Florida Perinatal Quality Collaborative
at The Lawton and Rhea Chiles Center for Healthy Mothers and Babies

Obstetric Hemorrhage Initiative

Final Data Report

June 2015

The Obstetric Hemorrhage Initiative (OHI) was formed in order to address the issue of highly preventable morbidity and mortality related to postpartum hemorrhage. The goals of the OHI were to: 1) Decrease short- and long-term morbidity and mortality related to obstetric hemorrhage; and 2) Guide and support maternity care providers and hospitals in implementing successful, evidence-based quality improvement programs for obstetric hemorrhage.

The initiative kicked off in October 2013 with a training session for OHI pilot hospitals. In collaboration with several organizations, the FPQC provided 31 Florida and 4 North Carolina hospitals with technical assistance from an advisory team, an implementation guide and hemorrhage management toolkit, monthly learning session webinars and collaboration with OHI hospitals, two in-person collaborative meetings, and monthly QI data reports and score cards.

Pilot hospitals were expected to implement key elements of the OHI over 18 months, and then spend 6 months institutionalizing the practices. Each facility implemented the key elements in the order and timing that is right for their facility and resources. The key elements recommended to OHI hospital teams included:

1. Develop an Obstetric Hemorrhage Protocol
2. Develop a Massive Transfusion Protocol
3. Antepartum Risk Assessment
4. Active Management of the Third Stage of Labor
5. Quantification of Blood Loss
6. Construct an OB Hemorrhage Cart
7. Ensure Availability of Medications and Equipment
8. Perform Interdisciplinary Hemorrhage Drills
9. Debrief after OB Hemorrhage Events

Hospitals submitted baseline data for July – September 2013 and prospective data from December 2013 – April 2015. Major findings include:

- Hospitals educated 100% of their clinical staff and 71% of their obstetricians/midwives on OB hemorrhage in 2014.
- The percent of participating hospitals assessing more than 75 percent of women for Risk of OB Hemorrhage increased from 11% to 75%.
- The percent of hospitals not documenting Active Management of the Third Stage of Labor decreased from 45% to 13%.
- Quantification of blood loss for vaginal deliveries increased from 4% of women at baseline to 62%, and QBL for cesarean deliveries increased from 43% to 67% of women.
- No significant trends in blood product transfusion or unplanned hysterectomies was identified throughout the initiative.
- The overall percent of unplanned hysterectomies remained low throughout the initiative.

In summary, there was improvement across the various measures with the exception of blood transfusions. This change was probably related to an increased awareness of the need to treat blood loss earlier in the course of a hemorrhage and may result in a future decrease in larger replacement volumes. Detailed results are below.

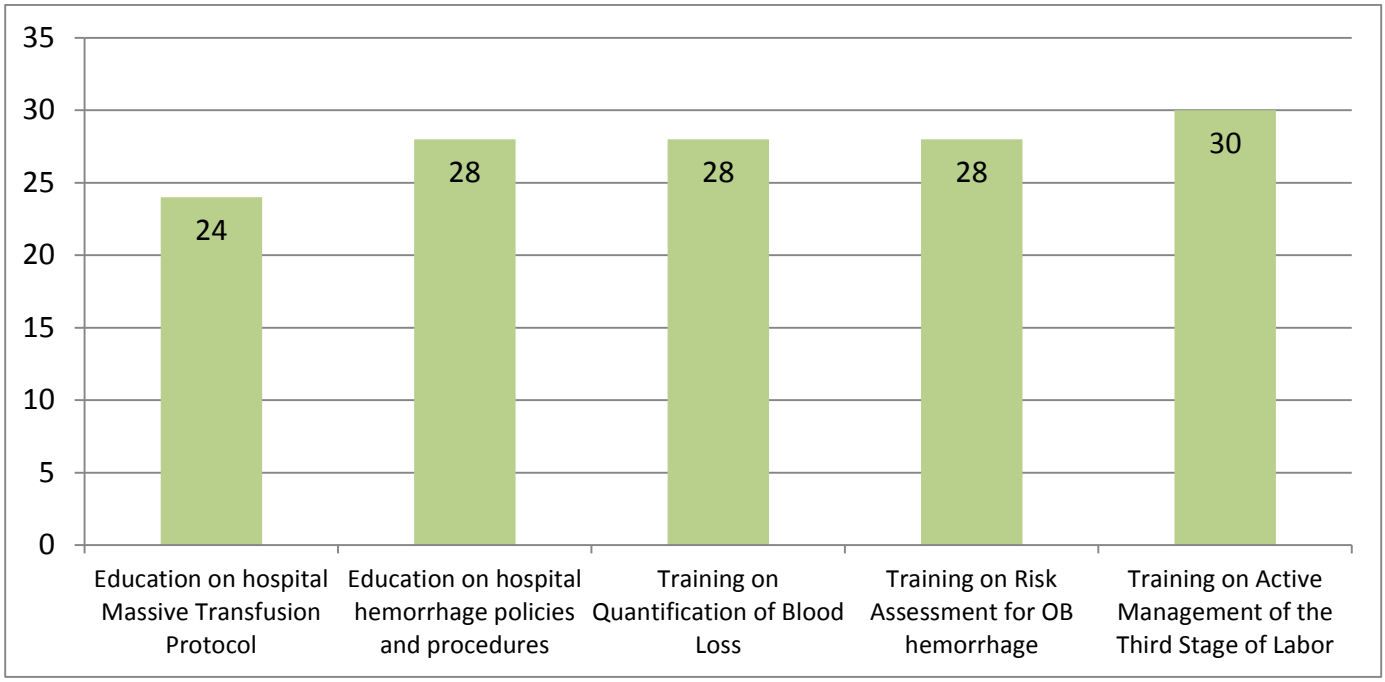
Detailed Results

Process Measures

Hemorrhage Education

The goal for this measure was to have 100 percent of clinical staff and care providers (obstetricians and/or midwives) receive education and training on OB hemorrhage through cognitive/didactic education within the calendar year. In 2014, 30 out of 35 hospitals reported providing training on active management of the third stage of labor; 28 hospitals reported training on risk assessment for OB hemorrhage, quantification of blood loss, or hospital hemorrhage policies and procedures; and 24 offered education on the hospital's massive transfusion protocol (MTP) [Figure 1].

Figure 1: Number of participating hospitals offering education and training in 2014



The largest discipline of team members educated was nurses, with 33 out of 35 hospitals who succeeded in training RNs, followed by MDs, CNMs, anesthesiologists, and blood bank staff. Hospital rapid response team, lab, and pharmacy staff were the least likely to be included in hemorrhage education and training [Figure 2].

Initiative-wide in 2014, reporting hospitals educated 100% of labor and delivery and postpartum clinical staff and approximately 71% of delivering obstetricians and midwives on obstetric hemorrhage [Figure 3].

Figure 2: Number of participating hospitals educating staff members in 2014

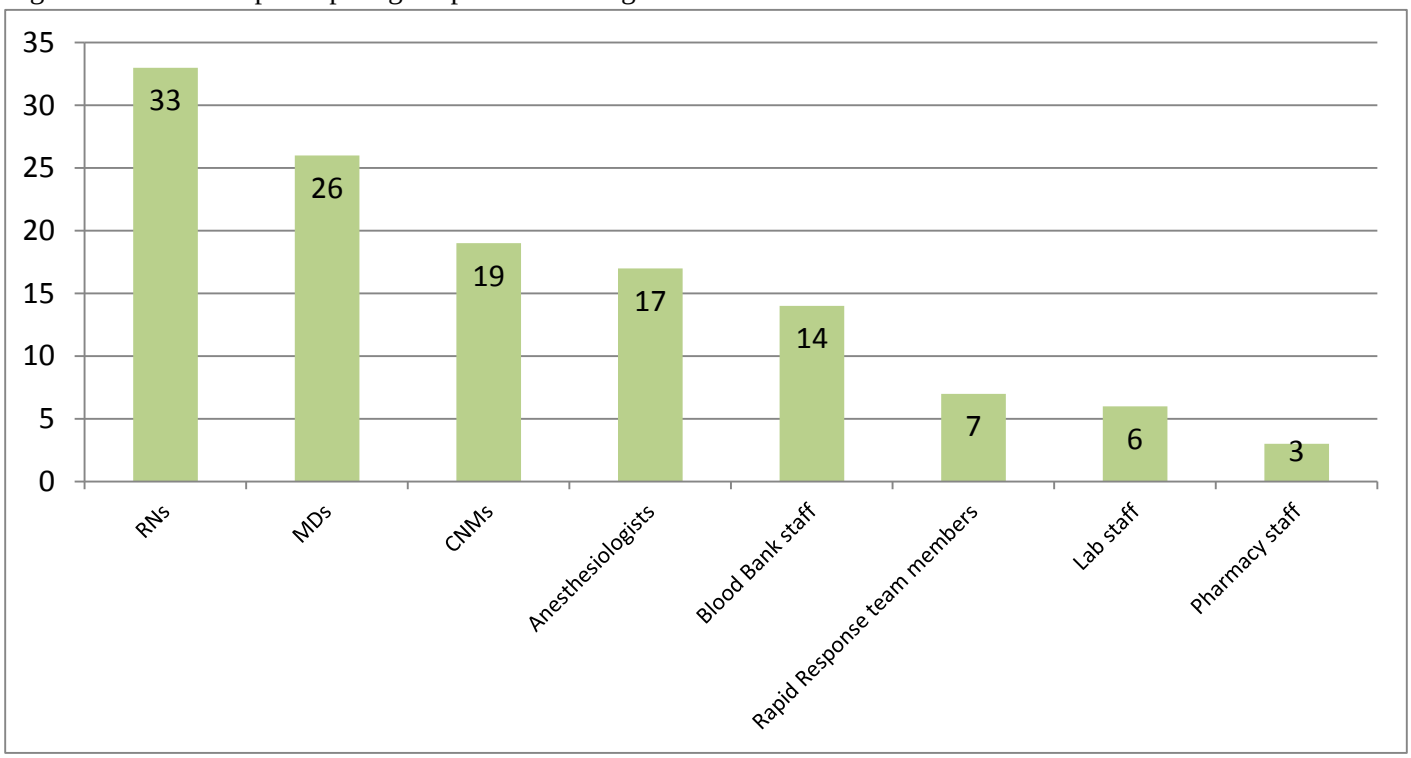
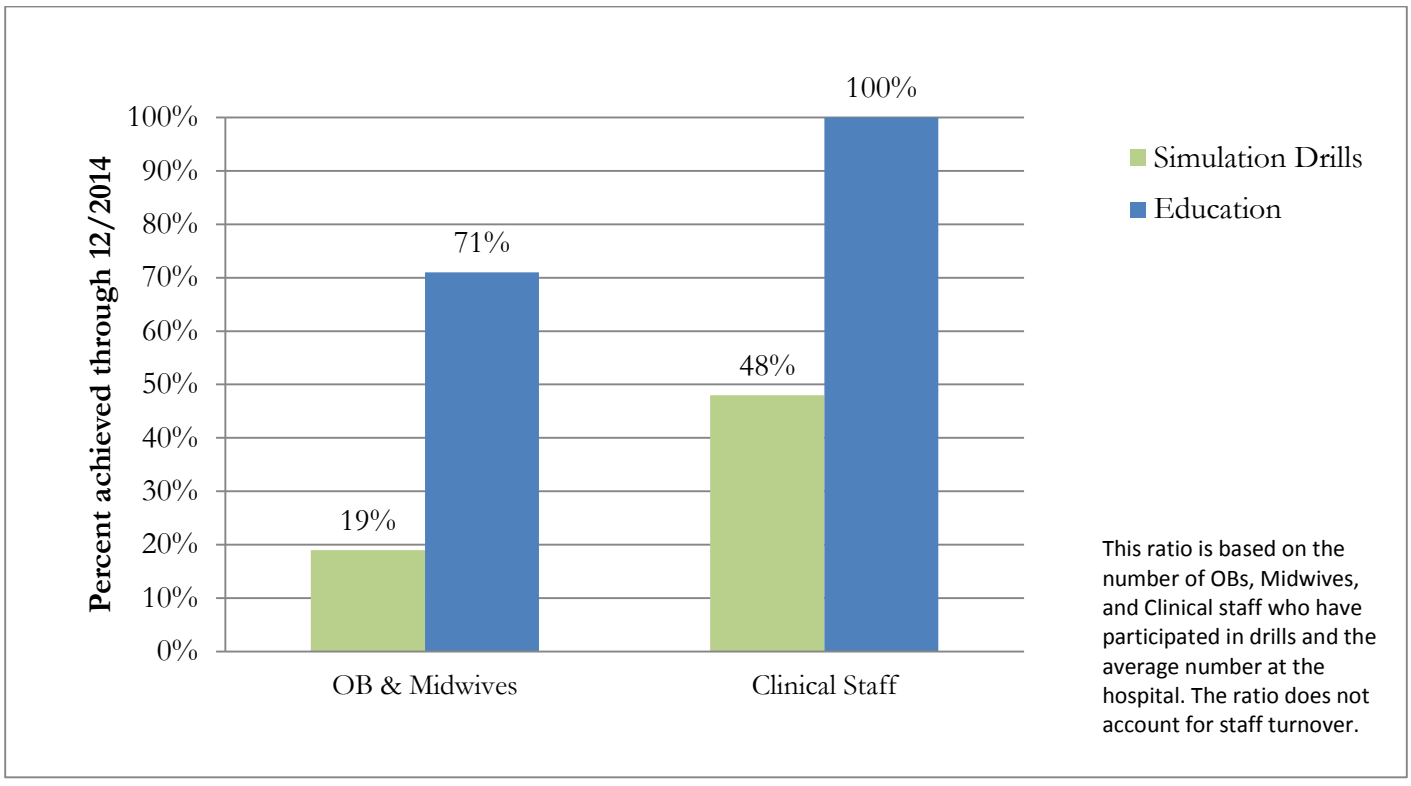


Figure 3: Ratio of physicians, midwives, and clinical staff involved in simulation drills and education in 2014



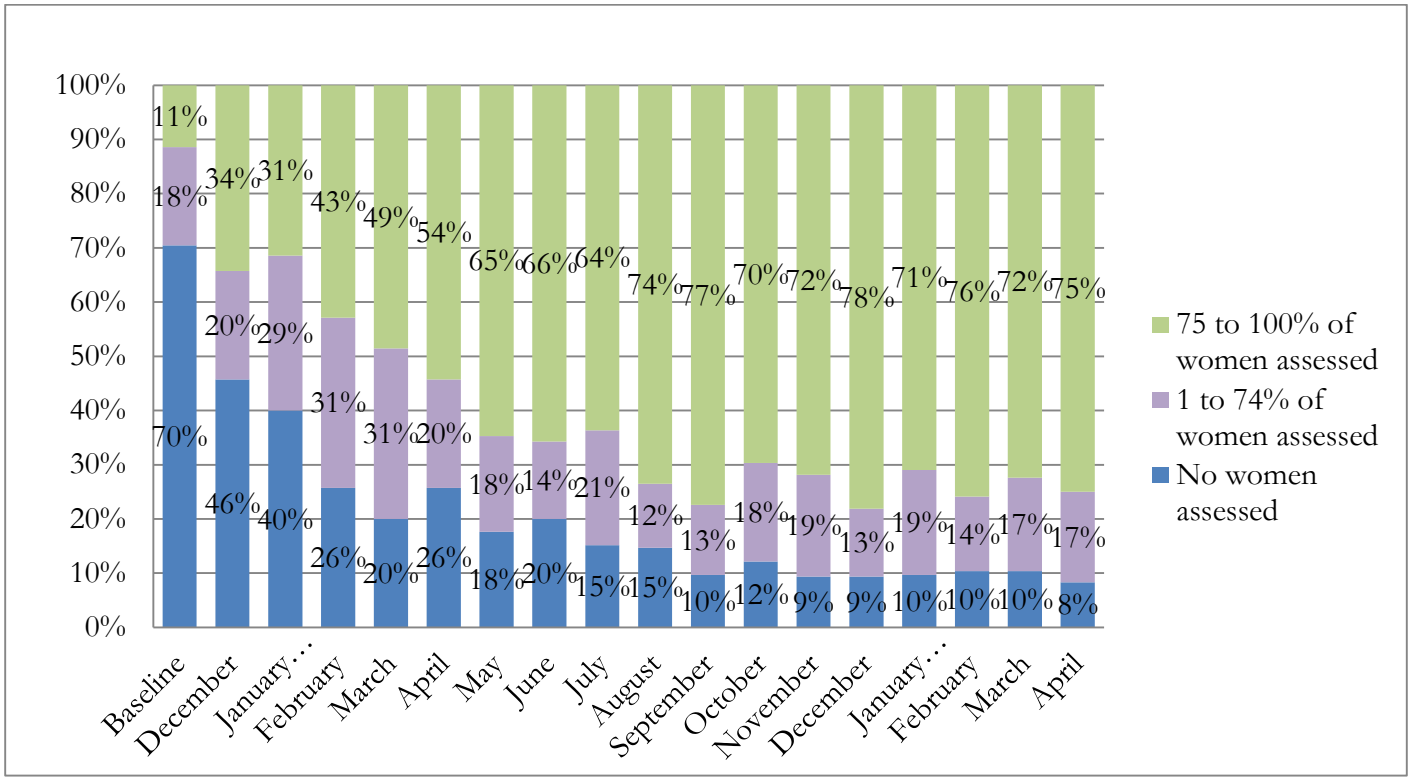
Interdisciplinary Simulation Drills

The goal for this measure was that 100 percent of staff and care providers participate in at least one simulation drill each year. Initiative-wide, 48% of labor and delivery and postpartum clinical staff and 19% of delivering obstetricians and midwives participated in obstetric hemorrhage simulation drills in 2014 [Figure 3].

Risk Assessment for OB Hemorrhage

At baseline, 70% of hospitals were not assessing women for risk of obstetric hemorrhage. This percentage gradually decreased, while the percent of hospitals who were assessing 75 to 100 percent of women upon admission increased from 11% of hospitals at baseline to 75% of hospitals [Figure 4].

Figure 4: Percent of All Reporting Hospitals that assessed birthing women for risk of OB hemorrhage upon admission and document the score in clinical records



Hospitals were asked to audit 30 charts per month: 10 cesarean delivery and 20 vaginal delivery charts. Chart audit indicated that initiative-wide, approximately 79% of women were being assessed for risk of hemorrhage upon admission, up from 14% of women at baseline [Figure 5].

Figure 5: Percent of charts that documented if woman was assessed for risk of OB hemorrhage upon admission by month

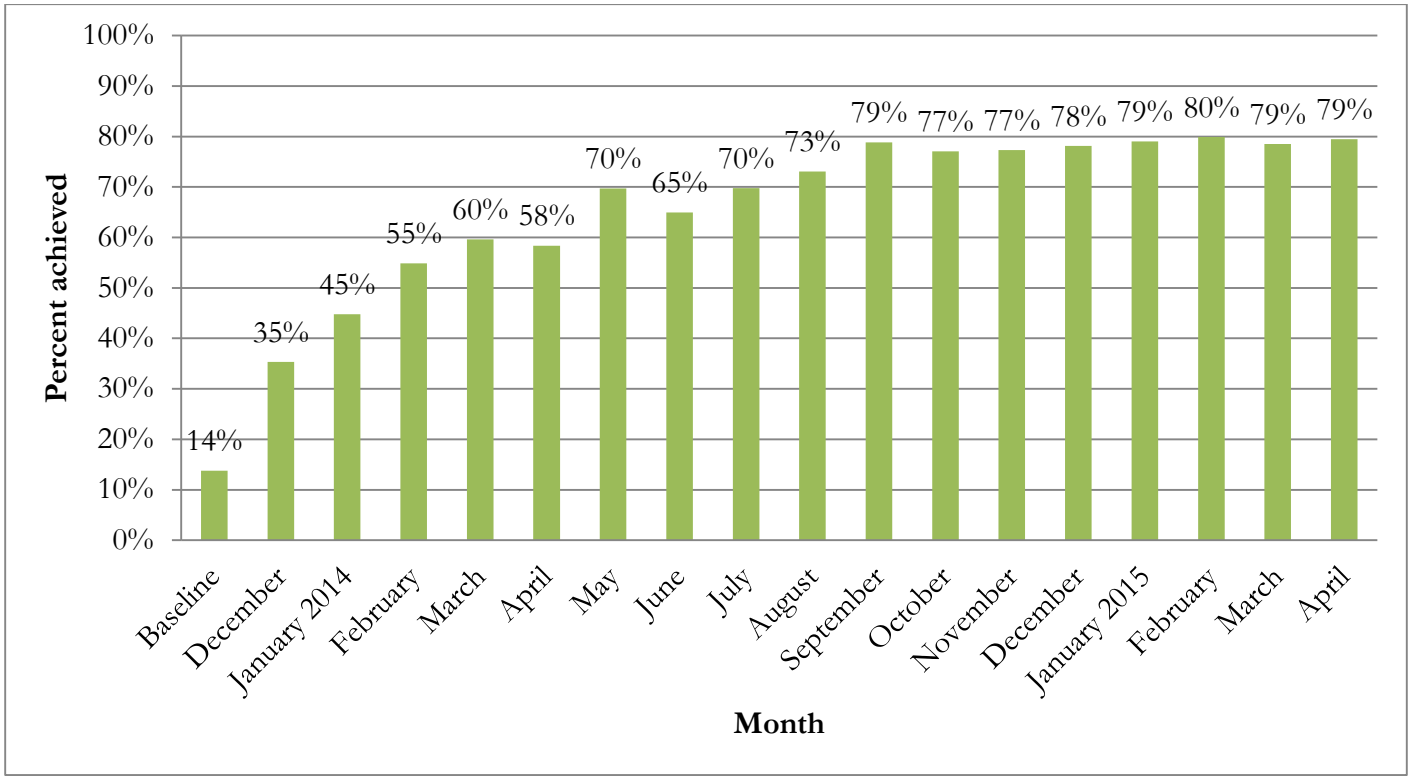
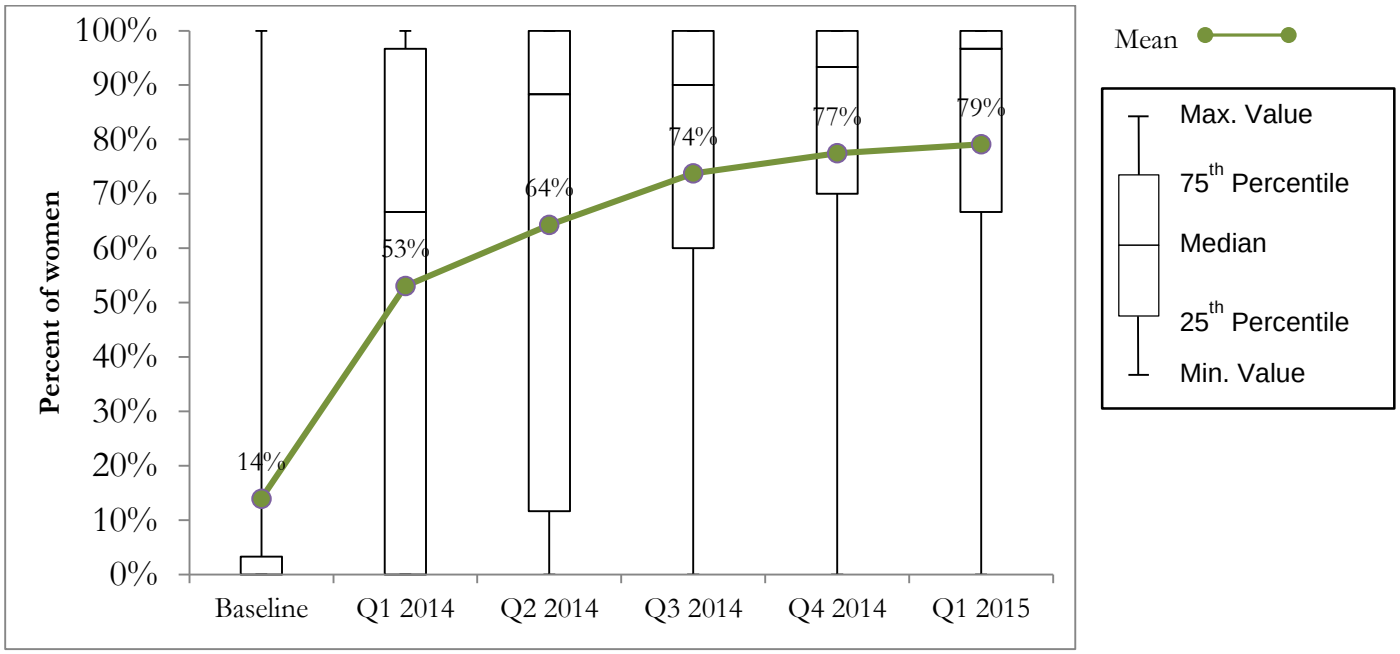


Figure 6: Percent of charts that documented if woman was assessed for risk of OB hemorrhage upon admission by quarter



Active Management of the Third Stage

The recommendation for active management of the third stage of labor (AMTSL) indicated both administration of oxytocin and fundal massage. At baseline, the percentage of hospitals who were not documenting both elements of active management during the third stage of labor was 45 percent. This gradually decreased to 13% of hospitals who were not documenting. The percentage of hospitals who were documenting any women increased, with a high of 69% of hospitals achieving and documenting 75 to 100 percent of women with AMTSL, up from 34% of hospitals. At the end of the initiative, that number was 58% [Figure 7].

Figure 7: Percent of All Reporting Hospitals that documented birthing women with Vaginal deliveries received active management of the third stage of labor

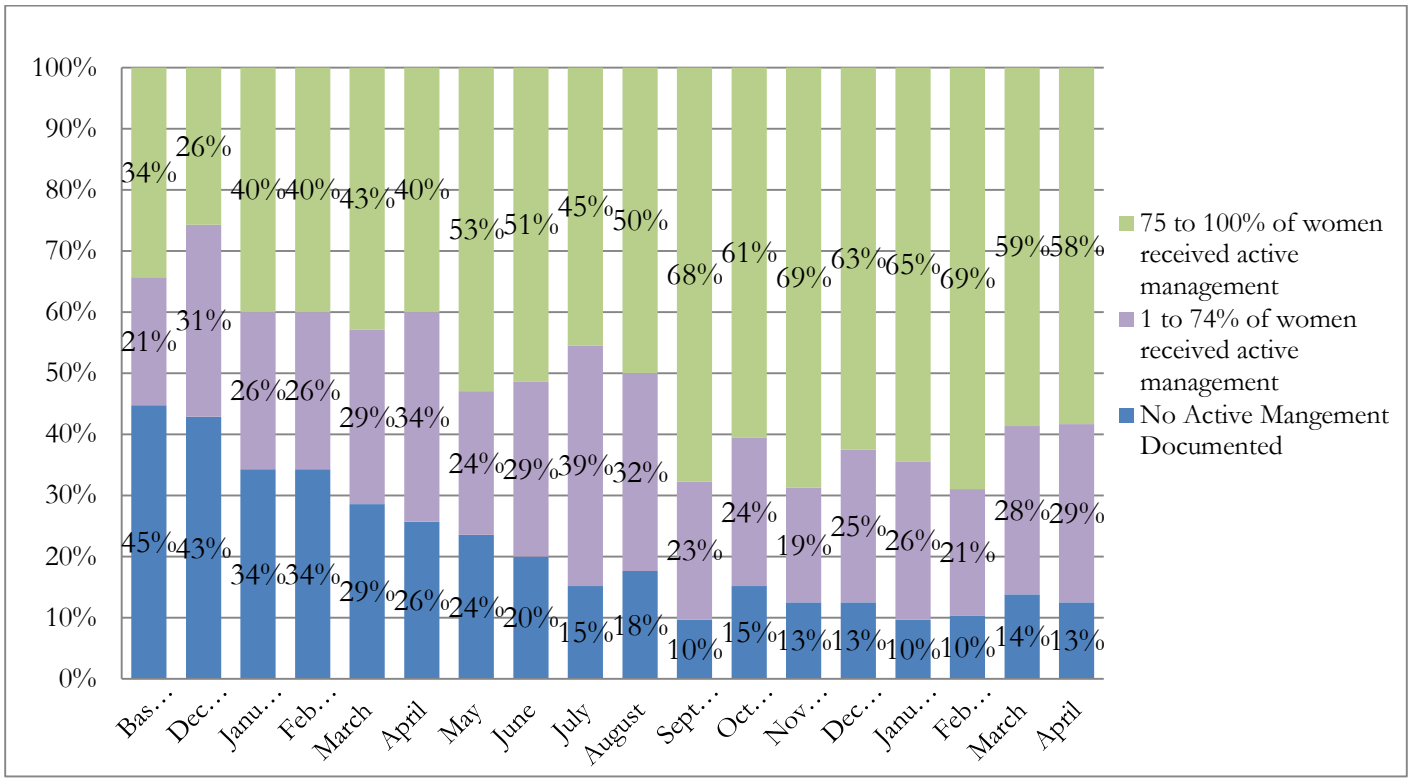


Chart audit reveals that the number of women who received active management initiative-wide increased since the start of the initiative from approximately 40% to 73% [Figure 8].

Figure 8: Percent of charts that documented women with Vaginal deliveries received active management of the third stage of labor by month

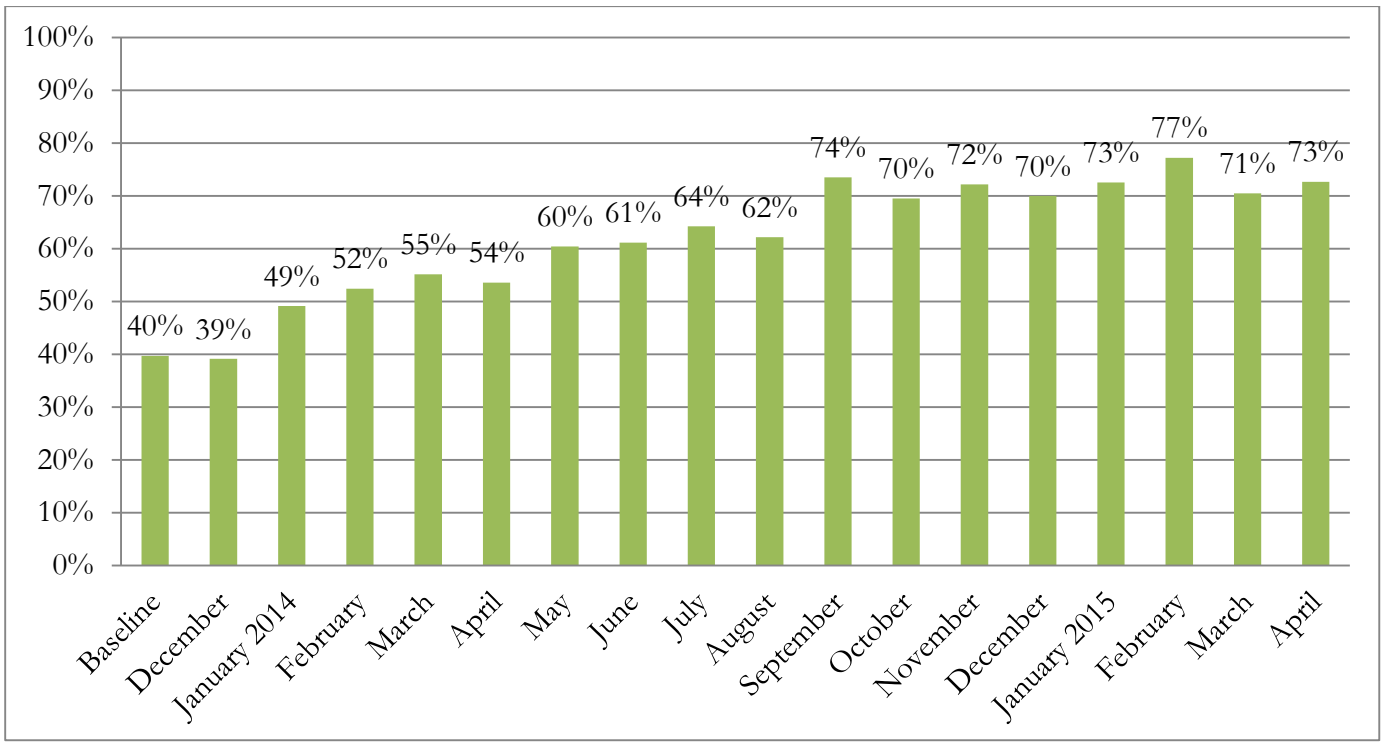
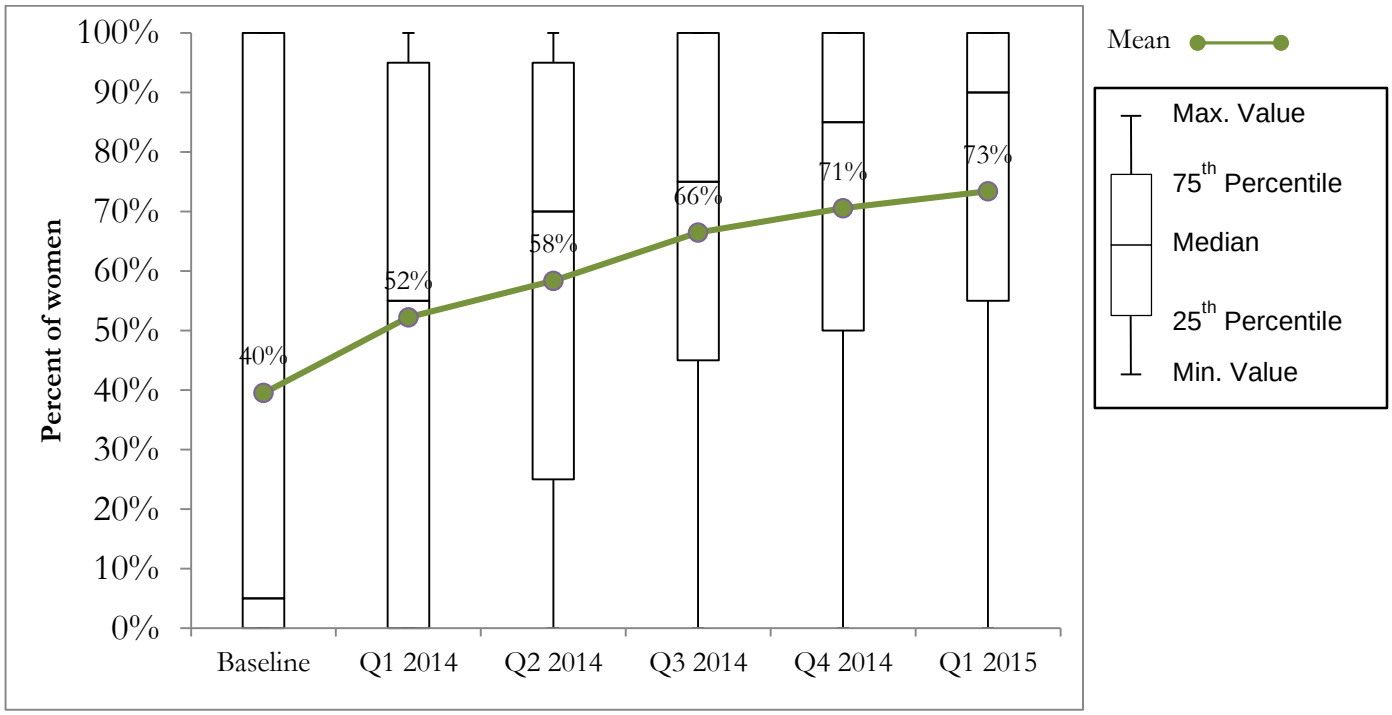


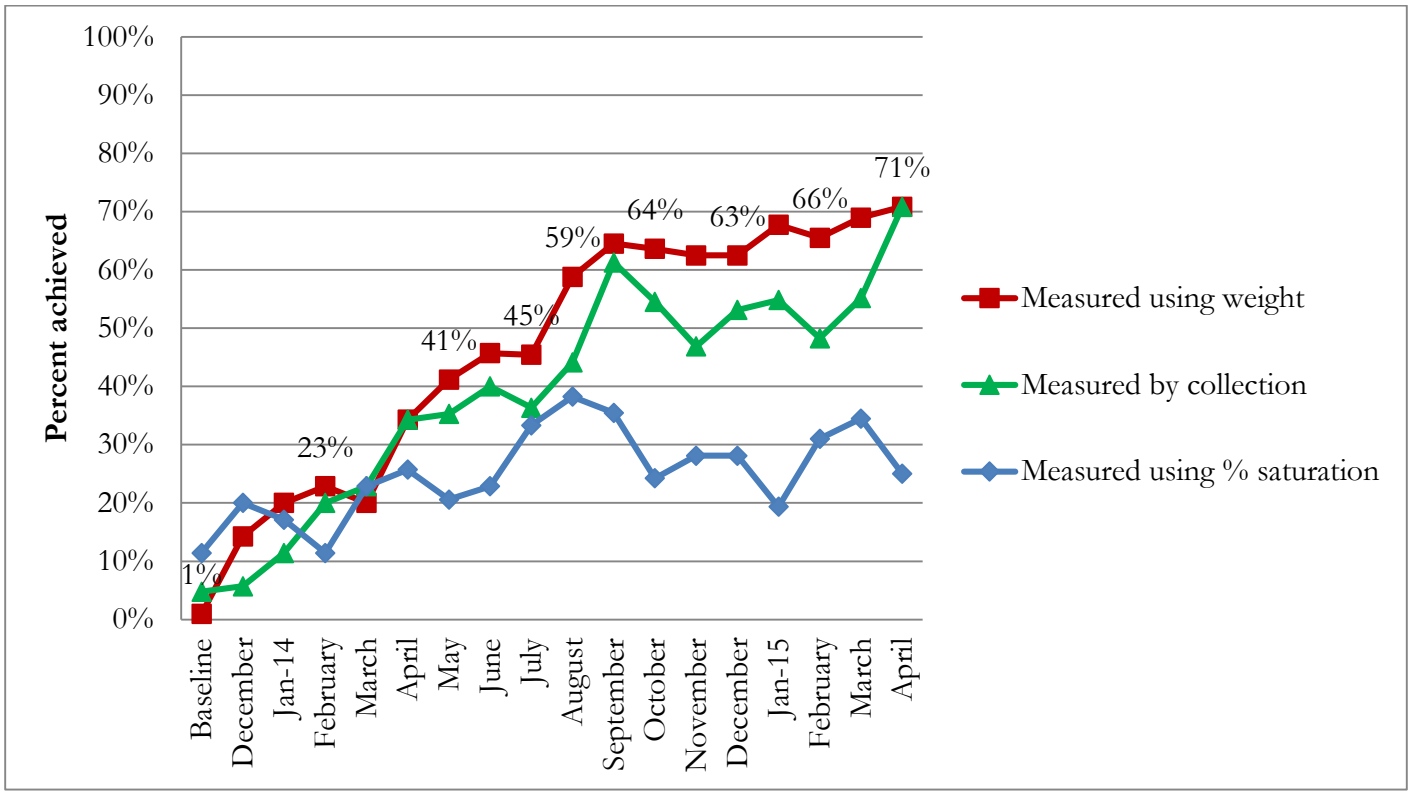
Figure 9: Percent of charts that documented women with Vaginal deliveries received active management of the third stage of labor by quarter



Quantification of Blood Loss

Recommended quantification of blood loss methods include measurement using visual percent saturation, by weight, and by collection in graduated containers. Throughout the initiative, the percent of hospitals who were quantifying overall increased. Hospitals gradually increased their use of all three recommended quantification methods for vaginal births, with both measurement using weight and measurement by collection increasing to use in 71% of hospitals [Figure 10]. While measurement using weight and collection continued to rise, measurement using percent saturation recently declined. This may be due to new recommendations from AWHONN that do not include visual estimation using percent saturation as a quantification method.

Figure 10: Percent of All Reporting Hospitals at which each quantification method was used for Vaginal deliveries



From chart audit, the percent of vaginal deliveries in which blood loss was quantified increased from 4 percent to approximately 62% for all reporting hospitals [Figure 11].

For Cesarean deliveries, there has been a gradual increase in quantification methods with the greatest increase in the use of measurement by weight [Figure 13]. Measurement by collection is still the leading method of quantification of Cesareans (up to 82%), while measurement using percent saturation has seen the same decrease as in vaginal deliveries.

At baseline, hospital teams were quantifying blood loss at 43% of C-section deliveries, and reached approximately 67% of C-section deliveries by the initiative's end [Figure 14].

Figure 11: Percent of charts in which blood loss was quantified for Vaginal deliveries by month

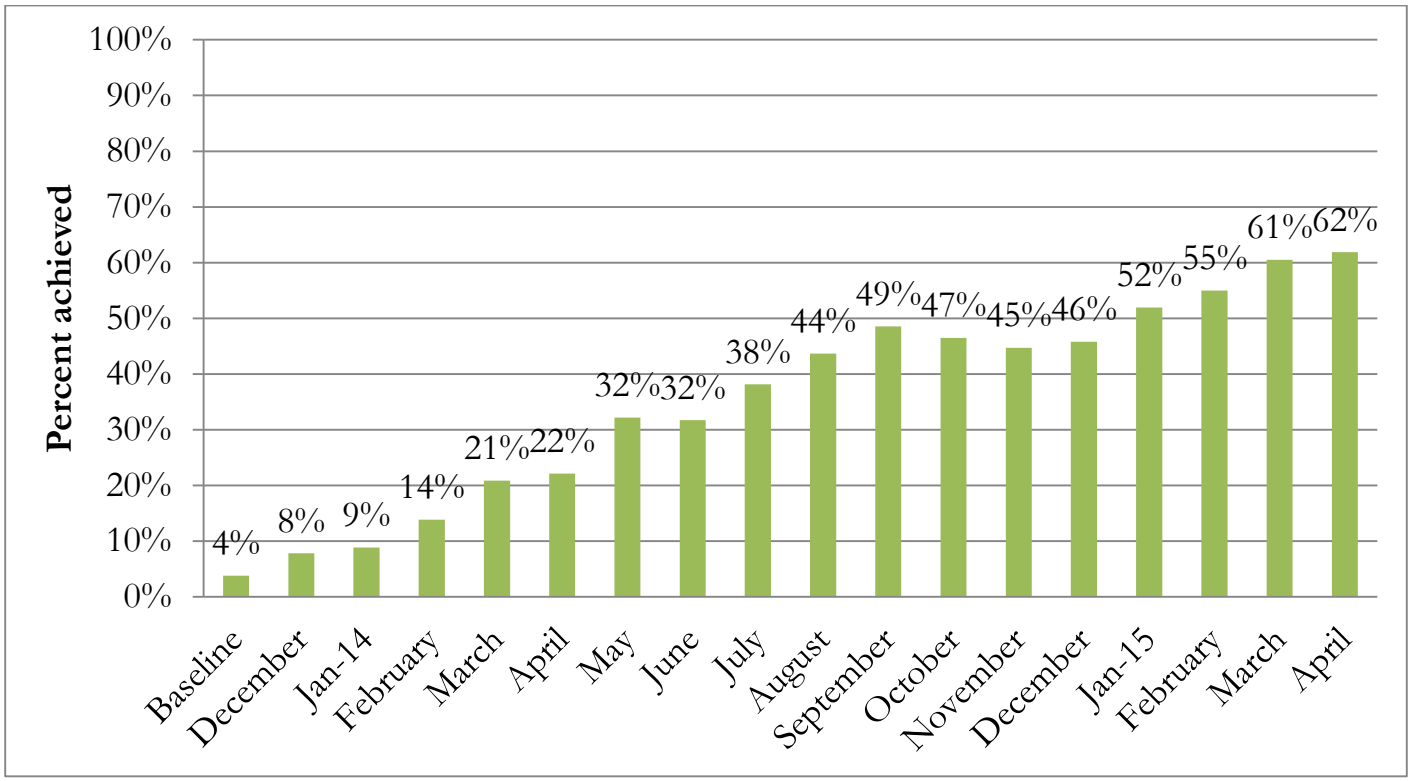


Figure 12: Percent of charts in which blood loss was quantified for Vaginal deliveries by quarter

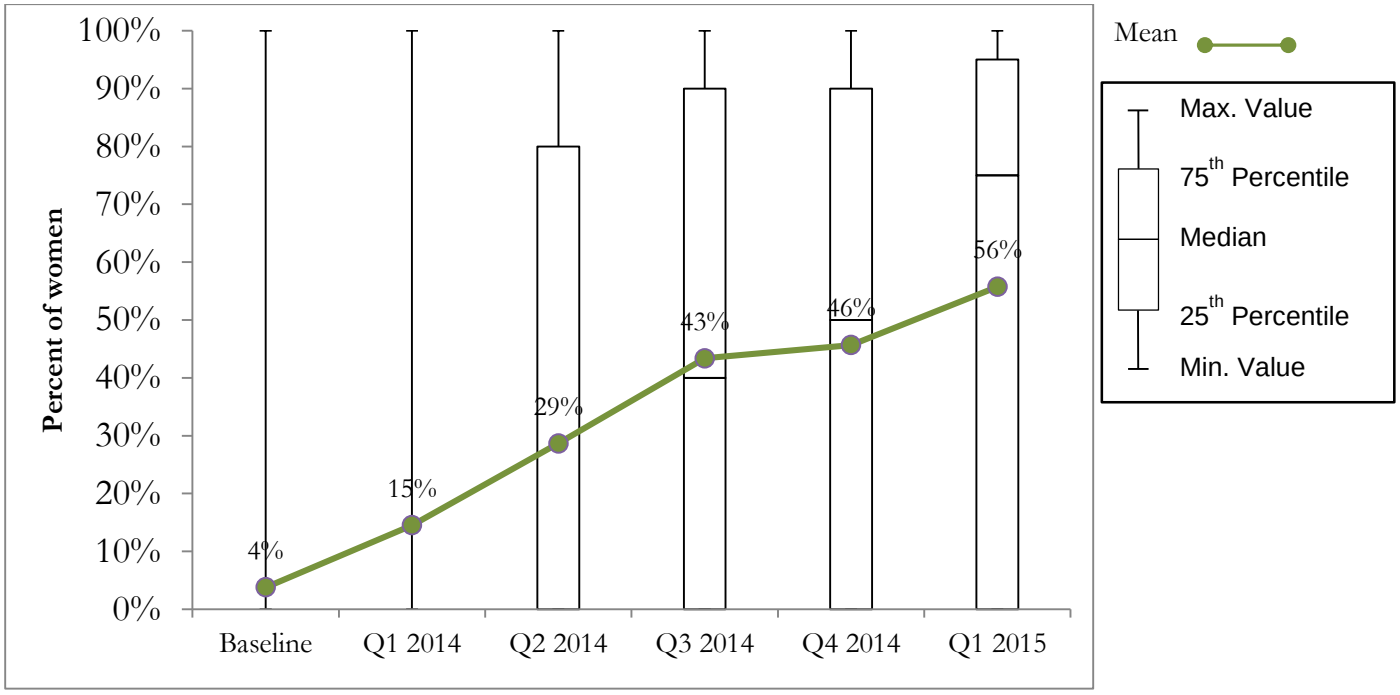


Figure 13: Percent of All Reporting Hospitals at which each quantification methods was used for Cesarean deliveries

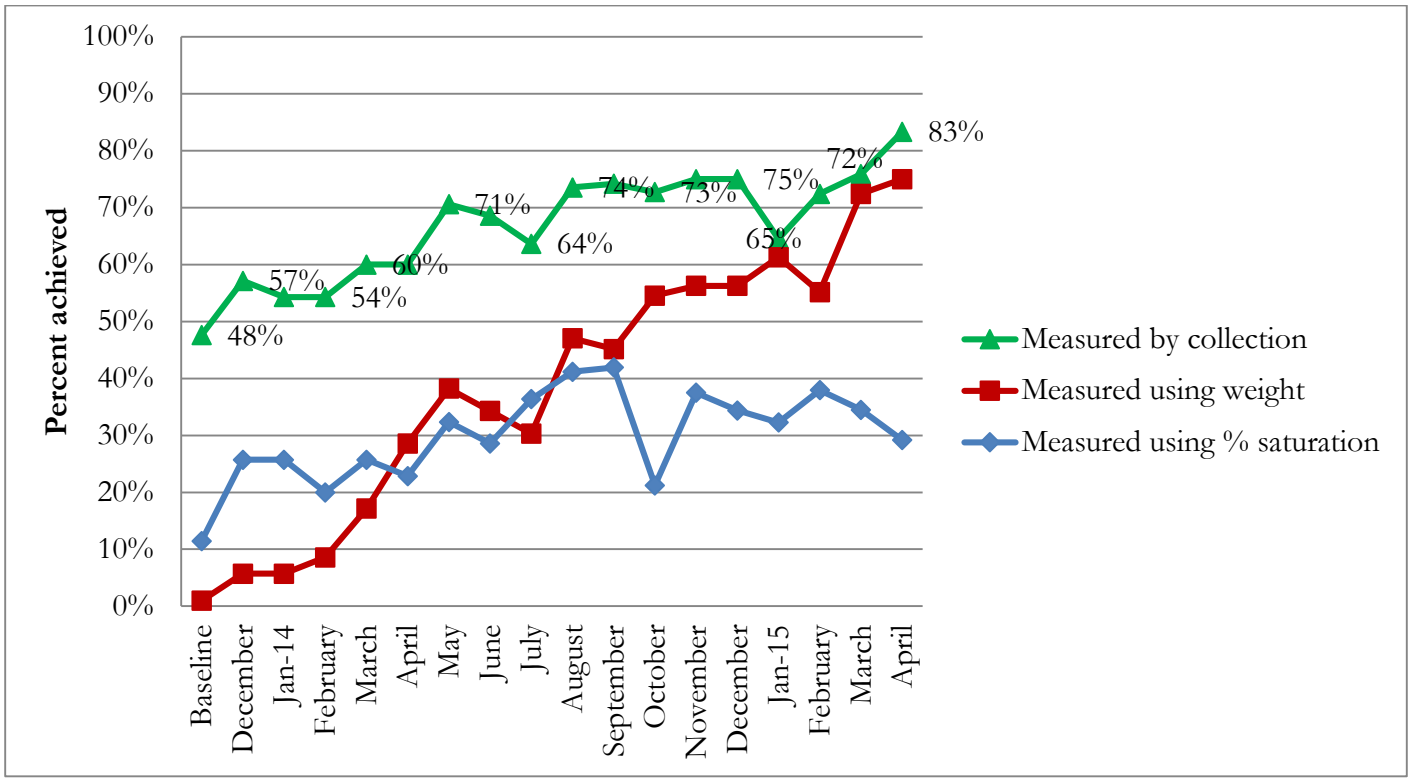


Figure 14: Percent of charts in which blood loss was quantified for Cesarean deliveries by month

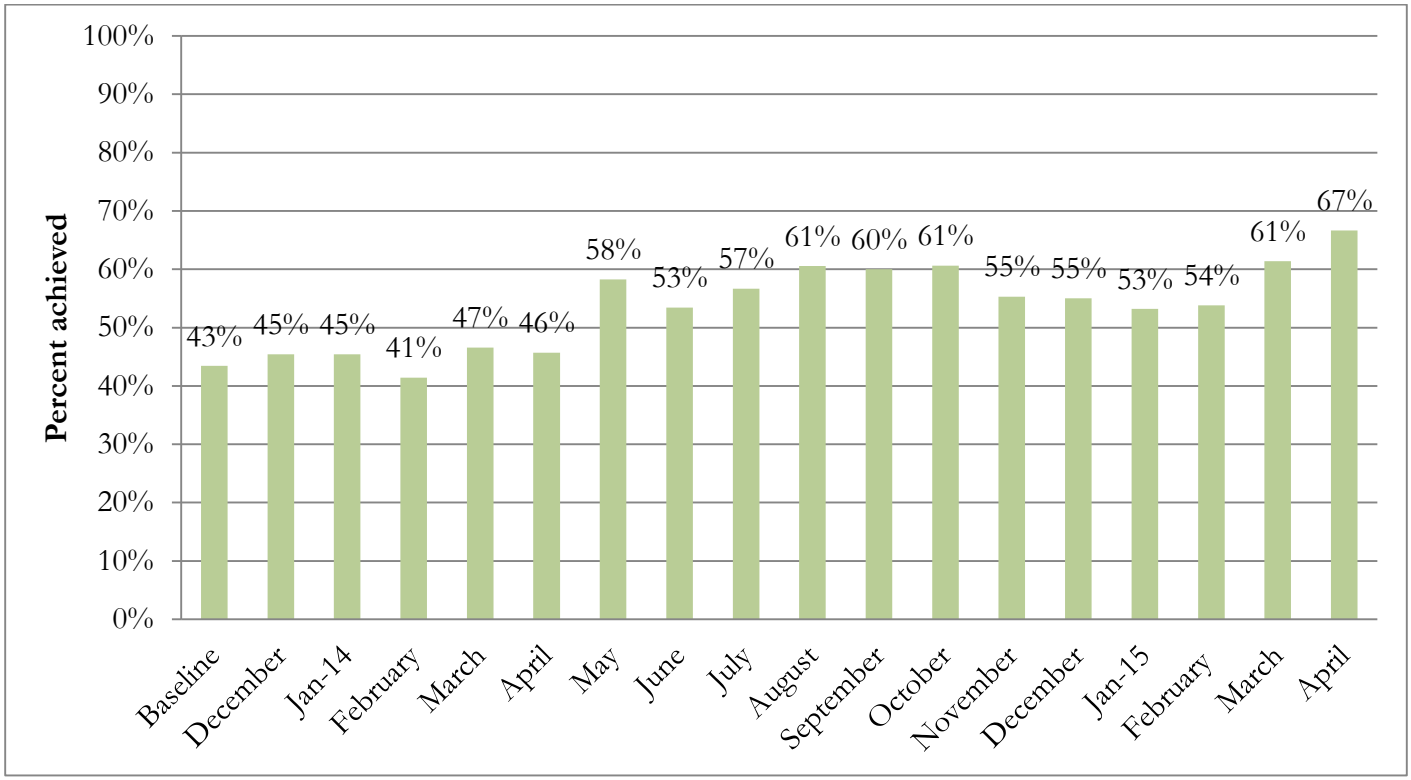
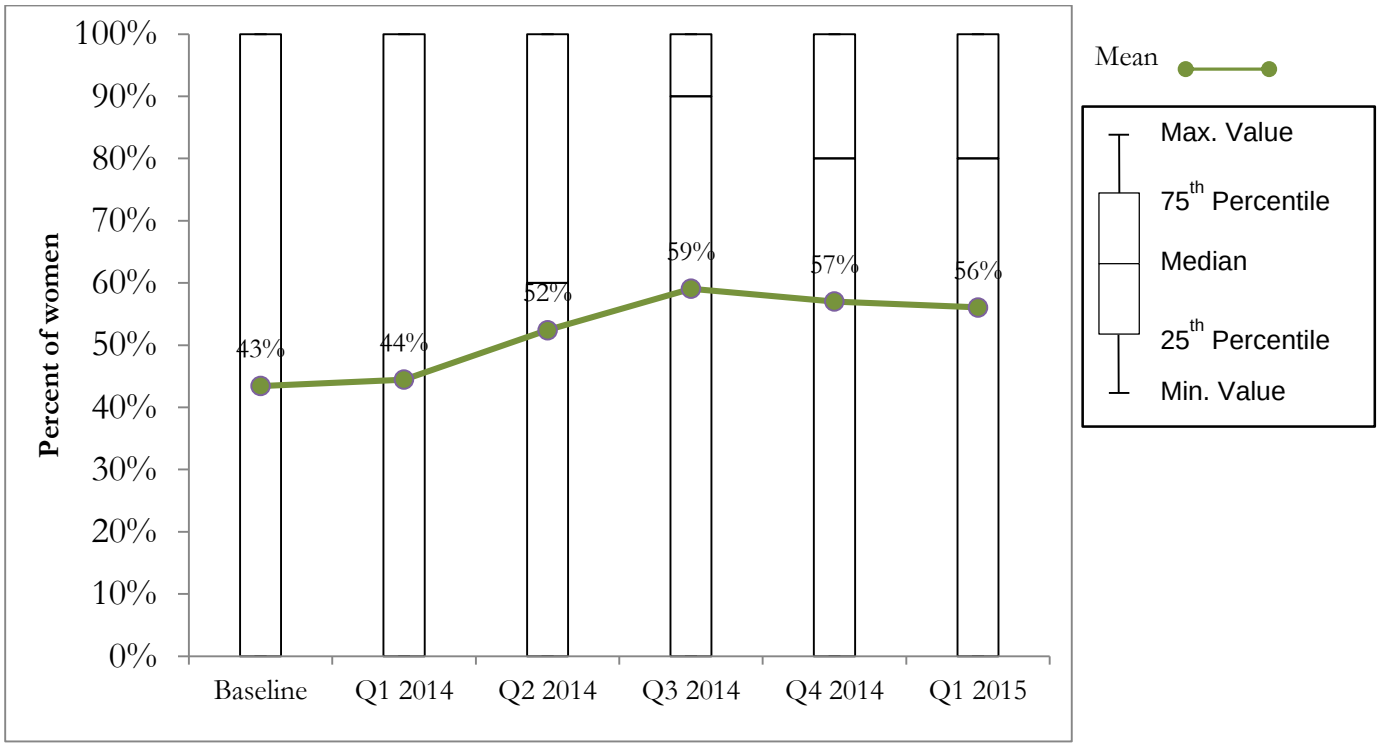


Figure 15: Percent of charts in which blood loss was quantified for Cesarean deliveries by quarter



Some hospital teams had trouble instituting QBL at vaginal births, while others found QBL at cesarean deliveries to be the most challenging. A few hospitals let us know that they were delayed in implementing and/or documenting QBL due to issues with their electronic medical records (EMR) systems. Anecdotally, the largest barrier to QBL was physician resistance.

Hand-Off Reports

The percent of documented hand-off reports between the labor and delivery unit and the postpartum unit for all women with greater than or equal to 1000 cc of blood loss increased from 35% at the start of the initiative to 97% at the end of the initiative [Figure 16]. Many hospitals added this to their electronic charts and shift change handoffs procedures.

Post-Hemorrhage Debriefs

Though not all hospitals are able to submit post-hemorrhage event debriefing forms, the percent of these hemorrhages where a post-hemorrhage event debrief was conducted (form was submitted) steadily increased. The percent of hospitals who submitted at least one post-event debrief form where at least one hemorrhage occurred has fluctuated, with a high of 38% in June 2014, and was 27% at the end of the initiative [Figure 17].

Figure 17 also indicates that the percent of births with a documented hemorrhage of greater than or equal to 1000 cc blood loss increased from 1% of births to about 3% of births initiative-wide. This may indicate an increase in the ability to recognize a major hemorrhage event through increased quantification of blood loss.

Figure 16: Percent of documented hand off reports for all women with 1000 cc blood loss or greater

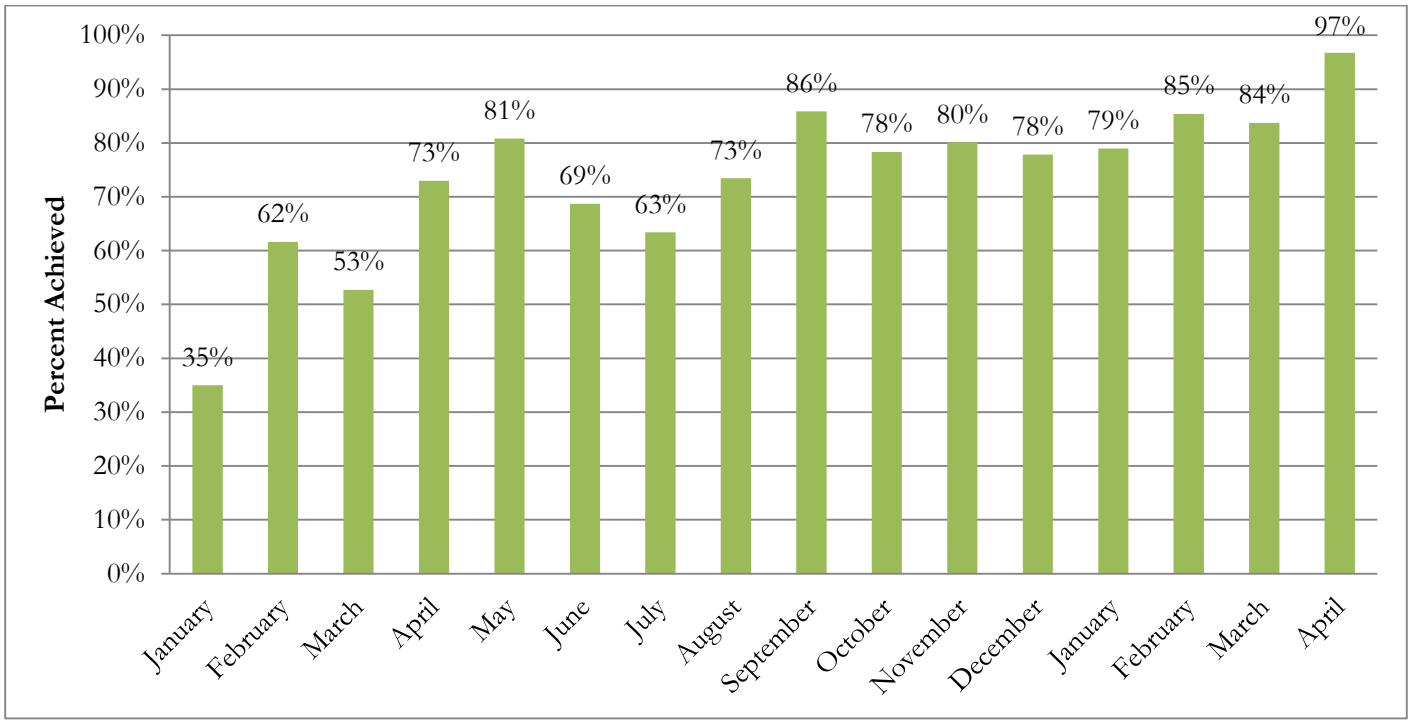
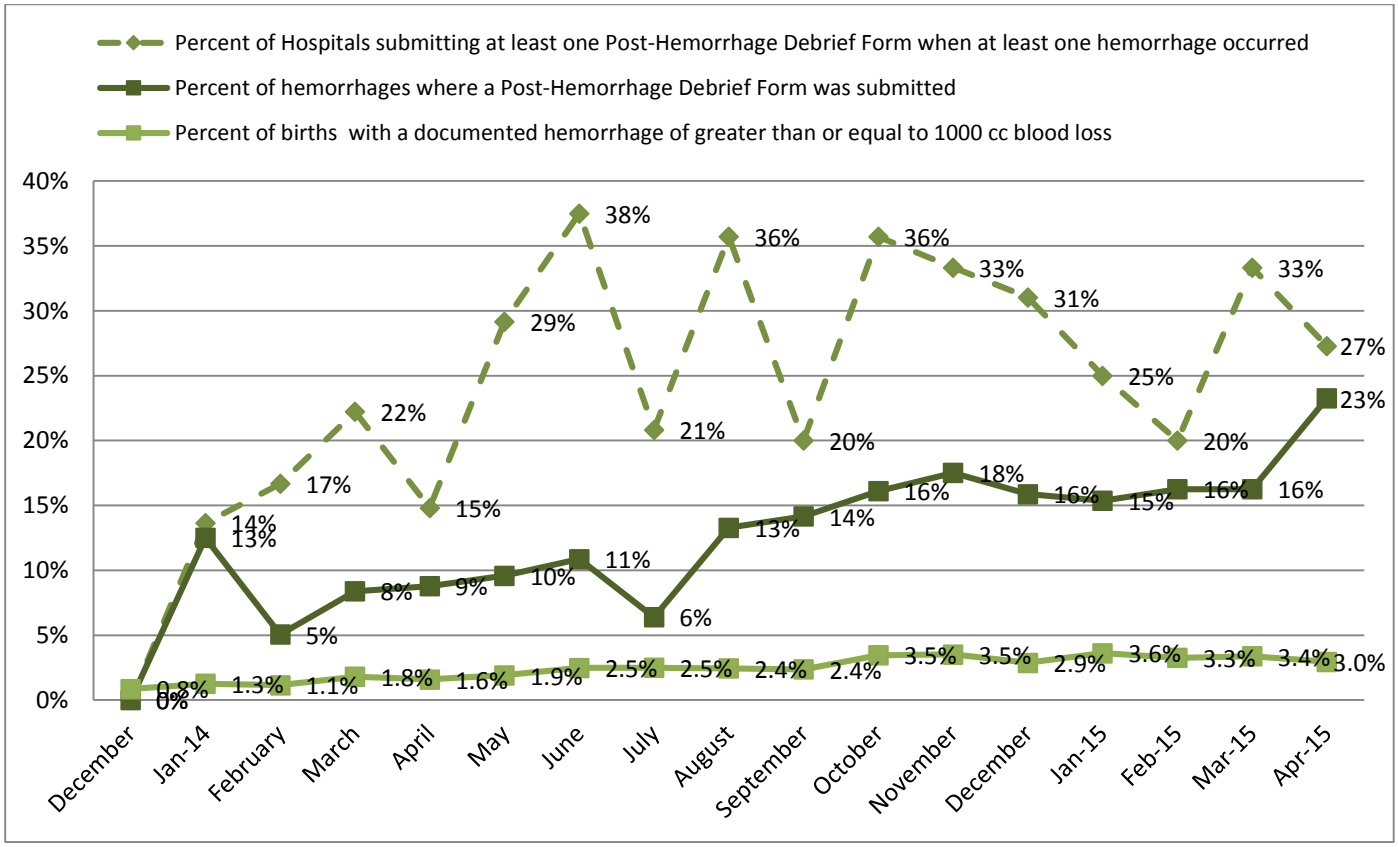


Figure 17: Post-hemorrhage debrief form submission and percent of births with documented hemorrhages of greater than or equal to 1000 cc blood loss



Outcome Measures

Blood Product Transfusion

Figure 18 shows the total units of each type of blood product transfused during birth admissions per 100 births. Cryo was consistently the least used blood type throughout the initiative, and packed red blood cells (PRBCs) have been the most used. The number of units of blood products used per month fluctuates, with a general trend toward increased use of blood products [Figure 18].

The percent of women who are transfused with any blood product during birth admission shows variation, but remained between 1% and 2% since baseline. There was no clear change or trend in these data [Figure 19].

The percent of women who were transfused with greater than 3 units of any blood product during birth admission remained low, with the median staying generally at 0% throughout the initiative. The maximum values fluctuated, but were on a downward trend since November 2014 [Figure 20].

Figure 18: Total units of each type of blood product transfused during birth admissions per 100 births

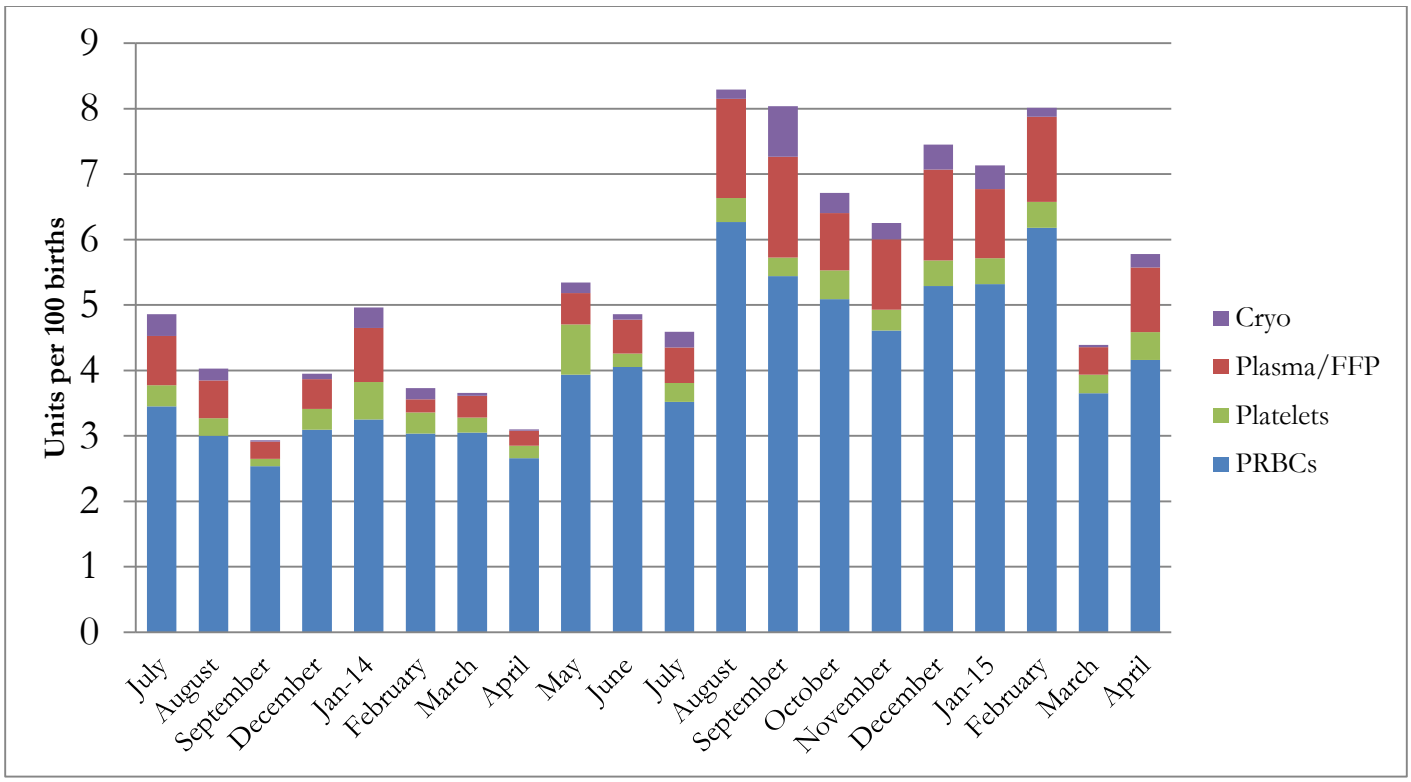


Figure 19: Percent of women who were transfused with any blood product during birth admission

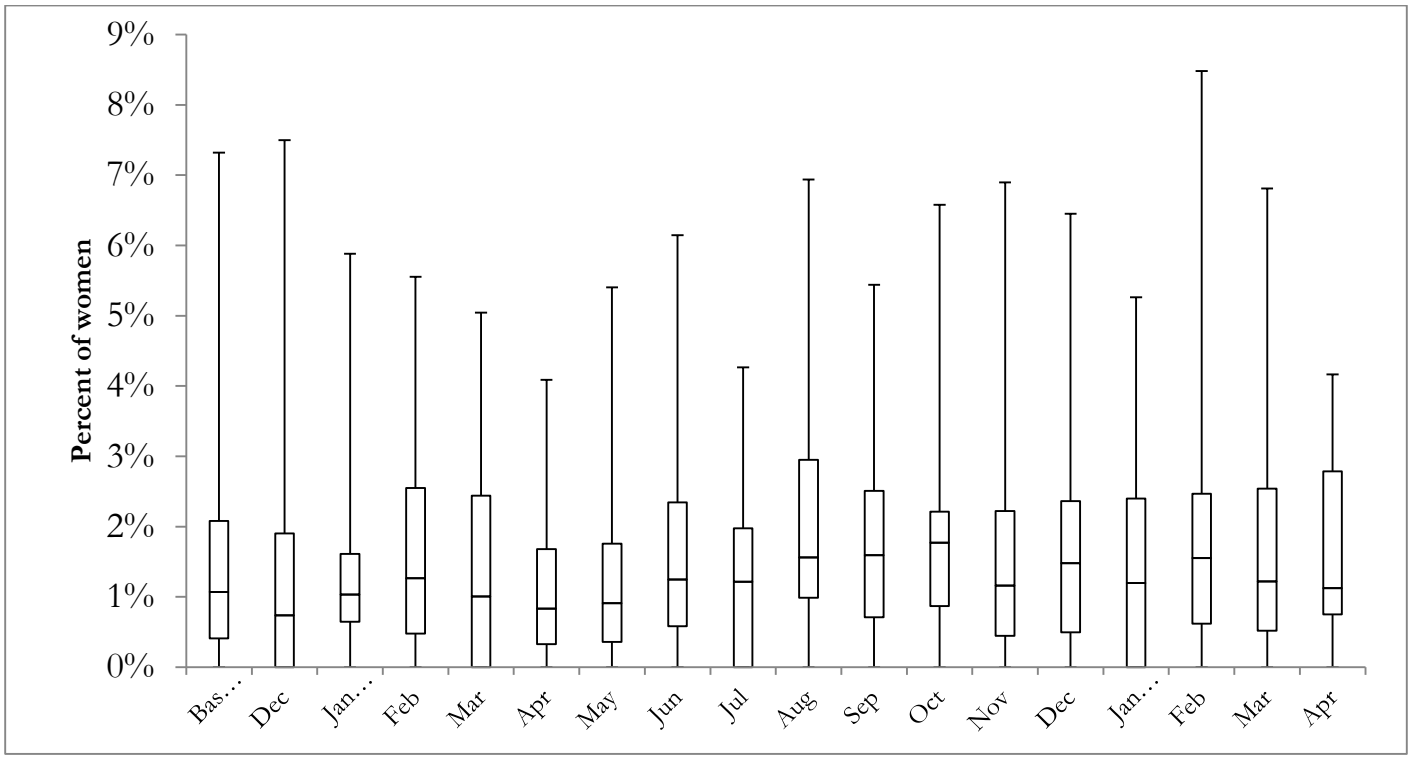
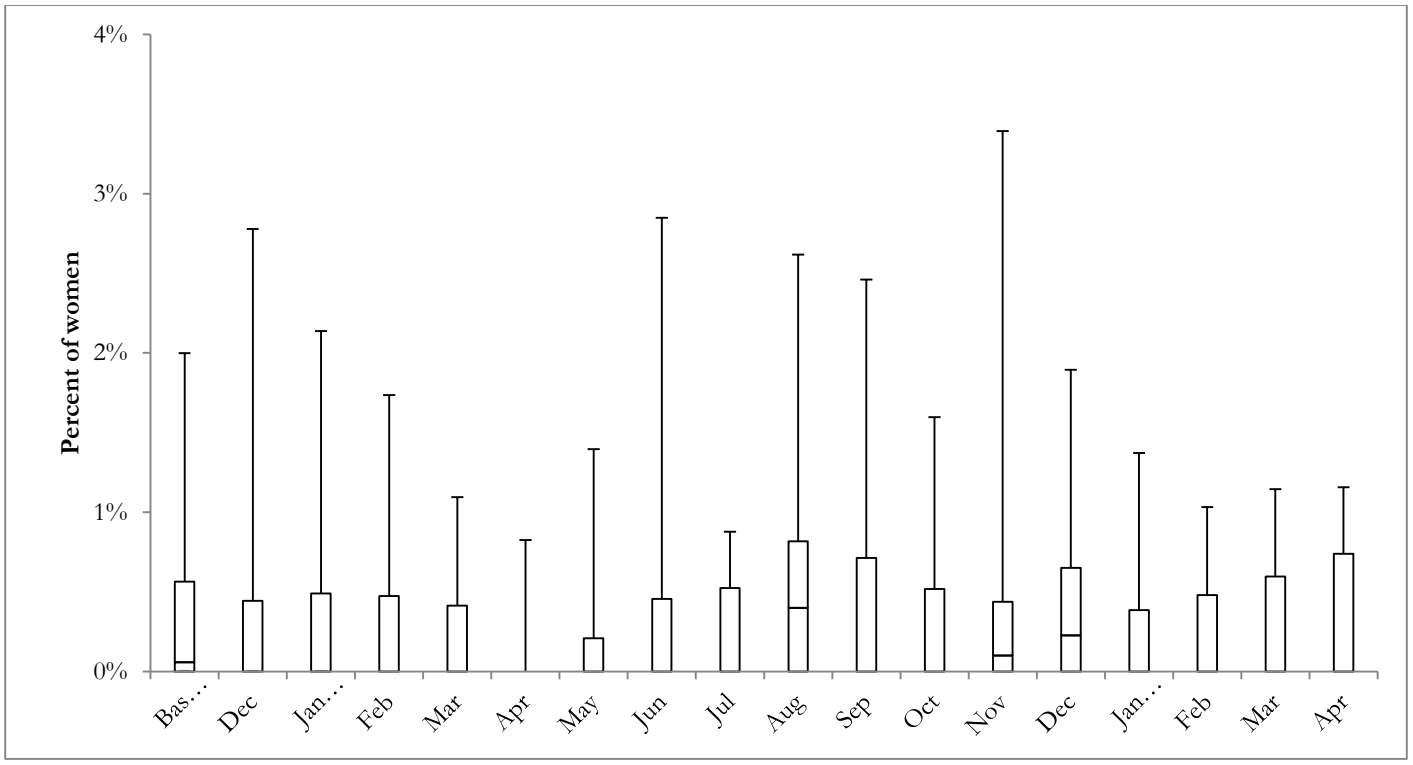


Figure 20: Percent of women who were transfused with > 3 units of any blood product during birth admission



Unplanned Hysterectomies

Throughout the initiative we also collected data on hysterectomies. Figure 21 shows the number of unplanned hysterectomies per 10,000 giving birth each month over the course of the initiative. There was no trend.

Figure 22 shows the percent of unplanned hysterectomies out of all hysterectomies each month, which fluctuated; the percent of hysterectomies out of all hemorrhages (greater than or equal to 1000 cc blood loss), and the percent out of all births. The overall percent of unplanned hysterectomies remained low throughout the initiative.

Figure 21: Unplanned hysterectomies per 10,000 women for All Reporting Hospitals

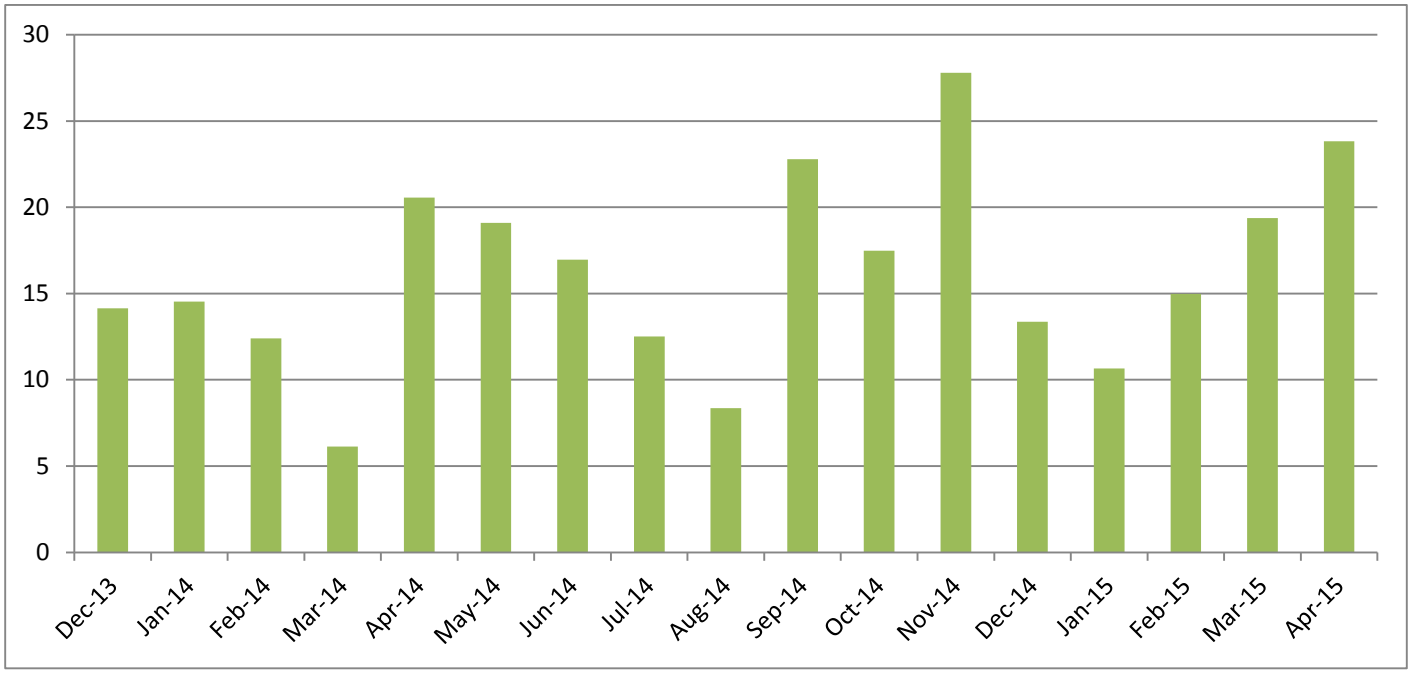


Figure 22: Percent of unplanned hysterectomies for All Reporting Hospitals