

Life Sciences Reporting Summary

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► Experimental design

1. Sample size

Describe how sample size was determined.

We included all adult patients from two large intensive care databases, MIMIC-III and eICU-RI. We conducted a secondary analysis of patient data initially collected routinely for patient care.

2. Data exclusions

Describe any data exclusions.

Exclusion criteria were pre-established. We excluded patients younger than 18 years old at the time of ICU admission, patients where mortality was not documented and patients with evidence of withdrawal of treatment. In MIMIC-III, we excluded patients where intravenous fluids were not recorded. In eICU-RI, we excluded ICU readmissions and patient admitted in an ICU with insufficient data collection.

3. Replication

Describe whether the experimental findings were reliably reproduced.

The results were reliably reproduced in a large array of sensitivity analyses, as described in Methods and Extended Data.

4. Randomization

Describe how samples/organisms/participants were allocated into experimental groups.

Not relevant, this was not a randomized controlled study.

5. Blinding

Describe whether the investigators were blinded to group allocation during data collection and/or analysis.

Not relevant, this was not a randomized controlled study.

Note: all studies involving animals and/or human research participants must disclose whether blinding and randomization were used.

6. Statistical parameters

For all figures and tables that use statistical methods, confirm that the following items are present in relevant figure legends (or in the Methods section if additional space is needed).

n/a Confirmed

- ☒ ☐ The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement (animals, litters, cultures, etc.)
- ☒ ☐ A description of how samples were collected, noting whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- ☐ ☒ A statement indicating how many times each experiment was replicated
- ☐ ☒ The statistical test(s) used and whether they are one- or two-sided (note: only common tests should be described solely by name; more complex techniques should be described in the Methods section)
- ☒ ☐ A description of any assumptions or corrections, such as an adjustment for multiple comparisons
- ☐ ☒ The test results (e.g. P values) given as exact values whenever possible and with confidence intervals noted
- ☒ ☐ A clear description of statistics including central tendency (e.g. median, mean) and variation (e.g. standard deviation, interquartile range)
- ☐ ☒ Clearly defined error bars

See the web collection on [statistics for biologists](#) for further resources and guidance.

► Software

Policy information about [availability of computer code](#)

7. Software

Describe the software used to analyze the data in this study.

The databases were queried in pgAdmin 4 v 1.2. Computations were implemented in Matlab R2017a (MathWorks Inc., Natick, MA).

For manuscripts utilizing custom algorithms or software that are central to the paper but not yet described in the published literature, software must be made available to editors and reviewers upon request. We strongly encourage code deposition in a community repository (e.g. GitHub). *Nature Methods* [guidance for providing algorithms and software for publication](#) provides further information on this topic.

► Materials and reagents

Policy information about [availability of materials](#)

8. Materials availability

Indicate whether there are restrictions on availability of unique materials or if these materials are only available for distribution by a for-profit company.

No unique materials were used in this study.

9. Antibodies

Describe the antibodies used and how they were validated for use in the system under study (i.e. assay and species).

No antibodies were used in this study.

10. Eukaryotic cell lines

a. State the source of each eukaryotic cell line used.

No eukaryotic cell lines were used in this study.

b. Describe the method of cell line authentication used.

No eukaryotic cell lines were used in this study.

c. Report whether the cell lines were tested for mycoplasma contamination.

No eukaryotic cell lines were used in this study.

d. If any of the cell lines used are listed in the database of commonly misidentified cell lines maintained by [ICLAC](#), provide a scientific rationale for their use.

No eukaryotic cell lines were used in this study.

► Animals and human research participants

Policy information about [studies involving animals](#); when reporting animal research, follow the [ARRIVE guidelines](#)

11. Description of research animals

Provide details on animals and/or animal-derived materials used in the study.

The study did not involve animals.

12. Description of human research participants

Describe the covariate-relevant population characteristics of the human research participants.

The research involved a total of 96,156 unique adult patients admitted to 133 separate intensive care units in the USA. The average age was 65 years old and 53% of the subjects were male. All the patients were diagnosed with sepsis according to the sepsis-3 international definition.