



Maryland
Hospital Association

Final Document

Recommendations of the Obstetrical Hemorrhage and Obstetric Laceration Workgroup

Background

The 30% reduction in complications required under the new hospital waiver and the annual targets outlined within the Maryland Hospital Acquired Condition (MHAC) payment policy¹ are based on 65 Potentially Preventable Complications (PPCs).² Because PPCs are based on administrative data, the assignment of a PPC is derived from clinical documentation and coding. While hospitals have dedicated significant resources to improving clinical documentation and coding, it has become apparent that variability in the criteria used to define the occurrence of specific clinical conditions across hospitals is hindering our ability to accurately quantify complications and collaborate to prevent them. The premise of this work is that use of consistent criteria to define specific conditions will provide the necessary 'level setting' from which to truly measure performance and support collaboration on quality improvement opportunities. For these reasons, hospital leaders requested that MHA convene a group of clinical and quality representatives to consider criteria currently used across hospitals, review evidence, relevant literature and guidelines, and work to develop consensus definitions.³

Process

Informed by data analyses of PPC performance, hospital medical and quality leaders identified a subset of diagnoses that were widely agreed upon as having varied diagnostic and documentation patterns. The diagnoses were then prioritized based on volume and variability in performance and grouped into four categories: urinary tract infections, obstetric hemorrhages and lacerations, pneumonia/respiratory failure and acute renal failure/kidney injury. A workgroup was convened around each of the four categories and was comprised of physicians, non-physician clinicians, infection

¹ The statewide reduction target for 2015 is 7% comparing FY2014 to CY2015 risk adjusted PPC rates; The amount at risk for the MHAC program is 3% of inpatient revenue

² 3M Health Information Systems developed PPCs; The PPC software relies on present on admission indicators from administrative data to calculate the actual versus expected number of complications for each hospital

³ This activity was approved by MHA's Council on Clinical Quality Issues as well as the Executive Committee

preventionists and documentation and coding professionals from a cross-section of Maryland's community and teaching hospitals and health systems.⁴ Over a series of meetings each workgroup was charged with developing a proposed definition informed by published criteria and existing practice. Hospitals were engaged in the process through submission of hospital-based definitions as well as offering comment on the workgroups' proposed definitions. The workgroups' recommendations account for inpatient coding guidelines⁵ and apply to any occurrence of the diagnosis, not only scenarios that would trigger a PPC under the MHAC policy.

Each workgroup's proposed criterion are intended to serve as a guideline for provider and coder consideration and are not intended to restrict provider judgment when diagnosing a patient or alter coder assignment based on established guidelines. This clinical definition will not supplant the need for providers to clearly document a diagnosis. Provider documentation will continue to be the basis for inpatient coding of diagnoses as is required by coding guidelines. Coders will continue to use provider documentation as the source of the coded diagnosis. The workgroup encourages hospitals to utilize approved definitions to guide coders and clinical documentation specialists to query physicians when the documented diagnoses lack the respective supporting clinical indicators.

OB Workgroup Deliberations

To arrive at a proposed definition, the workgroup, over a series of meetings, based their deliberations on the following:

- *Current practice at Maryland hospitals*
 - Medical and Quality leads at all Maryland acute care hospitals were asked to submit internal policies or guidelines used at their facilities to define obstetrical hemorrhage and obstetric laceration

⁴ Workgroup meeting material and rosters available at <http://www.mhaonline.org/quality/complications-work-groups>

⁵ ICD-9 Official Coding Guidelines, approved by four organization that make up the Cooperating Parties for the ICD-9-CM: the American Hospital Association (AHA), the American Health Information Management Association (AHIMA), the Centers for Medicare and Medicaid Services (CMS) and the National Center for Health Statistics

- *Relevant literature and published bulletins by academic bodies and collaboratives including, but not limited to, the American Congress of Obstetricians and Gynecologists (ACOG), including the reVITALize initiative on definition standardization, and the California Maternal Quality Care Collaborative (CMQCC)*
- *Expertise of workgroup members*

The workgroups recognize that any definition or guideline will not apply to every patient, and therefore each hospital and/or provider is expected to use appropriate professional judgment when applying this guideline. While the workgroup strongly encourages the use of standardized criteria within and across hospitals, any guideline that is adopted will not negate the use of the provider's documentation, which is the basis for inpatient coding.

Proposed Hemorrhage Definition Criteria

Workgroup members noted that there is no single, validated and comprehensive definition for obstetrical hemorrhage that could be readily endorsed. The workgroup instead decided that an appropriate definition to serve as a guideline for providers in Maryland would have to be designed based on the clinical experience of workgroup members as well as insights afforded by a review of available research. Workgroup members concluded that the definition of obstetrical hemorrhage should consider either Estimated Blood Loss (EBL) volumes or lab values.

With respect to EBL, workgroup consensus was that the volumes often used to diagnose hemorrhage – 500mLs during a vaginal birth and 1,000mLs for cesarean – are inappropriately low given the amount of blood typically lost during childbirth, and, as indicated by ACOG, are really averages of blood loss as opposed to true thresholds indicating hemorrhage. As explained by ACOG:

“There is no single, satisfactory definition of postpartum hemorrhage. An estimated blood loss in excess of 500 mL following a vaginal birth or a loss of greater than 1,000 mL following cesarean birth often has been used for the diagnosis, but the average volume of blood lost at delivery can approach these

amounts. Estimates of blood loss at delivery are notoriously inaccurate, with significant underreporting being the rule.”

-American College of Obstetrics and Gynecology, Practice Bulletin Number 76, October 2006, reaffirmed 2013

Workgroup members noted that while the California Maternal Quality Care Collaborative (CMQCC) adopted the 500mL and 1,000mL EBL thresholds in their “OB Hemorrhage Toolkit,” it was for the purpose of defining an initial trigger to guide early treatment and prevention of true post-partum hemorrhage and therefore not aligned with the purpose of this workgroup.

The workgroup preferred an EBL that, when reflected upon after all of the events of the obstetric admission, would truly represent an obstetrical hemorrhage rather than an early warning indication requiring intervention and treatment to prevent further blood loss and progression to a true obstetrical hemorrhage.

Members concluded that a 500mL increase (roughly equivalent to a unit of whole blood) above common blood loss volumes during delivery is a more befitting definition of “hemorrhage.” Thus, the workgroup agreed that EBL volumes of a 1,000mL for vaginal delivery and 1,500mL for birth by cesarean section are more appropriately indicative of true obstetrical hemorrhage. Cumulative blood loss within the first 24 hours postpartum would count towards these thresholds. The workgroup decided that creating a higher threshold for cesarean section births was necessary because:

- 1) While performing cesarean sections, providers incise the uterus, a highly vascular organ
- 2) Amniotic fluid, which is not present during vaginal birth as the sac has ruptured by the time of delivery, mixes with blood and can make EBL appear more voluminous
- 3) Blood loss during vaginal delivery is inhibited by uterine contractions

Members also agreed that changes in hemoglobin and hematocrit levels should be an element of defining criteria. As ACOG notes: “*a decline in hematocrit levels of 10% has*

*been used to define postpartum hemorrhage.”*⁶ Members agreed that enough time should lapse after delivery to ensure that lab values accurately reflect the patient’s hematological status.

The definition for obstetrical hemorrhage endorsed by the MHA-convened workgroup is as follows:

Defining Criteria For Obstetrical Hemorrhage
Cumulative Blood Loss During the 24 Hours Postpartum of $\geq 1,000\text{mL}$ Vaginal Delivery or $\geq 1,500\text{mL}$ Cesarean Section
OR
A Drop of 10 Percentage Points From Baseline in a Patient’s Hematocrit Level or a Drop In Hemoglobin of 3 Grams Per Deciliter From Baseline in a Sample Drawn Between 6 and 24 Hours Postpartum*

*Note: “A Drop of 10 Percentage Points” in hematocrit refers to a percentage point decline (e.g. 40% to 30%) as opposed to a 10% decline (e.g. 40% to 36%)

The workgroup believes that research supports the EBL thresholds it has endorsed as part of its defining criteria. For example, in a population-based observational study of all consecutive women who underwent a blood transfusion for obstetrical hemorrhage at Parkland Memorial Hospital, Dallas, Texas found that the median blood loss for those that received transfusions for signs and symptoms of hypovolemia was 3,529 mL.⁷ Other supporting research is listed in the reference section below.

Workgroup members considered incorporating vital signs into the defining criteria for hemorrhage, but ultimately decided against inclusion. The reasons for not using vital signs as an indication include:

- 1) Some patients have vital signs outside of the ‘normal’ range (e.g. an otherwise healthy patient who presents with a resting BP of 90/60)

⁶ American College of Obstetrics and Gynecology, Practice Bulletin Number 76, October 2006, reaffirmed 2013

⁷ Hernandez, J et al. “Calculated Blood Loss in Severe Obstetric Hemorrhage and Its Relation to Body Mass Index.” *American Journal of Perinatology*; 29 (2012) 557-560

- 2) Vital signs can change for a number of reasons, including stress and pain
- 3) It's difficult to determine whether vital signs are problematic without a trend analysis over time

As part of its deliberations, the workgroup also considered including as a criterion whether a patient had received a blood transfusion. This element was ultimately excluded from the defining criteria as the administration of blood products is a treatment. The group felt the definition for obstetrical hemorrhage should instead be limited to signs of significant blood loss and not incorporate providers' intervention or treatment, which may vary from clinician to clinician.

The workgroup recognizes that there may be patients for which these guidelines may not apply, so provider documentation of expected versus unexpected or complicated blood loss or hemorrhage will still be the basis for inpatient coding of diagnoses.

Proposed Obstetric Laceration Criteria

Workgroup members agreed that criteria crafted by the reVITALize initiative should serve as the guidelines for defining 3rd and 4th degree obstetric lacerations by providers in Maryland. The clinicians at many hospitals are already using these criteria, as evidenced by the materials submitted by hospitals to the workgroup in advance of our first meeting. The reVITALize initiative is a data definition standardization effort led by ACOG and the members of the Women's Health Registry Alliance. Its definitions are endorsed by the American College of Nurse-Midwives, ACOG, the Association of Women's Health, Obstetric and Neonatal Nurses, and the Society for Maternal-Fetal Medicine.

The reVITALize definitions⁸ for lacerations are:

1st Degree - Injury to perineal skin only

2nd Degree - Injury to perineum involving perineal muscles but not involving anal sphincter

3rd Degree - Injury to perineum involving anal sphincter complex

⁸ reVITALize Obstetric Data Definitions Version 1.0, updated 2014

- 3a: Less than 50% of External Anal Sphincter thickness torn
- 3b: More than 50% External Anal Sphincter thickness torn
- 3c: Both External Anal Sphincter & Internal Anal Sphincter torn

4th Degree - Injury to perineum involving anal sphincter complex (external anal sphincter & internal anal sphincter) and anal epithelium

The MHA workgroup made an adjustment to the reVITALize definitions, and suggests eliminating sub-types for third degree lacerations (i.e., 3a, 3b, and 3c) as providers rarely offer this level of specificity in their diagnoses. Therefore, the definition for obstetric laceration endorsed by the MHA-convened workgroup is as follows:

Defining Criteria For Obstetric Laceration
<u>3rd Degree Laceration</u> - Injury to Perineum Involving Anal Sphincter Complex
<u>4th Degree Laceration</u> - Injury to Perineum Involving Anal Sphincter Complex (External Anal Sphincter & Internal Anal Sphincter) and Anal Epithelium

References

Abdul-Kadir, R et al. "Evaluation and management of postpartum hemorrhage: consensus from an international expert panel." *Transfusion*; 54:7 (2014) 1756-68

Arulkumaran, S. et al. *A Comprehensive Textbook of Postpartum Hemorrhage: An Essential Clinical Reference for Effective Management*. Sapiens Publishing; 2nd Revised edition; (2012) Chapter 11, 81

American College of Obstetrics and Gynecology, Practice Bulletin Number 76, October 2006, reaffirmed 2013

Hernandez, J et al. "Calculated Blood Loss in Severe Obstetric Hemorrhage and Its Relation to Body Mass Index." *American Journal of Perinatology*; 29 (2012) 557-560

Magann, E. et. al. "Postpartum Hemorrhage After Cesarean Delivery: An Analysis of Risk Factors." *Southern Medical Journal*; 98 (2005) 681-685

reVITALize Obstetric Data Definitions Version 1.0, Updated 2014

Skjeldestad, F. Oian, P. "Blood loss after cesarean delivery: a registry-based study in Norway, 1999-2008." *American Journal of Obstetrics & Gynecology*; (2012) 76-79

The California Maternal Quality Care Collaborative's Improving Health Care Response to Obstetric Hemorrhage Toolkit, July 2010

Werner, R. *Acta Obstetrica et Gynecologica Scandinavica* Nordic Federation of Societies of Obstetrics and Gynecology; 90 (2011) 421–428

Appendix A – Response to Comments on the Workgroup’s Draft

The workgroup would like to thank all who submitted comments on its draft. The workgroup carefully considered each commenter’s submission. Commenters touched on many of the same points, and the workgroup’s responses to those points are detailed below.

The workgroup received several comments regarding the appropriateness of the estimated blood loss (EBL) thresholds the workgroup selected to define obstetrical hemorrhage after vaginal birth, 1000mL, and birth by Cesarean section, 1,500mL. In particular, some commenters suggested that the workgroup endorse lower thresholds adopted by the California Maternal Quality Care Collaborative (CMQCC). The workgroup agreed that the CMQCC guidelines are designed to guide treatment interventions based on early recognition. The workgroup emphasized that its charge was not to craft early warning triggers to treat, but to create criteria indicative of a true hemorrhage. Therefore, the workgroup concluded the EBL thresholds detailed in its proposed recommendations are more appropriate. The rationales for the workgroup’s conclusions regarding EBL thresholds are explained more fully beginning on page 3.

One commenter suggested that the workgroup replace EBL amounts with quantification of blood loss (QBL) amounts, as QBL amounts are more objective and accurate. The workgroup acknowledged that QBL is a potentially superior standard; however, members believed that very few hospitals are currently using QBL. Members highlighted that switching to a QBL standard is an expensive and multi-year process. Publishing a definition that relied on a measurement standard most hospitals were incapable of adhering to would be inappropriate at this time. While the workgroup refrained from recommending QBL it does encourage hospitals to consider adopting measurements based on QBL in the future.

One commenter suggested the workgroup modify its proposed definition of hemorrhage to make the EBL criteria **and** the lab values required (as opposed to either-or). After consideration members concluded that a definition requiring both a drop in hematocrit as well as blood loss beyond the detailed thresholds would be too restrictive and result in substantial underreporting of the occurrence of hemorrhage. Therefore the workgroup did not accept this suggestion.

Another commenter pointed out that the phrasing “A drop of 10 percentage points from baseline” was ambiguous. The workgroup agreed the point needed clarification. The document has been modified to note:

“A Drop of 10 Percentage Points” in hematocrit refers to a percentage point decline (e.g. 40% to 30%) as opposed to a 10% decline (e.g. 40% to 36%).

Some commenters pointed out that by defining 3rd and 4th degree lacerations, more instances of these complications may be reported. Some commenters also called into question the appropriateness of using lacerations as quality indicators. The workgroup members refrained from changing the recommended criteria for 3rd and 4th degree lacerations for three reasons. First, the workgroup’s criteria are adopted from the reVITALize initiative, a data definition standardization effort led and endorsed by ACOG and the members of the Women’s Health Registry Alliance. Second, it is the experience of many in the workgroup that most providers are already using these criteria and members disagreed that this workgroup’s adoption of these criteria will lead to a large increase in reported incidences. Finally, though many members shared commenters’ concerns about appropriateness, they noted that questions regarding the use of obstetric lacerations as a PPC are beyond the scope of this workgroup and were better directed to 3M and the HSCRC.