

ONLINE DATA SUPPLEMENT; Late Mortality after Sepsis; a propensity-matched cohort study

Appendix1: Process for matching sepsis hospitalizations to non-sepsis infection hospitalizations
(the same process is used for matching sepsis hospitalizations to sterile inflammation hospitalizations)

Step 1: Generate propensity score.

In this step, 14,529 Health and Retirement participants with linked Medicare claims are used to model the risk of developing sepsis using multiple logistic regression. Each patient's risk of developing sepsis is modeled separately for each of 49,605 two-year intervals following an HRS survey. Missing covariates are imputed with multiple imputation. Each patient's predicted probability of developing sepsis in the next two years is their propensity score for the given 2-year time period.

Dataset unit of observation: HRS survey

Unique Identifier		Independent Variables to Predict Risk of Sepsis			Dependent Variable	Propensity Score	
Patient	HRS Survey Year	HRS Survey Date	Age at HRS Survey	Self-Rating of Health	Other Covariates	Sepsis in Next 2 yrs	Predicted Probability of Sepsis
A	1998	1-Apr-98	68	4		0	1.8%
A	2000	15-Mar-00	70	4		0	2.2%
A	2002	3-Mar-02	72	3		1	2.5%
B	2000	4-Jun-00	65	4		0	5.3%
B	2002	5-May-02	67	3		0	12.1%
B	2004	16-May-04	69	3		0	13.4%
B	2006	7-Apr-06	71	2		0	14.2%
C	2000	1-Apr-02	73	2		0	6.5%
C	2002	16-Apr-00	75	2		1	12.1%
C	2004	9-Jun-04	66	4		0	17.8%
C	2006	10-May-06	68	4		1	18.8%
C	2008	11-Mar-08	69	3		0	22.5%
D	1998	2-May-98	73	3		0	2.1%
D	2000	13-Apr-00	75	3		0	2.3%
D	2002	28-Apr-02	77	2		0	5.6%

Step 2: Identify Hospitalizations for Possible Inclusion in Matched Analysis.

In this step, the data is reformatted such that row of data represents one hospitalization. Data from the HRS survey immediately prior to the hospitalization is linked to each hospitalization. Hospitalizations are classified as being for sepsis, infection, sterile inflammation, or none of these conditions. Next, the hospitalizations are sorted by person and date. The first hospitalization after each HRS survey is included, while all other hospitalizations are excluded. Hospitalizations that are not for any of the conditions of interest are also excluded.

Dataset unit of observation: Hospitalization

Patient	HRS Survey Year	HRS Survey Date	Admission Date	Sepsis	Infection	Sterile Inflammation	Predicted Probability of Sepsis
A	1998	1-Apr-98	1-Jan-99	0	0	0	1.80%
A	2000	15-Mar-00	15-Jan-01	0	1	0	2.20%
A	2002	3-Mar-02	21-Apr-02	1	0	0	2.50%
A	2002	4-Mar-02	10-Nov-03	1	0	0	2.50%
B	2002	5-May-02	11-Feb-04	0	1	0	12.10%
B	2004	16-May-04	12-Nov-05	0	0	1	13.40%
B	2006	7-Apr-06	13-Nov-06	0	0	0	14.20%
B	2006	7-Apr-06	14-Dec-06	1	0	0	14.20%

These hospitalizations are excluded because they are not first hospitalizations after an HRS survey

This hospitalization is excluded because it is not for sepsis, infection, or sterile inflammation

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Process for matching sepsis to non-sepsis infection and sepsis to sterile inflammation, continued

Step 3: Remove duplicate hospitalizations per individual.

In this step, we make a dataset of sepsis hospitalization and a dataset of infection hospitalization. So that no patient is included in the comparison of sepsis to infection more than once, exclude (at random) duplicate hospitalizations from the Sepsis and Infection datasets.

Sepsis Hospitalizations

Patient	HRS Survey Year	Sepsis Propensity
A	2002	2.5%
C	2004	17.8%
C	2006	18.8%
D	2002	5.6%
E	2008	11.2%
F	2004	14.2%
G	2008	16.5%
H	2002	12.1%
I	2005	14.9%
O	2007	9.6%
Q	1998	13.4%

Infection Hospitalizations

Patient	HRS Survey Year	Sepsis Propensity
B	2004	13.4%
I	2000	3.4%
J	2007	14.2%
K	2000	11.2%
J	2002	2.5%
M	2003	17.8%
N	2004	16.5%
N	2006	18.9%
N	2008	22.1%
P	2007	5.6%
R	2006	9.6%

This hospitalization is excluded at random because patient C has two sepsis hospitalizations

This hospitalization is excluded at random because patient I has both a sepsis and a non-sepsis infection hospitalization

These two hospitalizations are excluded at random because patient O has three non-sepsis infection hospitalizations

Step 4: Match Sepsis and Infection Hospitalizations.

Sort hospitalizations by sepsis propensity, then match sepsis and non-sepsis infection hospitalizations by age, gender, and propensity for developing sepsis. Continue matching until no more hospitalizations can be matched to each other.

Sepsis Hospitalizations

Patient	HRS Survey Year	Sepsis Propensity
A	2002	2.5%
D	2002	5.6%
O	2007	9.6%
E	2008	11.2%
H	2002	12.1%
Q	1998	13.4%
F	2004	14.2%
G	2008	16.5%
C	2004	17.8%

Infection Hospitalizations

Patient	HRS Survey Year	Sepsis Propensity
J	2002	2.5%
P	2007	5.6%
R	2006	9.6%
K	2000	11.2%
I	2000	12.1%
B	2004	13.4%
J	2007	14.2%
N	2004	16.5%
M	2003	17.8%