

Impact of Von Willebrand Disease on Maternal Morbidity at Time of Delivery

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Introduction

- Impact of **von Willebrand disease (VWD)** on pregnancy has been narrowly characterized beyond associations with hemorrhage risk and need for transfusion
- We sought to evaluate the relationship between VWD and **severe maternal morbidity (SMM)** at time of delivery

Methods

- Using National Inpatient Sample data from 2007-2013, identified delivery admissions for women with and without VWD (ICD-9-CM 286.4)
- Examined rates of SMM defined by the Centers for Disease Control and Prevention for these two groups, both including and excluding blood product transfusion
- Poisson regression evaluated the association between VWD and SMM controlling for maternal comorbidities using a validated index (low: 0, moderate: 1-2, high: >2) and mode of delivery
- Weighted data analysis to provide national estimates

Results

- Total 5.7 million delivery admissions, of which 2,357 (0.04%) carried diagnosis of VWD
- Rate of SMM was significantly higher with VWD than without VWD, and this persisted after excluding transfusion (**Figure 1**)
- Incidence rate ratio after adjustment for overall SMM was 4.08 (95% CI 3.80-4.38) and with transfusion excluded was 1.97 (95% CI 1.68-2.31, both $p < 0.001$)
- Several individual SMM indicators were associated with VWD including anesthesia complications, transfusion, embolism, disseminated intravascular coagulation, acute respiratory distress syndrome and hysterectomy (**Figure 2**)

Discussion

- VWD is associated with a four-fold increased incidence of SMM at delivery, and even with blood product transfusion excluded VWD doubles the incidence rate of SMM
- Likely an underestimate of the impact of VWD on maternal morbidity as we focused only on the delivery admission
- Further studies are needed to better inform delivery planning and postpartum care for VWD

Women with **VWD** experience **more maternal morbidity at time of delivery, even with transfusion excluded, compared with unaffected women.**



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Figure 1. Rate of Severe Maternal Morbidity with and without VWD

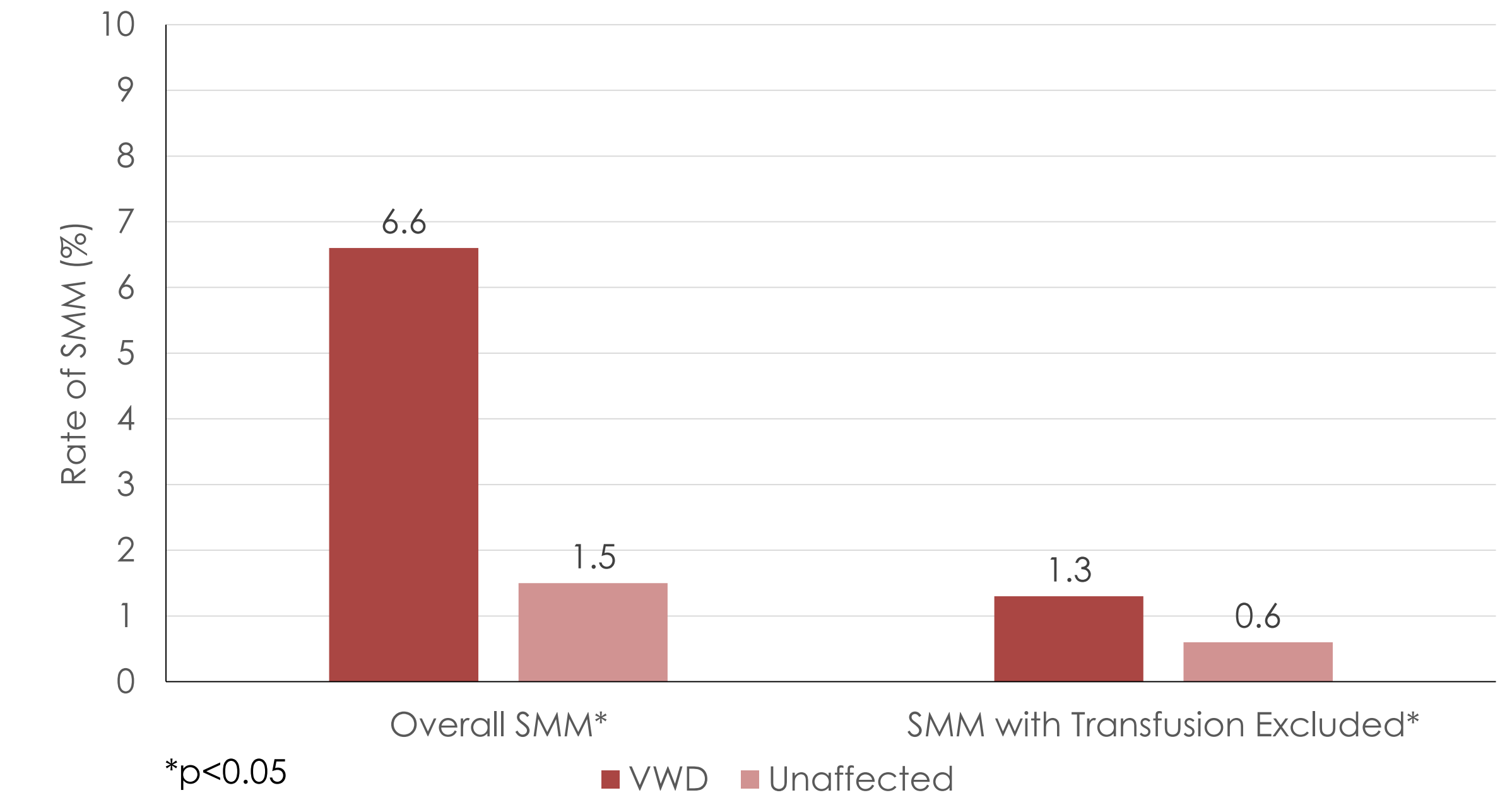


Figure 2. Severe Maternal Morbidity Indicators in VWD

