

Appendix 1: AIM Obstetric Hemorrhage bundle gap analysis (hospital response in italics)

Readiness: every unit	Recognition and prevention: every patient	Response: every hemorrhage	Reporting/Systems Learning: every unit
Hemorrhage cart with supplies, checklist, and instruction cards for intrauterine balloons and compressions stitches: <i>in place - consistently executed</i>	Assessment of hemorrhage risk (prenatal, on admission, and at other appropriate times): <i>in place – not working</i>	Unit-standard, stage-based, obstetric hemorrhage emergency management plan with checklists: <i>in place - consistently executed</i>	Establish a culture of huddles for high risk patients and post-event debriefs to identify successes and opportunities: <i>not in place; we were debriefing hemorrhage cases if they involved activation of the massive transfusion protocol, however we were not debriefing all hemorrhage events</i>
Immediate access to hemorrhage medications (kit or equivalent): <i>in place - consistently executed</i>	Measurement of cumulative blood loss (formal, as quantitative as possible): <i>not in place</i>	Support program for patients, families, and staff for all significant hemorrhages: <i>not in place</i>	Multidisciplinary review of serious hemorrhages for systems issues: <i>in place – not working; we had a monthly peer review committee that was reviewing all deliveries in which 4 or more units of packed red blood cells were administered, however the review was from a provider management standpoint and not from an overall systems analysis. Additionally, since the committee was a peer review committee, it was comprised of only physicians and advanced practice providers from Obstetrics and Gynecology, Neonatology, and Anesthesiology and did not include nursing.</i>

<p>Establish a response team - who to call when help is needed (blood bank, advanced gynecologic surgery, other support and tertiary services): <i>in place - consistently executed</i></p>	<p>Active management of the 3rd stage of labor (department-wide protocol): <i>in place – not working; we were actively managing the 3rd stage of labor, however the amount and duration of oxytocin administered after delivery was not standardized amongst our patients</i></p>		<p>Monitor outcomes and process metrics in perinatal quality improvement (QI) committee: <i>in place - consistently executed</i></p>
<p>Establish massive and emergency release transfusion protocols (type-O negative/uncrossmatched): <i>in place - consistently executed</i></p>			
<p>Unit education on protocols, unit-based drills (with post-drill debriefs): <i>not in place; we held quarterly half-day hemorrhage simulations, however we did not have unit-based drills</i></p>			