A multicenter assessment of risk factors for worse postpartum recovery using the STanford Obstetric Recovery checklist (STORK)

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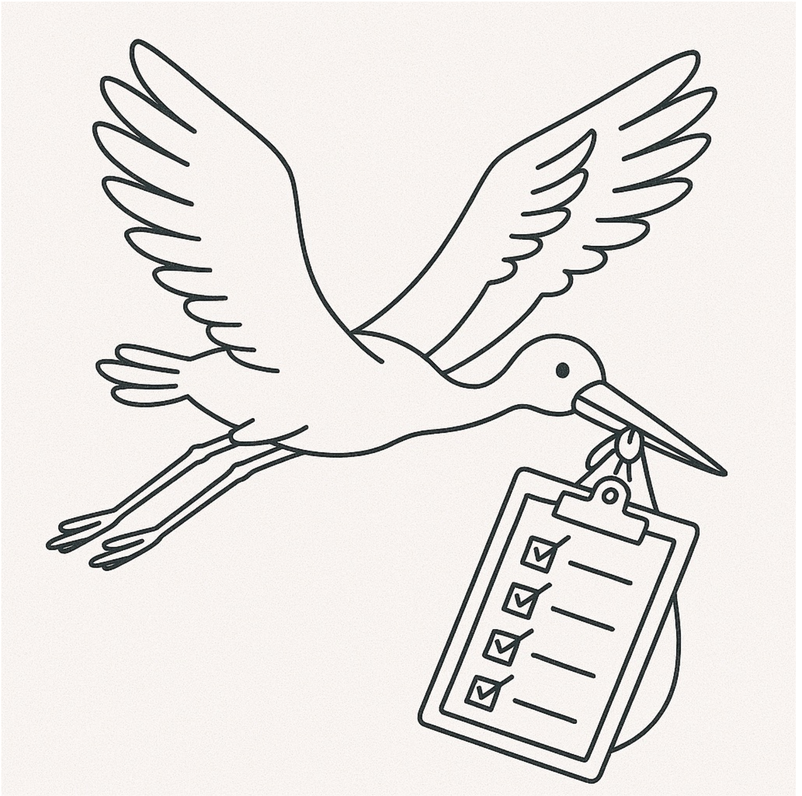
Background, Hypothesis & Aim

- Maternal mortality in the US primarily occurs after hospital discharge
- Predicting outpatient postpartum recovery trajectories has been limited by inadequate measures
- STORK is a validated PROM of outpatient postpartum recovery
- Hypothesis: Inpatient variables can be risk factors for worse recovery
- Primary aim: Identify risk factors for worse postpartum outpatient recovery at 6 weeks postpartum using STORK



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1. Trost et al. Pregnancy related deaths: data from maternal mortality review committees in 36 US states, 2017-2019.
2. Sultan et al. JAMA Network Open. 2025. In Press.

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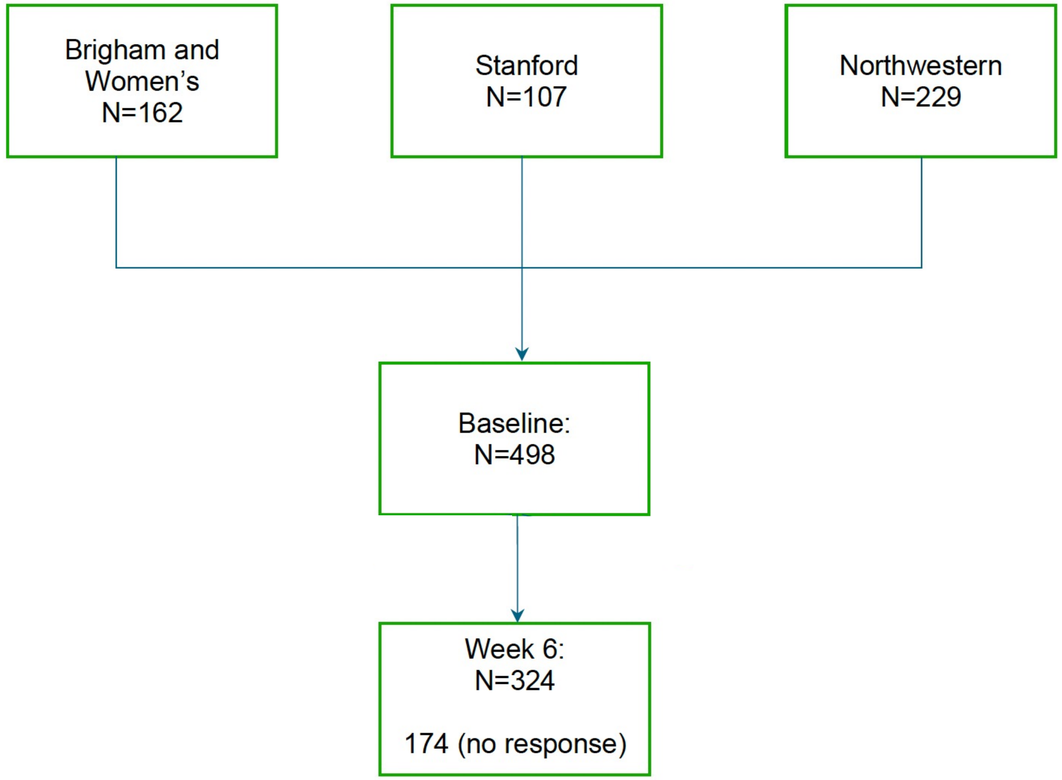
Study Design & Methods

- Prospective observational cohort study at 3 US academic centers
- Planned secondary analysis of STORK validation study data
- Inclusion criteria: English speaking, live neonate, all delivery modes, all modes analgesia / anesthesia
- Participants completed STORK questionnaire at two timepoints

    1) during inpatient postpartum hospitalization

    2) at 6 weeks postpartum

- Variables with $p < 0.2$ in the univariate model were included in the multivariate model to identify risk factors for the lowest 25th percentile of STORK scores at 6 weeks postpartum



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Results

- Univariate model: race, gestational age, estimated blood loss, ASA, complication, NICU admission, and inpatient STORK scores were associated with low 6-week STORK scores

- Multivariate model: the independent predictors for worse STORK score at 6 weeks were ASA class III and lower inpatient postpartum STORK score

Multivariate model for lowest 25th percentile STORK scores at 6 weeks

	Unadjusted		Adjusted	
	OR (95% CI)	p	OR (95% CI)	p
Age				
< 35	Ref			
>=35	0.8 (0.5, 1.4)	0.55		
Social support				
None/minimal	Ref			
Some/Lots	1.0 (0.6, 1.7)	0.98		
Hispanic vs Non-Hispanic	1.4 (0.7, 2.9)	0.3		
Race				
White	Ref		Ref	
Non-White	2.0 (1.2, 3.5)	0.008	1.6 (0.8, 3.5)	0.21
Gestational age				
37-41 weeks	Ref		Ref	
< 32 weeks	1.3 (0.2, 6.8)	0.76	0.7 (0.1, 5.4)	0.71
32-36 weeks	2.9 (1.3, 7.0)	0.01	1.43 (0.4, 5.8)	0.62
Primiparous	2.1 (1.2, 3.5)	0.01	1.3 (0.6, 2.8)	0.46
Estimated blood loss				
< 1000 mL	Ref		Ref	
>= 1000 mL	2.6 (1.2, 5.5)	0.01	1.4 (0.5, 4.2)	0.54
ASA				
2	Ref		Ref	
3	2.6 (1.4, 4.9)	0.002	3.6 (1.4, 8.9)	0.01
Mode of delivery:				
Vaginal delivery	Ref			
Planned Cesarean	0.9 (0.5, 1.7)	0.88		
Intrapartum Cesarean	0.9 (0.5, 2.0)	0.95		
Induction/augmentation	1.3 (0.7, 2.1)	0.41		
Obstetric history	1.4 (0.8, 2.5)	0.33		
Complications including transfusion	1.7 (0.9, 2.9)	0.11	1.2 (0.5, 2.7)	0.6
Neonate care: NICU	2.9 (1.1, 7.3)	0.03	2.5 (0.7, 8.7)	0.14
Inpatient STORK score				
Top 75 percentile	Ref		Ref	
Bottom 25 percentile	7.3 (4.1, 13.1)	<0.001	7.8 (3.6, 17.1)	<0.001

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Discussion & Conclusion

- Lower inpatient STORK scores and ASA class III are associated with worse outpatient recovery at 6 weeks postpartum
- Limitations
  - Data from just 3 centers
  - No rural / private practice patients
- Opportunity for early identification of patients at risk for worse outpatient postpartum recovery
- Informs future studies to develop and implement targeted interventions to improve outpatient postpartum recovery

SOAP Society for Obstetric Anesthesia and Perinatology

Society for Maternal-Fetal Medicine

ACOG The American College of Obstetricians and Gynecologists

Underscores need for collaborative approach between professional societies to improve current approach to postpartum care

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