

ONLINE DATA SUPPLEMENT

Return to Work and Lost Earnings after Acute Respiratory Distress Syndrome: A 5-Year Prospective, Longitudinal Study of Long-Term Survivors

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METHODS

Sensitivity Analyses

Risk factors for delayed return to work: We conducted two *post-hoc* sensitivity analyses. First, to account for possible age-related changes after age 65 (the traditional retirement age in the U.S.), the multivariable regression model was re-run excluding the 4 survivors (6% of cohort) who were ≥ 65 at hospital discharge, and data from 4 other survivors who turned ≥ 65 years old during post-ARDS follow-up. Second, the multivariable regression was re-run using an alternate, stepwise variable selection approach.²⁷

Estimated lost earnings: We performed two *post-hoc* sensitivity analyses for estimating lost earnings, using a different method to impute wages or involving a different patient sample. First, survivors' sex and self-reported occupation was matched with weekly wages for 22 major occupational and sex categories (www.bls.gov/oes). Because self-reported occupation was only collected at baseline and 2-year follow-up, this lost earnings sensitivity analysis spanned only 2 years post-ARDS. Second, lost earnings were estimated only for survivors <65 years old, under the assumption that survivors ≥ 65 years old would be eligible for retirement and/or social security payments after ARDS.

RESULTS

Sensitivity Analyses

Risk factors for delayed return to work: Two *post-hoc* sensitivity analyses were conducted: (1) restricting analysis to survivors who were <65 years old at each

follow-up time point and (2) using a stepwise variable selection approach. Across these two sensitivity analyses, there were no important differences in results.

Estimated lost earnings: When imputing estimates wages using occupation and sex, the cumulative 2-year mean (\pm SD) lost earnings decreased minimally, from \$74,808 \pm 43,010 to \$69,170 \pm 44,264 (8% difference). When lost earnings for survivors \geq 65 years old were excluded, cumulative 5-year mean (\pm SD) lost earnings increased from \$180,221 \pm 110,285 to \$184,884 \pm 110,348 (3% increase).

eTable 1. Predictors (unadjusted) of time to return to work over 5 years after ARDS

Characteristic	Crude Hazard Ratio^a (95% CI)	P value
Patient variables prior to ARDS		
Age, per year ≤40 years	0.97 (0.94, 1.01)	0.16
Age, per year >40 years	0.98 (0.94, 1.02)	0.38
Male sex	1.26 (0.65, 2.48)	0.49
White race	0.78 (0.44, 1.38)	0.39
Full-time education, per year	1.07 (0.95, 1.19)	0.26
Living at home	1.84 (0.34, 9.96)	0.48
Charlson Comorbidity Index, per point	0.73 (0.56, 0.94)	0.02
Functional Comorbidity Index, per point	0.83 (0.67, 1.03)	0.09
Hospital variables		
Respiratory failure admission diagnosis	0.85 (0.48, 1.51)	0.58
APACHE II score, per point	0.97 (0.94, 1.00)	0.09
Mean daily SOFA score, per point	0.85 (0.74, 0.99)	0.04
Delirium, per day	0.97 (0.89, 1.05)	0.46
Coma, per day	0.96 (0.89, 1.04)	0.30
Mechanical ventilation, per day ≤5 days	0.70 (0.55, 0.90)	0.01
Mechanical ventilation, per day >5 days	1.00 (0.97, 1.03)	0.97
ICU length of stay, per day	0.99 (0.96, 1.02)	0.49
Hospital length of stay, per day	0.98 (0.95, 1.00)	0.11
Discharge to rehabilitation or other healthcare facility	0.47 (0.26, 0.84)	0.01

^a Hazard ratios calculated using Fine and Gray regression models, with a hazard ratio <1 indicating a slower time to return to work.

eTable 2. Post-ARDS Work Status, SF-36 Quality of Life, and Hospitalizations

Outcome Measure	Working at Follow-Up^b	Not Working at Follow-Up^b	P Value^c
SF-36 Physical Component Summary (PCS) ^a , median (IQR)			
Two Year Follow-Up	48 (43, 55)	37 (32, 42)	<0.001
Three Year Follow-Up	49 (42, 56)	38 (34, 49)	0.005
Four Year Follow-Up	52 (41, 59)	42 (34, 48)	0.003
Five Year Follow-Up	55 (48, 58)	40 (38, 48)	<0.001
SF-36 Mental Component Summary (MCS) ^a , median (IQR)			
Two Year Follow-Up	53 (45, 58)	47 (32, 55)	0.15
Three Year Follow-Up	56 (42, 60)	54 (37, 61)	0.58
Four Year Follow-Up	54 (41, 59)	51 (34, 60)	0.64
Five Year Follow-Up	56 (46, 61)	54 (39, 60)	0.67
Ever Hospitalized in Prior Year, n (%)			
Two Year Follow-Up	19 (51%)	26 (87%)	0.002
Three Year Follow-Up	4 (15%)	15 (38%)	0.04
Four Year Follow-Up	3 (10%)	19 (54%)	<0.001
Five Year Follow-Up	7 (25%)	10 (29%)	0.75

Abbreviations: ARDS (Acute Respiratory Distress Syndrome), SD (Standard deviation), SF-36 (Medical Outcomes Study 36-item Short Form survey)

^a Higher SF-36 scores indicate better quality of life. SF-36 PCS and MCS are normalized scores (range: 0 to 100) with mean = 50 and SD = 10.

^b Measures reported for survivors with non-missing work status at each post-ARDS follow-up time point. At 2, 3, 4, and 5 years, the number of missing SF-36 values respectively, were 5, 11, 5, and 5.

^c Calculated using Wilcoxon rank sum for continuous variables and chi-squared tests for categorical variables.