



Infective Endocarditis during Hospitalization for Solid Organ Transplantation in the United States

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Introduction

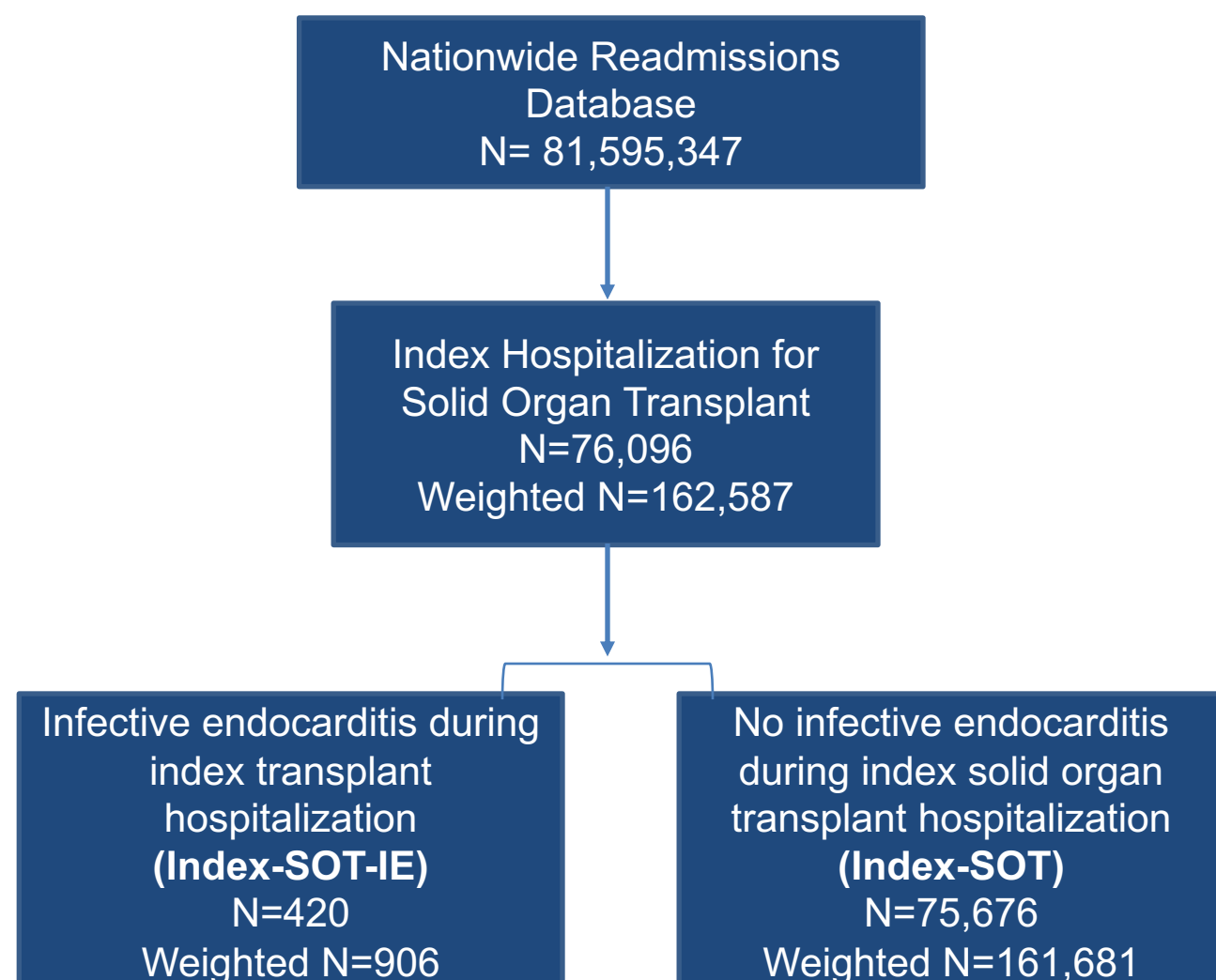
- The prevalence and impact of infective endocarditis (IE) on solid organ transplant (SOT) recipients is unknown
- With over 30,000 SOT performed annually in the United States alone, there is a growing population of immunocompromised patients at increased risk for infection
- We used a large cohort of transplant recipients to assess the impact of IE on outcomes during index transplant hospitalization

Methods

Study Design

- Used data from 2013-2017 Nationwide Readmissions Database (NRD), Healthcare Cost and Utilization Project
- 2017 NRD is an all-payor administrative dataset containing most acute care, short stay hospitalizations for 28 states, comprising 60% of US population and 58.2% of all hospitalizations
- Hospitalizations associated with SOT procedures (heart, liver, kidney, lung, intestines, pancreas) were included
- Patients grouped by presence or absence of diagnosis of IE during this index hospitalization
- Outcomes included 60-day mortality rate, extracorporeal membrane oxygenation (ECMO) deployment, thromboembolic events, length of stay and inpatient costs

Figure 1: Study design



Statistical Analysis

- Baseline characteristics and clinical events are presented as means with standard deviation for continuous variables and frequencies with proportions for categorical variables
- Regression models, weighted to account for NRD sample design, were used to model associations between outcomes and transplant procedure, adjusting for age, sex, facility characteristics, comorbid conditions and organ transplanted

Results

Table 1. Characteristics of Study Population

Parameter	Index-SOT (N=75,676) (Weighted N= 161,681)	Index-SOT-IE (N=420) (Weighted N= 906)	P-value
	n (%)	n (%)	
Age, mean (SD)	49.9 (15.8)	49.7 (15.8)	0.91
Female	61,407 (38.0)	200 (22.0)	<0.001
Medical History			
HIV/AIDS	961 (0.6)	0 (0.0)	0.37
Hypertension	36,340 (22.5)	375 (41.4)	<0.001
Obesity	23,163 (14.3)	155 (17.1)	0.18
Renal Failure	20,605 (12.7)	354 (39.1)	<0.001
Valvular Disease	6,575 (4.1)	8 (0.9)	0.02
Chronic Pulmonary Disease	15,946 (9.9)	118 (13.0)	0.05
Diabetes w/o chronic complications	15,642 (9.7)	120 (13.2)	0.04
Diabetes w/ chronic complications	33,035 (20.4)	142 (15.6)	0.02
Liver disease	38,782 (24.0)	70 (7.7)	<0.001
Rheumatoid arthritis/ collagen vascular disease	5,793 (3.6)	13 (1.5)	0.06
Coagulopathy	42,766 (26.5)	448 (49.4)	<0.001
Drug abuse	2,475 (1.5)	19 (2.1)	0.41

Figure 2: Microbial Etiology of IE among Index-SOT-IE Cases

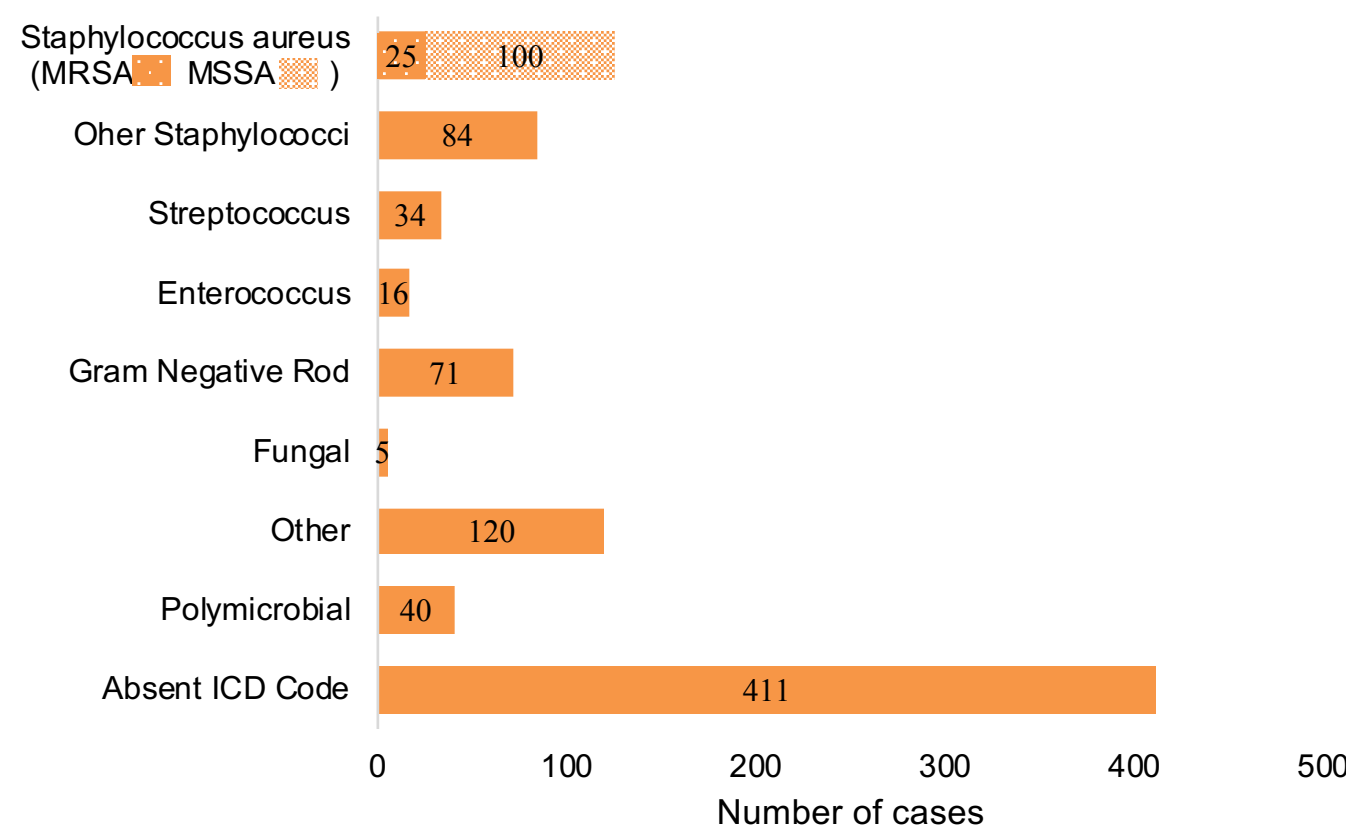


Figure 3: Type of SOT

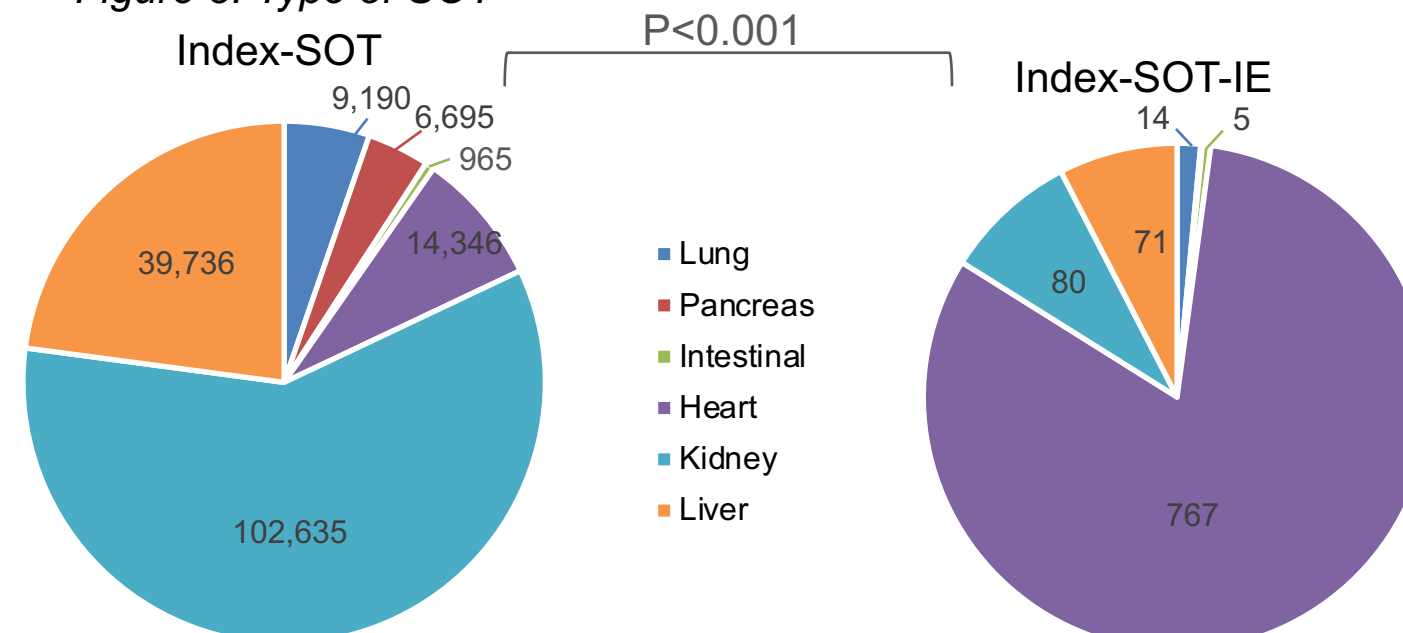


Figure 4: Outcomes from index transplant hospitalization among patients who did and did not have a diagnosis of IE

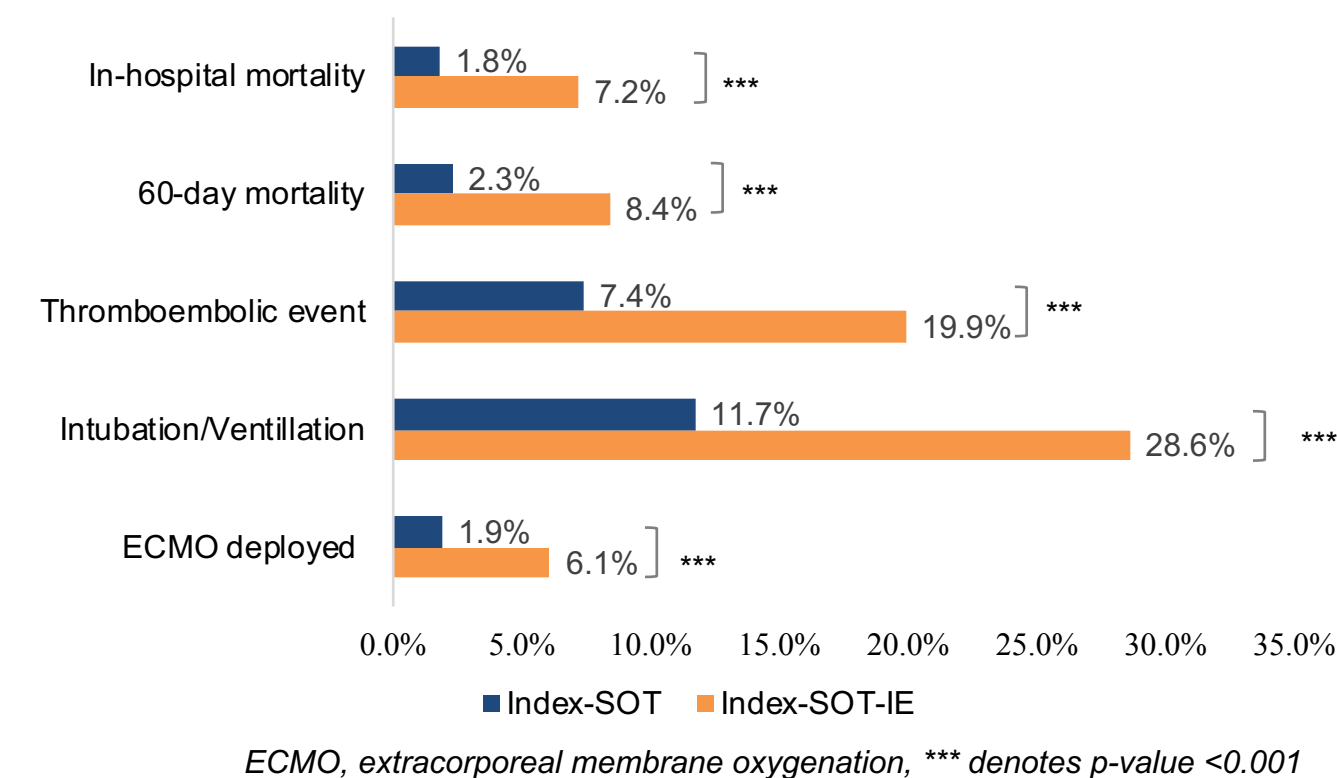
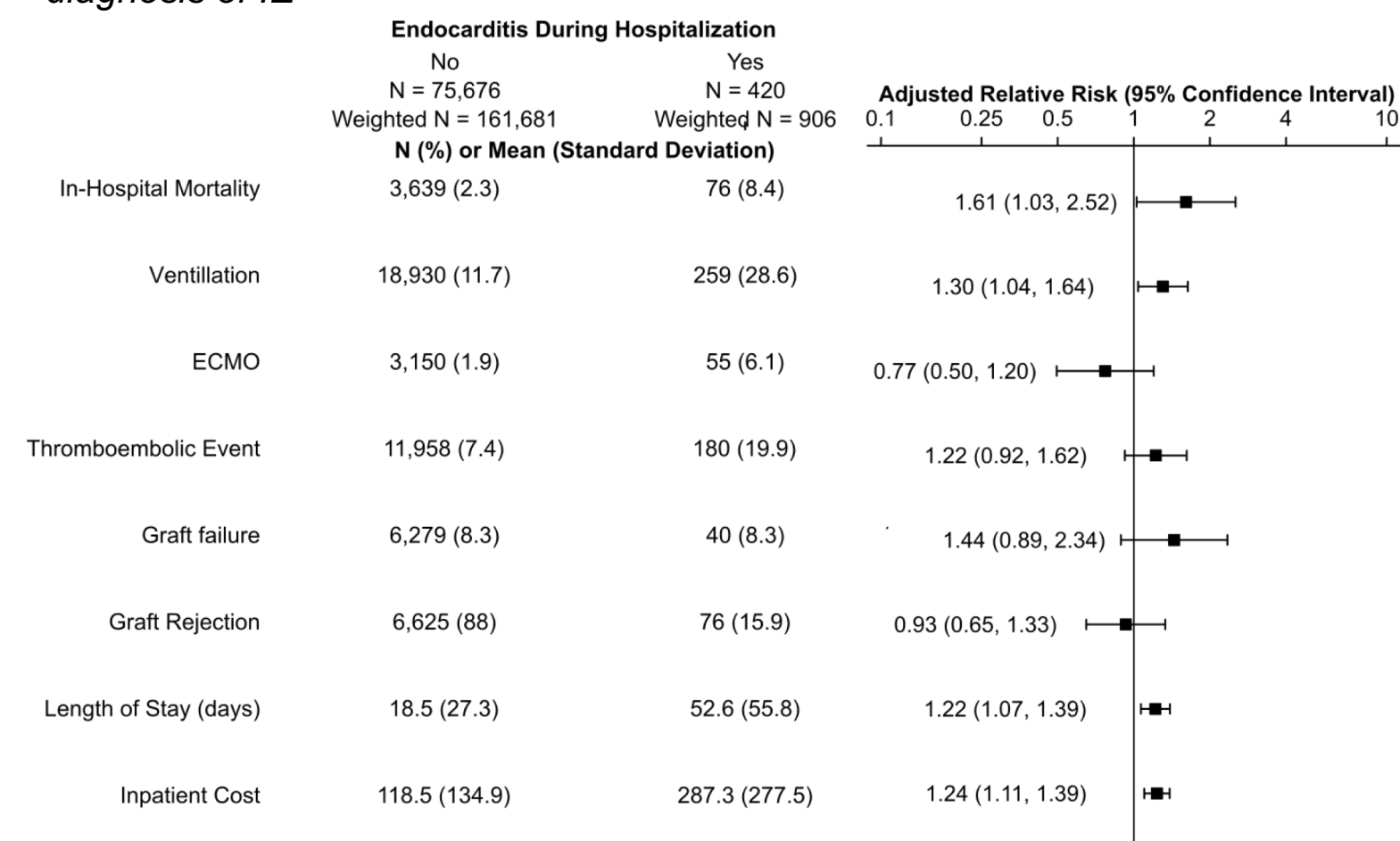


Figure 5: Unadjusted and adjusted relative risk of key outcomes during index transplant hospitalization among patients who did and did not have a diagnosis of IE



Conclusions

- IE is a rare complication during hospitalization for solid organ transplantation (0.56%)
- Most IE following transplantation occurs in heart transplant recipients (84.6%)
- Diagnosis of IE following organ transplant is associated with increased mortality, ECMO use, ventilation, hospital length of stay and inpatient cost
- Further study is needed to understand the relatively high risk of IE in heart transplant recipients and to develop interventions in this at risk population