

## Online Data Supplement

Acute Respiratory Failure Survivors' Physical, Cognitive and Mental Health Outcomes: Quantitative Measures vs. Semi-structured Interviews

Archana Nelliott, BS\*<sup>1,2</sup>

Victor D. Dinglas, MPH\*<sup>1,2</sup>

Jacqueline O'Toole, DO<sup>2</sup>

Yashika Patel BA, BS<sup>3</sup>

Pedro A. Mendez-Tellez, MD<sup>1,4</sup>

Mohammed Nabeel, MD<sup>5</sup>

Lisa Aronson Friedman, ScM<sup>1,2</sup>

Catherine L. Hough, MD, MSc<sup>6</sup>

Ramona O. Hopkins, PhD<sup>7,8,9</sup>

Michelle N. Eakin, PhD<sup>1,2</sup>

Dale M. Needham, FCPA, MD, PhD<sup>1,2,10</sup>

\*Contributed equally to the manuscript as co-first authors

<sup>1</sup>Outcomes After Critical Illness and Surgery Group, Johns Hopkins University, Baltimore, MD

<sup>2</sup>Division of Pulmonary and Critical Care Medicine, School of Medicine, Johns Hopkins University, Baltimore, MD

<sup>3</sup>Campbell University School of Osteopathic Medicine, Lillington, NC

<sup>4</sup>Department of Anesthesiology and Critical Care Medicine, School of Medicine, Johns Hopkins University, Baltimore, MD

<sup>5</sup>Department of Pulmonary & Critical Care Medicine, University of Maryland Medical Center, Baltimore, MD

<sup>6</sup>Division of Pulmonary, Critical Care, and Sleep Medicine, Harborview Medical Center, University of Washington, Seattle, WA

<sup>7</sup>Department of Medicine, Pulmonary and Critical Care Division, Intermountain Medical Center, Murray, Utah

<sup>8</sup>Center for Humanizing Critical Care, Intermountain Health Care, Murray, Utah

<sup>9</sup>Psychology Department and Neuroscience Center, Brigham Young University, Provo, Utah

<sup>10</sup>Department of Physical Medicine and Rehabilitation, School of Medicine, Johns Hopkins University, Baltimore, MD

Corresponding author:

Victor D. Dinglas, MPH

1830 E. Monument Street, 5th Floor, Baltimore, Maryland 21287

Phone: (410) 502-7040 Fax: (410) 367-2014

E-mail: victor.dinglas@jhmi.edu

Supplement Table e1: Major inclusion and exclusion criteria for the ROMA and ALTOS studies

	<b>ALTOS (SAILS Trial)<sup>14</sup></b>	<b>ROMA</b>
Major Inclusion Criteria	<ol style="list-style-type: none"> <li>1. Systemic Inflammatory Response Syndrome</li> <li>2. Suspected/known infection</li> <li>3. Acute Lung Injury</li> </ol>	<ol style="list-style-type: none"> <li>1. Expected to receive mechanical ventilation for acute respiratory failure for at least 48 hours</li> <li>2. English language fluency</li> <li>3. Age <math>\geq</math> 18</li> </ol>
Major Exclusion Criteria	<ol style="list-style-type: none"> <li>1. Age &lt;18</li> <li>2. More than 7 days since initiation of mechanical ventilation</li> <li>3. More than 48 hours since meeting acute lung injury inclusion criteria</li> <li>4. Rosuvastatin specific exclusions including allergy to statin, pregnancy, significant elevations in alanine aminotransferase, aspartate aminotransferase, or creatinine kinase, physician refusal to use statins, hypothyroidism with no hormone therapy; on medications that could interact (fenofibrate, cyclosporine, etc)</li> <li>5. Severe chronic liver disease (Child-Pugh Score 12-15), chronic respiratory failure, home mechanical ventilation chronic cardiac disease, myocardial infarction in past 6 months, or moribund patient not expected to survive 24 hours</li> <li>6. Diffuse alveolar hemorrhage from vasculitis</li> <li>7. Burns &gt;40% total body surface area</li> <li>8. Interstitial lung disease of severity sufficient to require continuous home oxygen therapy</li> <li>9. Unwillingness or inability to utilize the ARDS network 6 ml/kg PBW ventilation protocol</li> <li>10. Intraparenchymal Central Nervous System (CNS) bleed within a month of randomization.</li> <li>11. No consent/inability to obtain consent</li> </ol>	<ol style="list-style-type: none"> <li>1. Imminent death</li> <li>2. Poor neurologic prognosis/severe traumatic brain injury</li> <li>3. Severe peripheral neuromuscular disease or chronic neuromuscular disease (not including ICU-acquired)</li> <li>4. Spinal cord injury with deficits (ASIA grade A/B/C/D)</li> <li>5. Bedbound prior to current hospital admission</li> <li>6. Inability to obtain informed consent</li> </ol>
Exclusion from follow-up	<ol style="list-style-type: none"> <li>1. Non-English speaker</li> <li>2. Homelessness</li> <li>3. Baseline cognitive impairment</li> </ol>	<ol style="list-style-type: none"> <li>1. Homelessness</li> <li>2. Baseline cognitive impairment</li> </ol>

Abbreviations: ROMA: Recovery of Muscle after Acute Respiratory Failure; ALTOS: ARDS Network Long Term Outcomes Study; ARDS: Acute Respiratory Distress Syndrome; ALS: Amyotrophic Lateral Sclerosis; ASIA: American Spinal Injury Association

Supplement Table e2: Comparison of symptom presence on semi-structured interviews vs. standardized outcome measures

<b>Theme coded from qualitative interview</b>	<b>Standardized outcome measure instrument*</b>	<b>Patients with presence of theme in interview and completed standardized outcome measure instrument, n</b>	<b>Discrepant assessments, n (%)†</b>	<b>Endorsed symptoms in qualitative interview only</b>	<b>Endorsed symptoms on standardized outcome measure instrument only</b>
Anxiety	HADS-Anxiety	47	13 (28%)	10	3
Depression	HADS-Depression	34	12 (35%)	8	4
PTSD	IES-R	43	12 (28%)	9	3
Mobility	EQ-5D-Mobility	41	11 (27%)	8	3
Mobility	SF-36 Physical Component Summary	40	18 (45%)	18	0
Memory	Logical Memory 1	43	22 (51%)	22	0
Memory	Logical Memory 2	41	19 (46%)	19	0
Attention	Digit Span	43	29 (67%)	29	0

Abbreviations: HADS: Hospital Anxiety and Depression Scale; PTSD: Post Traumatic Stress Disorder; IES-R: Impact of Event Scale-Revised; EQ-5D: EuroQol-5 Dimensions; SF 36: Short-Form-36 version 2

\*Threshold used to dichotomize instrument score: HADS-Anxiety and HADS-Depression  $\geq 8$ ; IES-R  $\geq 1.6$ ; EQ-5D-Mobility  $\geq 2$ ; SF-36  $\geq 2$  standard deviations below matched population mean score; Logical Memory1, Logical Memory 2, and Digit Span  $\geq 2$  standard deviations below matched population mean score.

† A discrepant assessment was defined as endorsing the presence of a symptom on the semi-structured interview, but not scoring above the threshold on the dichotomized patient outcome measure, or vice versa, as reported in the last two columns of the table.