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: *in place - consistently executed*	Assessment of hemorrhage risk (prenatal, on admission, and at other appropriate times): *in place – not working*	Unit-standard, stage-based, obstetric hemorrhage emergency management plan with checklists: *in place - consistently executed*	Establish a culture of huddles for high risk patients and post-event debriefs to identify successes and opportunities: *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*
Immediate access to hemorrhage medications (kit or equivalent): *in place - consistently executed*	Measurement of cumulative blood loss (formal, as quantitative as possible): *not in place*	Support program for patients, families, and staff for all significant hemorrhages: *not in place*	Multidisciplinary review of serious hemorrhages for systems issues: *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.*

Establish a response team - who to call when help is needed (blood bank, advanced gynecologic surgery, other support and tertiary services): *in place - consistently executed*	Active management of the 3rd stage of labor (department-wide protocol): *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*		Monitor outcomes and process metrics in perinatal quality improvement (QI) committee: *in place - consistently executed*
Establish massive and emergency release transfusion protocols (type-O negative/uncrossmatched): *in place - consistently executed*			
Unit education on protocols, unit-based drills (with post-drill debriefs): *not in place; we held quarterly half-day hemorrhage simulations, however we did not have unit-based drills*			