comments to Editor:**
Dear Editor, Thank you for allowing me to review the manuscript entitled A prediction model for 30-day mortality of sepsis patients based on intravenous fluids and electrolytes. I have no conflicts of interest in connexion with this article. I suggest major revisions because of major issues in statistical analysis and data interpretation. Sincerely yoursromain Jouffroy

**Comments to Author:**
Thank you for allowing me to review the manuscript entitled A prediction model for 30-day mortality of sepsis patients based on intravenous fluids and electrolytes. The authors report a predictive model including variables associated with IV fluids and electrolytes with a good predictive value for the 30-day mortality of sepsis patients. The text is well written but can be shorten without altering its quality. I have comments and suggestions on the form and on the background. Form- The article is too long all parts can be reduced without altering the quality of the manuscript and the aim of the message - Abstract I suggest the authors to round AUC and 95 CI with 2 digits, 3 digits do not add significant values to their results - Page 4 statistical analysis mean instead of Mean - Page 4 statistical analysis I guess there is a typographical mistake in multiple interpolation, do the authors mean multiple imputation - Page 5 Results I suggest the authors to round age, fluid input and days without digit. - Page 5 line 8 Seven hundred and two instead of 702 people - Results section should be summarized - Page 10 limitations I do not understand the meaning of the following sentence Firstly, all the data were collected from MIMIC-III, the variables were not comprehensive. The second sentence is a major issue for results interpretation the components of output of IV fluids and electrolytes were not clear- Tables 1 and 2 I suggest the authors to round percentage and quantitative values without digit - Tables 3 and 4 I suggest the authors to round AUC and 95 CI with 2 digits, 3 digits do not add significant values to their results - Figures 3 and 6 do the authors mean acute renal failure or chronic renal failure Background- Abstract despite a long abstract, its not clear which hypothesis was tested by authors and what do the authors means by intravenous fluid management and electrolytes.- Methods why do the authors focused only on day 1 data for potential predictors - Page 4 statistical analysis which method was used for prediction establishment - I guess there is a confusion between prediction and association because the authors conclude to an association and not to a prediction - Beyond the statistical conclusion Malignant cancer, SAPS-II, potassium, SOFA, MAP, input and output of fluid were important variables associated with 30-day mortality of sepsis patients could the authors conclude to a practical conclusion for physician daily use- I guess there is a confusion between association and prediction. ROC curve analysis does not allow any conclusion for prediction, it just allows to specify the association between a qualitative variable and a quantitative variable. Why do the authors did not perform comparisons between AUC, i.e., using Delong method for example

**Title and abstract**
Yes

**Introduction**
The introduction is too long

**Material and Methods**
There are missing informations - please see enclosed comments

**Statistical Analysis**
There are missing informations - please see enclosed comments

**Results**
Results section is too long

**Discussion**

**Conclusions**
Tables and Graphics
There a format issues - please see enclosed document

References
References are up-to-date and main references have been cited

General comments to the Authors
Thank you for allowing me to review the manuscript entitled "A prediction model for 30-day mortality of sepsis patients based on intravenous fluids and electrolytes".

The authors report a predictive model including variables associated with IV fluids and electrolytes with a good predictive value for the 30-day mortality of sepsis patients.
The text is well written but can be shorten without altering its quality.
I have comments and suggestions on the form and on the background.

Form
- The article is too long; all parts can be reduced without altering the quality of the manuscript and the aim of the message
- Abstract: I suggest the authors to round AUC and 95 CI with 2 digits, 3 digits do not add significant values to their results
- Page 4: statistical analysis: mean instead of Mean
- Page 4: statistical analysis: I guess there is a typographical mistake in "multiple interpolation", do the authors mean "multiple imputation"?
- Page 5: Results: I suggest the authors to round age, fluid input and days without digit.
- Page 5 line 8: Seven hundred and two instead of 702 people
- Results section should be summarized
- Page 10 limitations: I do not understand the meaning of the following sentence "Firstly, all the data were collected from MIMIC-III, the variables were not comprehensive". The second sentence is a major issue for results interpretation "the components of output of IV fluids and electrolytes were not clear"
- Tables 1 and 2: I suggest the authors to round percentage and quantitative values without digit
- Tables 3 and 4: I suggest the authors to round AUC and 95 CI with 2 digits, 3 digits do not add significant values to their results
- Figures 3 and 6: do the authors mean acute renal failure or chronic renal failure?

Background
- Abstract: despite a long abstract, itâ€™s not clear which hypothesis was tested by authors and what do the authors means by intravenous fluid management and electrolytes.
- Methods: why do the authors focused only on "day 1" data for potential predictors?
- Page 4: statistical analysis: which method was used for prediction establishment?
- I guess there is a confusion between prediction and association because the authors conclude to an association and not to a prediction
- Beyond the statistical conclusion "Malignant cancer, SAPS-II, potassium, SOFA, MAP, input and output of fluid were important variables associated with 30-day mortality of sepsis patients" could the authors conclude to a practical conclusion for physician daily use?
- I guess there is a confusion between association and prediction. ROC curve analysis does not allow any conclusion for prediction, it just allows to specify the association between a qualitative variable and a quantitative variable. Why do the authors did not perform comparisons between AUC, i.e., using Delong method for example?