**Supplementary Online Content**

**Delays from first medical contact to antibiotic administration in sepsis**

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**eMethods.** Discussion of supplementary methods for multiple imputation.

**eFigure 1.** Predicted probability of in-hospital mortality adjusted for covariates across a range of medical contact delay until antibiotic administration for typical, community acquired sepsis patients who are 40 and 70 years old.

This supplementary material has been provided by the authors to give readers additional information about their work.

**eMethods.**

**Multiple imputation procedure**

The multiple imputation with chained equations (MICE) approach generates values for all missing data conditional on the observed data for all patients. This assumes the missing data was “missing at random.” We used 10 cycles of regression switching to create each of 11 independent datasets. We included all model covariates and our primary outcome in the imputation procedure. For continuous, non-normal variables with upper and lower bounds, we used predictive mean matching (e.g. prehospital time intervals, Glasgow coma scale score).1 We modeled the EMS severity index, race, and and grouped categorical variables (more than one category) using multinominal logistic regression.

**Analysis after multiple imputation**

We ran all our models on multiply imputed data (11 datasets). Regression coefficients and standard errors were combined using Rubin’s rules.2

**References**

1. Marshall A, Altman DG, Royston P, Holder RL. Comparison of techniques for handling missing covariate data within prognostic modelling studies: a simulation study. *BMC Med Res Methodol.* Jan 19;10(1):7.

2. Rubin DB. *Multiple imputation for nonresponse in surveys.* New York: John Wiley and sons; 2004.

**eFigure 1.** Predicted probability of in-hospital mortality adjusted for covariates across a range of medical contact delay until antibiotic administration for typical, community acquired sepsis patients who are 40 and 70 years old.

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