

Introduction

- Background: Although African American (AA) neonates have a higher risk of *post-operative* mortality compared to their White peers, little is known about the contribution of *pre-operative* comorbidities in this racial disparity.
- Objective: To quantify the role of *pre-operative* risk factors in the excess risk of *post-operative* mortality among AA neonates, compared to their White peers.

Key findings

- 19,446 neonates underwent inpatient surgical procedures between 2012 through 2017:
 - 16.1% were AA,
 - 75.0% were Whites,
 - 8.9% in “other” category.
- 3.2% died within 30 days of the index procedure.
- Being AA **operated synergistically** with the following pre-operative risk factors to increase the instantaneous risk of post-operative mortality: ventilation dependence, preoperative oxygen support, and inotropic support.
- The following pre-operative risk factors **mediated** the excess risk of mortality among AA neonates: transfusion, sepsis, and hematologic disorders.
- In addition** to operating synergistically with race to increase mortality risk, the following pre-operative risk factors were also mediators: emergent case status, ventilation dependency, prematurity, oxygen support, and inotropic support.

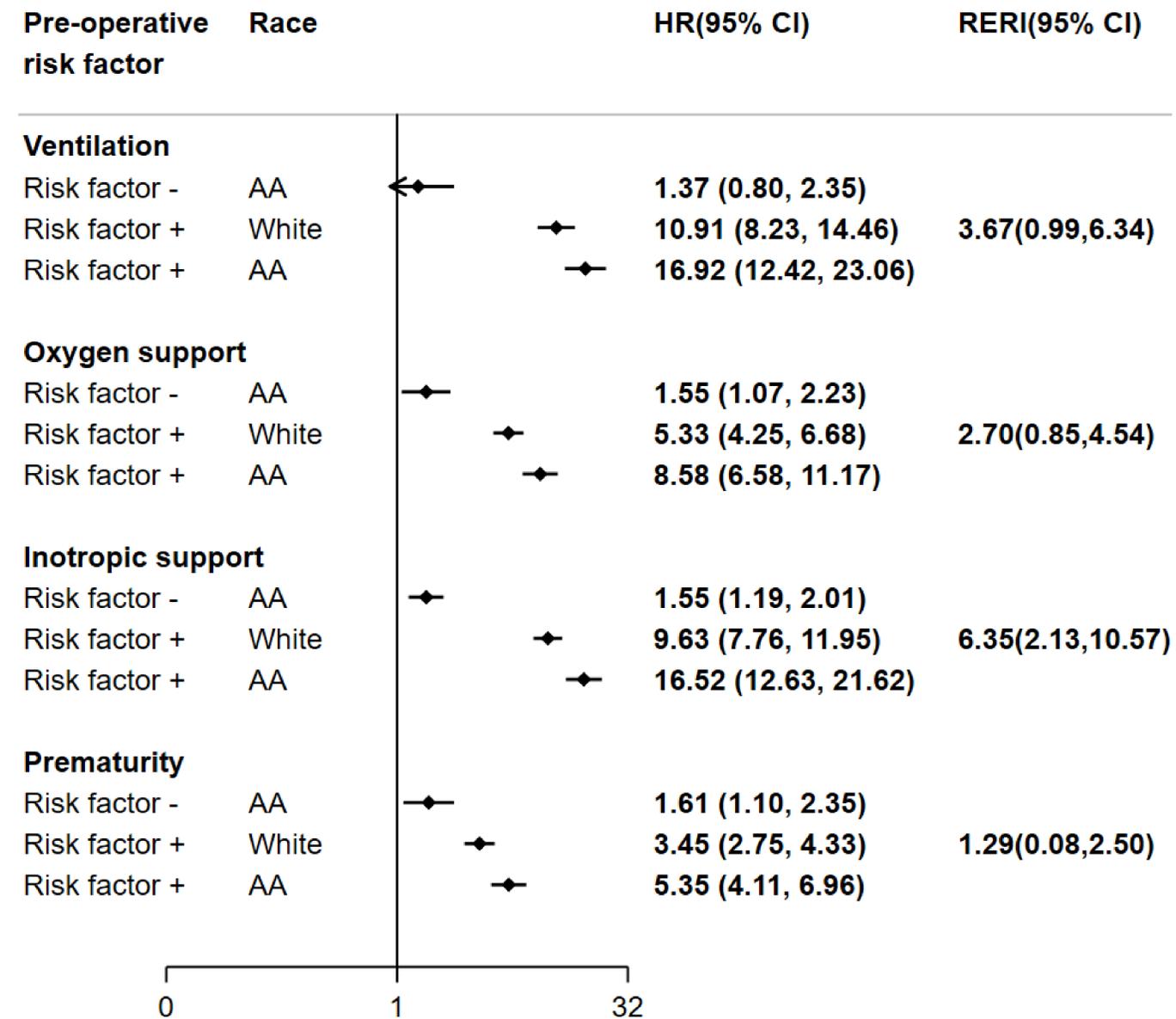


Figure 1. Quantifying antagonism or synergism between *pre-operative* risk factors and race.

Abbreviations: HR, Hazard-ratio (of *post-operative* mortality); CI, confidence interval
RERI, Relative excess risk due to interaction

Pre-operative risk factors	P-value RERI†	Proportion mediated, in %	
		% mediated (95%CI)	P-value
Emergent case	0.050	14.6(7.4,21.8)	<0.001
Ventilation	0.007	44.8(29.6,60.0)	<0.001
Oxygen support	0.004	31.2(19.9,42.5)	<0.001
Inotropic support	0.003	31.5(20.3,42.7)	<0.001
Transfusion	0.540	40.2(22.6,57.8)	<0.001
Bleeding disorder	0.490	4.5(-3.6,12.6)	0.275
Hematologic disorder	0.410	20.5(8.1,32.9)	0.001
Sepsis	0.354	40.0(22.6,57.4)	<0.001
Prematurity	0.036	29.8(17.0,42.6)	<0.001
Cardiovascular risk factor	0.551	1.7(-1.1,4.5)	0.247

Figure 2. Quantifying the mediation by *pre-operative* risk factors in the excess risk of mortality among AA neonates

Conclusion

- We quantified the vulnerability and susceptibility to key pre-operative comorbidities that may explain the excess risk of mortality among AA neonates, compared to their White peers.
- Tailored interventions may be directed at the identified factors to reduce the persisting racial disparities in neonatal *post-operative* mortality.

