Improving Physician Behavior with an Obstetric Dashboard

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DISSERTATION

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Introduction

One of the major complications and concerns of vaginal births are severe (third and fourth degree) perineal lacerations. These are markers for pelvic floor dysfunction and are associated with maternal morbidity factors like anal incontinence and pain and/or dysfunction during intercourse (Macarthur AJ et al., 2004; Signorello LB et al., 2001). While lacerations are usually diagnosed and repaired at the time of delivery, up to half of the women who sustain these lacerations report some degree of anal incontinence for three to six months after the delivery (Gjessing H et al., 1998). Additionally, the risk of reporting fecal incontinence six months postpartum in primiparous women is two-fold higher for women who experienced a sphincter tear when compared to those women without such a tear (Borello FD et al., 2006). Studies also show that women who experience perineal lacerations during delivery have a longer and more painful recovery in the hospital (Viswanathan M et al., 2005).

Currently, severe anal sphincter lacerations are an obstetric quality measure as defined by AHRQ and The Joint Commission (AHRQ; The Joint Commission, 2010). One major risk factor of anal sphincter lacerations is episiotomy. While previously believed to be protective of severe perineal lacerations, review of multiple prospective studies did not identify improvements in pelvic floor muscle function or in continence of urine or stool amongst women who had an episiotomy performed compared to those who had not (Viswanathan M et al., 2005). Studies show that routine episiotomy use is associated with about twice as many severe perineal lacerations compared to selective episiotomy use (Rodriguez A et al., 2008). For the past decade, the American College of Obstetrics and Gynecology (ACOG) has recommended restricted use of episiotomies to reduce the occurrence of third and fourth degree anal sphincter injury (ACOG,

2016). National quality agencies suggest that the use of episiotomy (in the absence of an indication such as shoulder dystocia) should be less than 5.0% (Leapfrog). Studies demonstrate a wide variety of factors drive episiotomy performance, ranging from clinical indications including operative vaginal delivery or shoulder dystocia, as well as non-clinical factors such as socioeconomic status, institutional practices, and provider specialty (Hueston WJ, 1996). Furthermore, many reports have noted a high amount of variation in utilization rates within similar patient populations as well as amongst providers in a single health system (Low LK et al., 2000). Evidence suggests that physician-specific factors such as local professional norms, experiences in training, and personal provider preference are major drivers of this variation (Viswanathan M et al., 2005). As such, physician performance of episiotomies is a modifiable behavior that can be adjusted with relatively simple interventions.

Hospitals worldwide have begun to use dashboards to monitor quality indicators on both an institutional and provider level. Utilizing a physician dashboard can afford opportunities for measurement in a relatively rapid timeframe, and thus, can subsequently allow for physician processing and potential behavioral modification (Sprague AE et al., 2013). Additionally, the dashboard interface is one that can be integrated into a preexisting electronic medical record easily, following proof of value and impact. It also can be modified and adapted to report not only obstetric quality measures like the incidence rate of episiotomy, but also an expansive number of quality measures for both physician and nurse providers, making it an appealing reporting tool choice (Donaldson N et. al., 2005). Furthermore, studies have demonstrated that institutions can advantageously use dashboards to streamline information distribution in a clinical setting, provide comparative measures between clinics and/or providers, and potentially

drive behaviors towards performance excellence (Koopman RJ et al., 2011; Donaldson N et al., 2005); such transparency in performance disclosure has been demonstrated to be associated with significant improvement in quality outcomes (Gilbert WM et al., 2013).

Prior to this project, our institution did not have a process in place to track and report individual physician performance rates across certain obstetric benchmarks including the rate of episiotomy utilization. Our project aimed to not only establish a baseline performance level for the institution and individual providers, but ultimately, to reduce the episiotomy utilization by individual providers outside of the national benchmark by 10% in 6 months as well as reduce the current institutional rate by 25% in the 6 month period by instituting scheduled notifications of providers' incidence rates of episiotomy utilization using a physician dashboard reporting tool. A subsequent intervention also focused on the prevention of severe perineal laceration with a specific aim to reduce the institutional rate of severe perineal lacerations by 25% in the 6 month period through the application of heat packs to the perineum from the late first to third stages of labor.

Methods

Context

Interventions were conducted within the Labor and Delivery Unit (L&D) of William P. Clements Jr. University Hospital (CUH) - a private hospital affiliated with the University of Texas at Southwestern Obstetrics and Gynecology residency program. As a large academic institution, there were multiple levels of care providers and subsequent stakeholders at the time of intervention implementation: 13 attending physicians, 4 midwives, 1-2 rotating Maternal and Fetal Medicine Fellows, 1-2 resident physicians, and the L&D nursing staff. Prior to the intervention, CUH did not routinely report individual provider performance rates of obstetric quality indicators like episiotomies.

Interventions

Intervention 1: Physician-Specific Dashboard reporting Episiotomy Performance Rate

A fishbone diagram was used to identify factors that drive the performance of an episiotomy and allowed us to review opportunities for interventions (Figure 1). Episiotomy performance is highly determined by the action of the delivering physician. Because reports suggest that sharing personal data with individual physicians can have an impact on modifiable provider behavior, we focused our effort on improving physician awareness of their own performance as compared to their peers.

Figure 1: Fishbone diagram outlining factors that drive the performance of episiotomy.

Multiple "Plan-Do-Study-Act" (PDSA) cycles were conducted to implement interventions and allow for ongoing changes to the project.

The primary intervention of the first PDSA cycle was to establish a system of of scheduled notifications in order to inform providers of their incidence rate of episiotomy performance. This was achieved by creating and distributing a physician-specific dashboard to the primary stakeholders: the OB/GYN physicians, midwives, and CUH L&D nursing staff.

The dashboard was de-identified, with each generalist OB/GYN assigned a specific letter (A-O) (Figure 2). We listed the episiotomy performance rates of the fellows and midwives as collective groups to serve as a comparison. The dashboard was organized using a Red-Yellow-Green format - where "Green" signified the physician's performance rate was less than or equal to the quality benchmark of 5.0%; "Yellow" signified the performance rate was within one

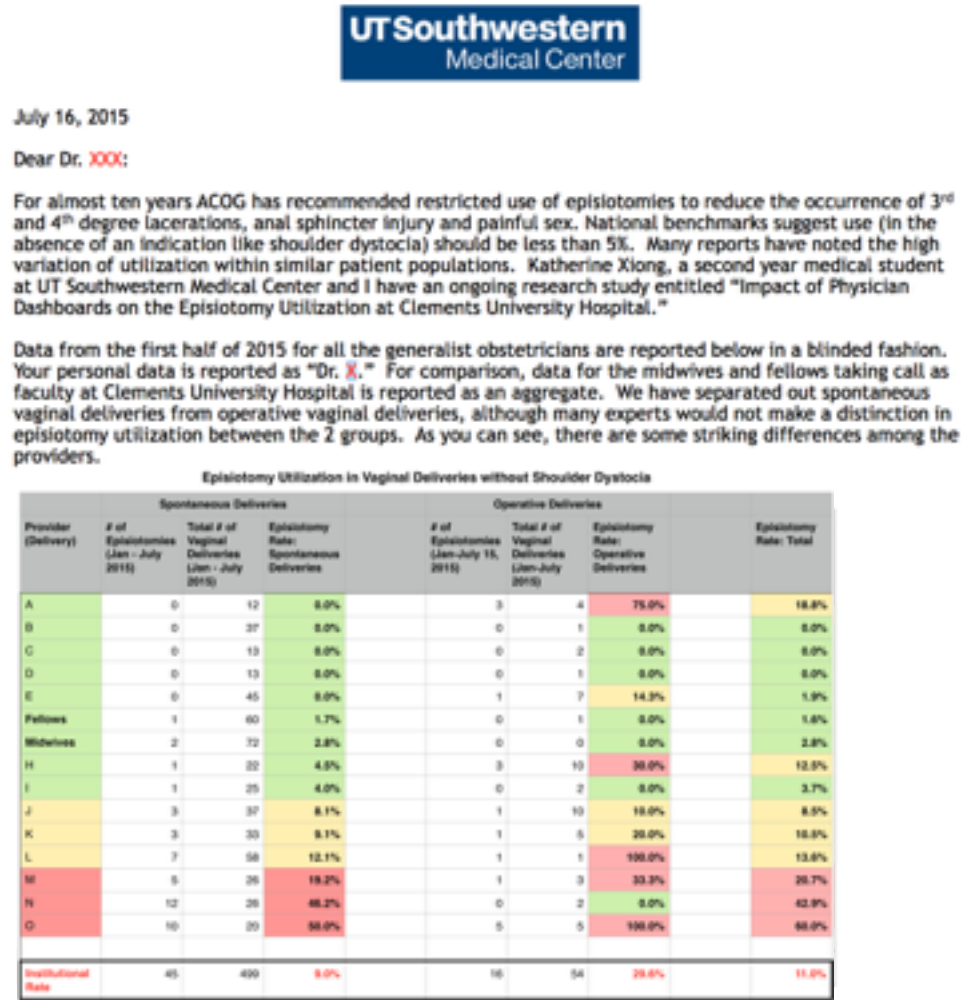
standard deviation of the benchmark; and "Red" signified that the performance rate was more than one standard deviation from the benchmark.

Episiotomy Utilization in Vaginal Deliveries without Shoulder Dystocia

	Spontaneous Deliveries				Operative Deliveries				
Provider (Delivery)	**# of Episiotomies (Jan - July 2015)**	**Total # of Vaginal Deliveries (Jan - July 2015)**	**Episiotomy Rate: Spontaneous Deliveries**		**# of Episiotomies (Jan-July 15, 2015)**	**Total # of Vaginal Deliveries (Jan-July 2015)**	**Episiotomy Rate: Operative Deliveries**		**Episiotomy Rate: Total**
A	0	12	**0.0%**		3	4	**75.0%**		**18.8%**
B	0	37	**0.0%**		0	1	**0.0%**		**0.0%**
C	0	13	**0.0%**		0	2	**0.0%**		**0.0%**
D	0	13	**0.0%**		0	1	**0.0%**		**0.0%**
E	0	45	**0.0%**		1	7	**14.3%**		**1.9%**
Fellows	1	60	**1.7%**		0	1	**0.0%**		**1.6%**
Midwives	2	72	**2.8%**		0	0	**0.0%**		**2.8%**
H	1	22	**4.5%**		3	10	**30.0%**		**12.5%**
I	1	25	**4.0%**		0	2	**0.0%**		**3.7%**
J	3	37	**8.1%**		1	10	**10.0%**		**8.5%**
K	3	33	**9.1%**		1	5	**20.0%**		**10.5%**
L	7	58	**12.1%**		1	1	**100.0%**		**13.6%**
M	5	26	**19.2%**		1	3	**33.3%**		**20.7%**
N	12	26	**46.2%**		0	2	**0.0%**		**42.9%**
O	10	20	**50.0%**		5	5	**100.0%**		**60.0%**
Institutional Rate	45	499	**9.0%**		16	54	**29.6%**		**11.0%**

Figure 2: Physician-specific dashboard utilizing the "Red-Yellow-Green" format to report incidence rate of episiotomy utilization in vaginal deliveries without shoulder dystocia.

The dashboard was distributed to physicians via personal letters and email notification (Figure 3). Physicians were informed of their specific letter assignment in this correspondence. Copies of the dashboard were also posted in the physician lounge, nurses' lounge and midwives' call rooms for full transparency. Dashboards were distributed on July 16, 2015, marking the start of the post-intervention data collection period. Providers were provided with dashboard updates on a semi-annual basis, with the first update being sent in early February 2016 in the same manner as the initial dashboard distribution.



UT Southwestern Medical Center

July 16, 2015

Dear Dr. XXX:

For almost ten years ACOG has recommended restricted use of episiotomies to reduce the occurrence of 3rd and 4th degree lacerations, anal sphincter injury and painful sex. National benchmarks suggest use (in the absence of an indication like shoulder dystocia) should be less than 5%. Many reports have noted the high variation of utilization within similar patient populations. Katherine Xiong, a second year medical student at UT Southwestern Medical Center and I have an ongoing research study entitled "Impact of Physician Dashboards on the Episiotomy Utilization at Clements University Hospital."

Data from the first half of 2015 for all the generalist obstetricians are reported below in a blinded fashion. Your personal data is reported as "Dr. X." For comparison, data for the midwives and fellows taking call as faculty at Clements University Hospital is reported as an aggregate. We have separated out spontaneous vaginal deliveries from operative vaginal deliveries, although many experts would not make a distinction in episiotomy utilization between the 2 groups. As you can see, there are some striking differences among the providers.

Episiotomy Utilization in Vaginal Deliveries without Shoulder Dystocia

	Spontaneous Deliveries			Operative Deliveries			
Provider (Delivery)	# of Episiotomies (Jan - July 2015)	Total # of Vaginal Deliveries (Jan - July 2015)	Episiotomy Rate: Spontaneous Deliveries	# of Episiotomies (Jan-July 15, 2015)	Total # of Vaginal Deliveries (Jan-July 2015)	Episiotomy Rate: Operative Deliveries	Episiotomy Rate: Total
A	0	12	0.0%	3	4	75.0%	18.8%
B	0	37	0.0%	0	1	0.0%	0.0%
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N	12	26	46.2%	0	2	0.0%	42.9%
O	10	20	50.0%	5	5	100.0%	66.0%
Institutional Rate	45	499	9.0%	16	54	29.6%	11.0%

We appreciate your time in reviewing these results. In the coming months we will continue to report back to you the results of our audit.

Thank you for your help with this project.

Figure 3: An example of the letter sent to providers to distribute the dashboard.

Intervention 2: Heat Pack Application during Labor

A second PDSA cycle was conducted in June 2017 in order to address the aim to reduce the institutional rates of severe perineal laceration by 25% in 6 months. Factors reported to drive the occurrence of severe perineal laceration were organized using a fishbone diagram (Figure 4). A majority of the risk factors for severe perineal laceration, such as fetal size or presentation, are unfortunately not modifiable at the time of labor and delivery (Samuelson E et al., 2000). However, a series of randomized control trials have demonstrated that interventions directed towards improving the perineal condition during labor through the application of warm compresses or heat packs, can significantly reduce the rates of severe lacerations following vaginal delivery (Dahlen HG et al., 2007).

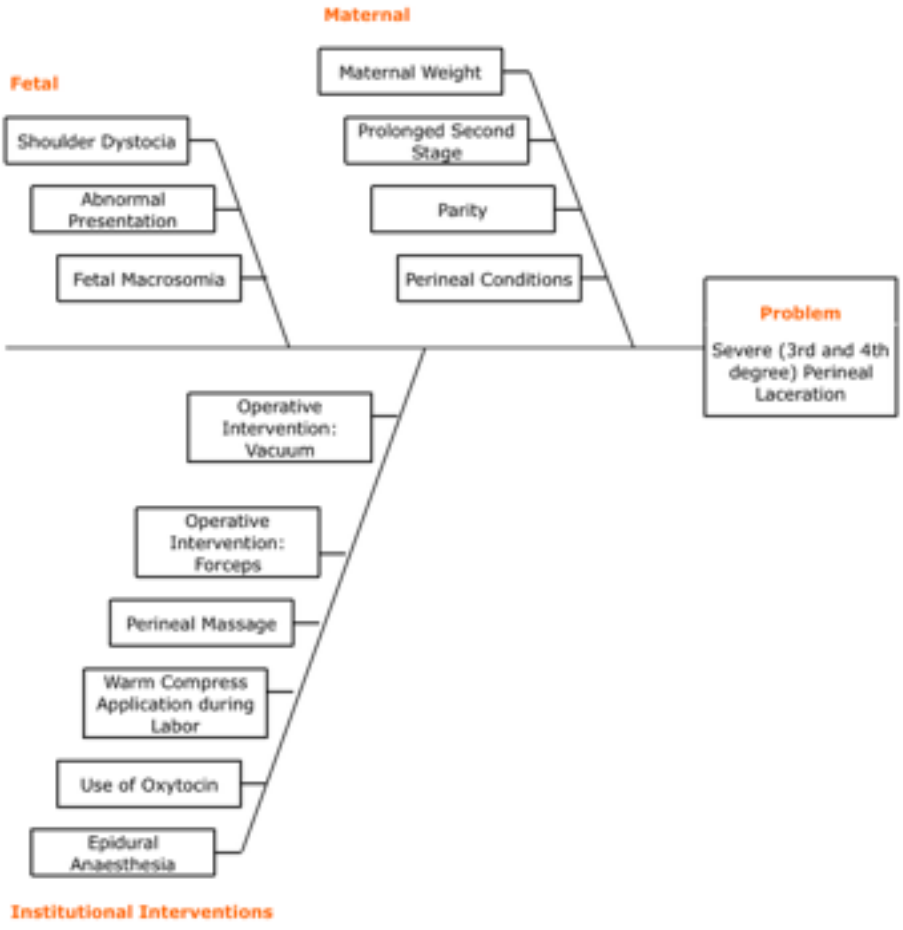

Figure 4: Fishbone diagram outlining factors that drive occurrence of severe perineal laceration.

Following discussion with the pertinent stakeholders (generalist OB/GYN providers, midwives, L&D nurses and nurse managers, and EPIC electronic medical record analyst), a decision was made to trial a heat pack application intervention. Heat packs were to be offered to women during the late first stage of labor, as early as 6 cm cervical dilation. Upon acceptance of the heat pack intervention, the nurse would document the application of the heat pack to the perineum to in the patient chart. Heat packs would then be changed on an hourly interval in order to ensure that the perineum was consistently warmed.

Consultation with the EPIC analysts was conducted, and an order for heat pack application was added to the pre-existing, routinely used "Inpatient Vaginal Delivery" admission order set bundle. Additionally, a "Heat Pack to Perineum" field was added to the "Cervical Exam" section of the "Labor" flowsheet in the patient's chart. This was done with the rationale that the "Cervical Exam" section of the "Labor" flowsheet was already routinely accessed by providers to document progression of cervical dilation during labor, and thus would be a convenient location for providers to also document the application of heat packs and subsequently allow for assessment of intervention practice upon retrospective chart review. Adjustments to the PAR were made to increase the inventory of heat packs to appropriately accommodate for the anticipated increase in consumption.

Additionally, informational brochures were made for distribution to patients upon admission to the L&D unit, to increase patient understanding of the offered intervention (Appendix).

Multiple meetings were held with both the generalist OB/GYN physicians and midwives, as well as L&D nursing staff to inform them of the intervention. The intervention was implemented on July 12, 2017, marking the start of the post-intervention period.

Study and Analysis of Intervention

Intervention 1: Physician-Specific Dashboard reporting Episiotomy Performance Rate

Dashboards were distributed on July 16, 2015, marking the start of the post-intervention data collection period. All analyzed and reported data was collected from deliveries performed at CUH over the pre-intervention [01/01/2015 - 07/15/2015] and post-intervention [07/16/2015 - 07/16/2016] periods. The post-intervention period analysis was divided into four quarters: Quarter 1 [07/16/2015 - 10/31/2015], Quarter 2 [11/01/2015 - 01/31/2016], Quarter 3 [02/01/2016 - 3/31/2016] and Quarter 4 [04/01/2016 - 06/30/2016]. From the pre-intervention period, a total of 553 eligible deliveries (499 spontaneous and 54 operative vaginal deliveries) and 61 episiotomy cases (45 in spontaneous and 16 in operative vaginal deliveries) were analyzed; from the post-intervention period, a total of 857 eligible deliveries (774 spontaneous and 83 operative vaginal deliveries) and 48 episiotomy cases (25 in spontaneous and 23 in operative vaginal deliveries) were analyzed. Changes in the episiotomy rate and laceration rate between the pre-intervention and post-intervention periods were analyzed using the chi-squared test.

Because the ultimate aim of reducing episiotomy performance rate is to reduce the rate of vaginal birth complication from severe perineal lacerations, the rates of severe perineal lacerations during the pre- and post-intervention periods were also collected. No other interventions were conducted in this year long period, and all data interpretation was appropriately adjusted to account for any changes to provider participants such that the values reported in the pre- and post-interventions represented an identical cohort of providers.

Intervention 2: Heat Pack Application during Labor

Implementation of the heat pack intervention began on July 12, 2017, with the activation of adjustments to the order sets and documentation fields in the electronic medical record as described above. All analyzed and reported data was collected from deliveries performed at CUH over the pre-intervention [06/01/2017 - 07/11/2017] and post-intervention [07/12/2017 - 12/31/2017] periods. The post-intervention period analysis was divided into two quarters: Quarter A [07/12/2017 - 09/30/2017] and Quarter B [10/01/2017 - 12/31/2017]. From the pre-intervention period, a total of 98 eligible spontaneous vaginal deliveries and 1 severe laceration was analyzed; from the post-intervention period, a total of 608 eligible deliveries and 18 severe perineal lacerations were analyzed. Changes in incidence rate of severe perineal laceration between pre- and post-intervention periods were analyzed using the chi-squared test.

Measures

In order to study the outcome of our interventions, the incidence of episiotomy utilization by specific providers would be tracked. In accordance with the measures specified by the National Quality Forum, our project measured the percentage of operative (OVD; deliveries assisted with vacuum or outlet forceps) and spontaneous (SVD) vaginal deliveries without shoulder dystocia during which, an episiotomy was performed, with specific components of the numerator and denominator listed below (National Quality Forum, 2008). Incidence of episiotomy utilization within spontaneous or operative vaginal delivery cohorts were collected and analyzed separately.

Numerator Statement: Number of episiotomy procedures performed on women undergoing a spontaneous or operative vaginal delivery (excluding those with shoulder dystocia) during the analytic period.

Denominator Statement: Spontaneous or operative vaginal deliveries during the analytic period, excluding those with shoulder dystocia.

Exclusions: Women with a coded complication of shoulder dystocia, for in the event of shoulder dystocia, an episiotomy may be performed to free the shoulder and to prevent birth injury to the infant during delivery.

An analysis on the number of providers who demonstrated significant reductions in their rate of episiotomy performance rate was also conducted. Additionally, the rates of severe (third and fourth degree) perineal lacerations pre- and post-intervention were measured to allow for ongoing assessment of the outcomes impact of our interventions.

Numerator Statement: Number of severe (third or fourth degree) perineal lacerations following spontaneous vaginal delivery (excluding those with shoulder dystocia) coded during the analytic period.

Denominator Statement: All spontaneous vaginal deliveries during the analytic period, excluding those with shoulder dystocia.

Exclusions: Women who underwent operative vaginal delivery (using outlet forceps or Kiwi vacuum); and women with a coded complication of shoulder dystocia, for in the event of shoulder dystocia, an episiotomy may be performed to free the shoulder and to prevent birth injury to the infant during delivery.

Baseline data from January to July 15, 2015 was collected via a retrospective review of EPIC records to identify providers, types of deliveries, and episiotomy performance. Post-intervention data was collected from July 16, 2015-July 2016 to determine the effects of our dashboard intervention on incidence rate of severe perineal lacerations. Data from July 12, 2017 - December 31, 2017 was subsequently collected to determine the effects of our heat pack intervention on the incidence rate of severe perineal lacerations.

To appropriately assess the implementation of our process intervention of utilizing heat packs during the late first stage of labor, documentation of heat pack application was measured.

Numerator Statement: Number of spontaneous vaginal deliveries (excluding those with shoulder dystocia) during the analytic period with documented application of heat pack noted in patient chart.

Denominator Statement: All spontaneous vaginal deliveries during the analytic period, excluding those with shoulder dystocia.

Exclusions: Women who underwent operative vaginal delivery (using outlet forceps or Kiwi vacuum); and women with a coded complication of shoulder dystocia.

Results

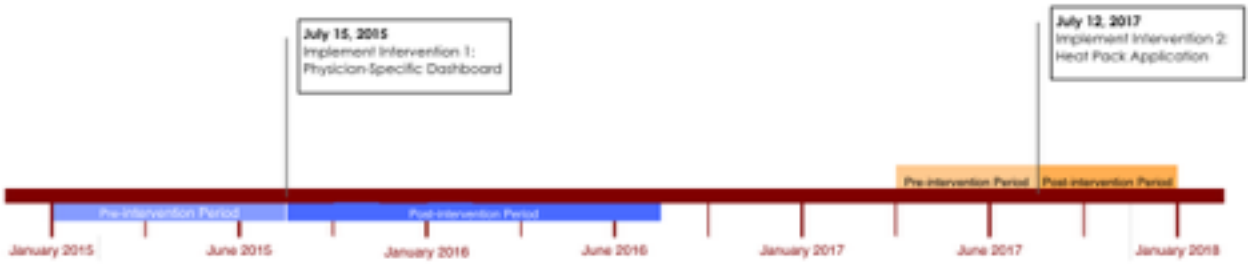

Figure 5: Timeline of Intervention 1: *Physician-Specific Dashboard reporting Episiotomy Performance Rate* (in blue) and Intervention 2: *Heat Pack Application during Labor* (in orange)

Intervention 1: Physician-Specific Dashboard reporting Episiotomy Performance Rate

Baseline data analysis demonstrated that, prior to the implementation of a physician-specific dashboard reporting the incidence rate of episiotomy performance, the institutional incidence rate of episiotomy performance was 9.0% in the SVD patient cohort, 29.6% in the OVD cohort, and 11.0% in all vaginal deliveries. Additionally, there was notable variation between individual providers' incidence rates of episiotomy performance in SVD, ranging from 0.0% to a maximum rate of 50.0% in the pre-intervention period.

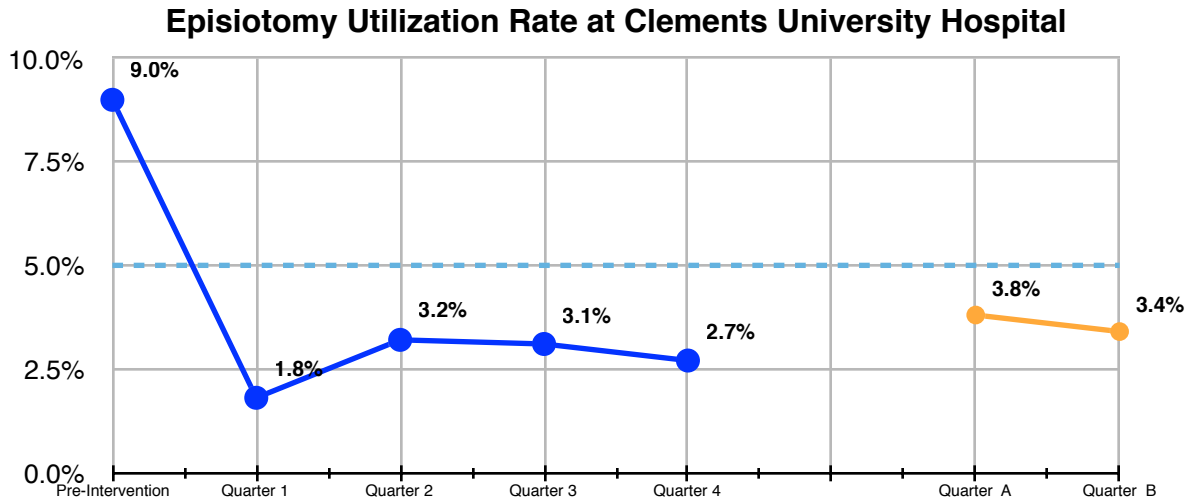

Figure 6: Run-control chart of the incidence rate of episiotomy utilization in SVD during the pre- and post-intervention period of Intervention 1 (Quarters 1-4: July 2015-July 2016) as well as during the post-intervention period of Intervention 2 (Quarter A-B: July 2017-December 2017).

Following dashboard implementation, there was a significant reduction the institutional incidence rate of episiotomy utilization within the SVD patient cohort, with a drop from 9.0% to 2.7% in the last quarter of the formal post-intervention study period ($p<0.005$) meeting the national benchmark rate of 5.0% (Leapfrog) (Figure 6). Notably, since the implementation of the dashboard in July 16, 2015, the incidence rate of episiotomy utilization remained consistently below the national benchmark in our post-intervention period, with an incidence rate of 3.4% in the most recent quarter (Quarter B). Furthermore, the relative amount of variation between individual providers' incidence rates also decreased, suggesting that the all providers were behaving more consistently.

The current literature reports that in deliveries in which an episiotomy was performed, the rates of severe perineal laceration are significantly higher than in deliveries without episiotomy performance (Rodriguez A et al., 2008). Analysis of deliveries occurring during the the pre-intervention period at CUH demonstrated that the incidence rate of severe perineal lacerations in deliveries in which an episiotomy was performed was 6.67% - significantly higher than the incidence rate in deliveries performed without an episiotomy (1.96%; p value <0.05) (Figure 7).

Non-Operative Vaginal Deliveries without Shoulder Dystocia

Risk of Severe Laceration: Pre-Intervention

	With Episiotomy	**Without Episiotomy**
Deliveries with Severe Lacerations	3	8
Total # of Deliveries	45	409
Rate of Severe Lacerations	6.67%	1.96%
P Value = **0.05**; Odds Ratio (95% CI): **3.58** (0.91, 14.0)		

Incidence of Severe Lacerations

Pre-Intervention	2.42%
Post-Intervention	1.49%
P Value = **0.219**	

Figure 7: Table demonstrating the rate of severe perineal laceration in deliveries with and without episiotomy (left) and the incidence rate of severe perineal laceration pre- and post-Intervention 1.

Furthermore, it was noted that within our patient population, deliveries in which an episiotomy was performed had a a 3.5-fold increased risk of experiencing severe perineal laceration (Figure 7). However, while our physician dashboard intervention did significantly decrease the incidence rate of episiotomy performance, it did not result in a significant decrease in the rate of severe perineal laceration. Instead, a decrease in the rate of severe perineal laceration from 2.42% in the pre-intervention period to 1.49% in the post-intervention period (P value = 0.219) was observed (Figure 7).

Intervention 2: Heat Pack Application during Labor

Prior to implementation of the heat pack intervention, the incidence rate of severe perineal lacerations amongst spontaneous vaginal deliveries without shoulder dystocia was 3.06%. During the post-intervention period, no significant change in incidence rate was observed between the pre-intervention period and either of the post-intervention quarters, with an incidence rate of 2.71% (p=0.33) during Quarter A and an incidence rate of 3.47% (p=0.20) for Quarter B (Figure 8). However, the rate of heat pack application was only 22.09% during Quarter A of the post-intervention period, and exhibited a significant decrease to 14.51% during Quarter B.

Measure	Pre-Intervention	Post-Intervention (Quarter A)	Post-Intervention (Quarter B)
Heat Pack Application Rate		22.09%	14.51%
Severe Perineal Laceration Rate	3.06%	2.71%	3.47%

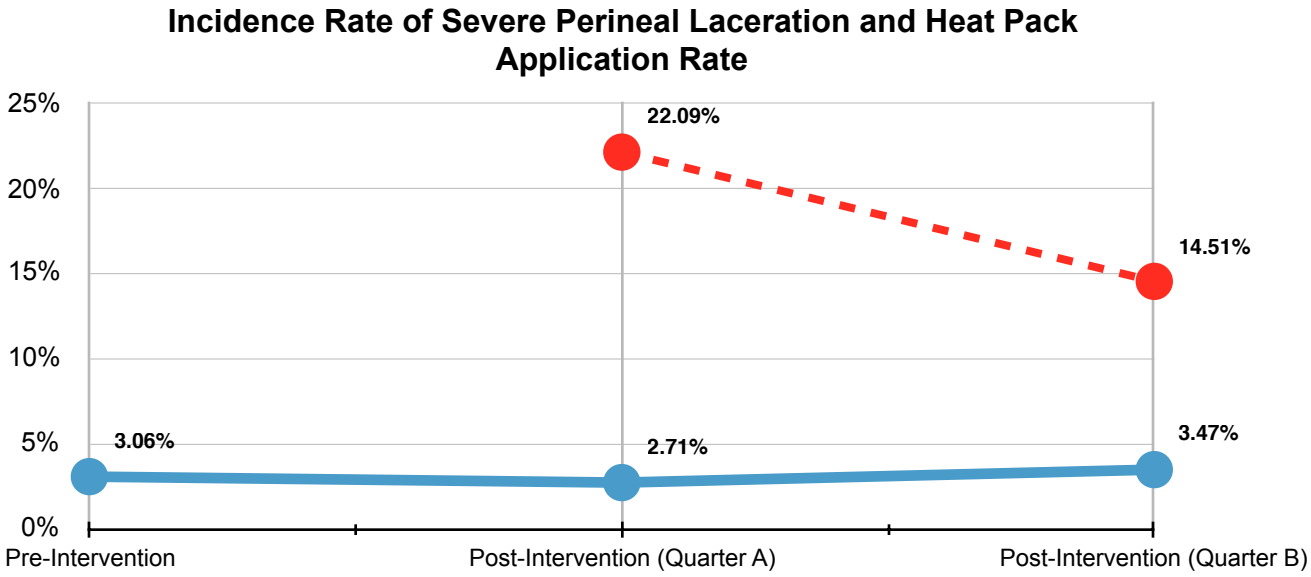

Figure 8: Run-control chart of the incidence rate of severe perineal laceration (blue) and the rate of heat pack application (red).

Discussion

Intervention 1: Physician-Specific Dashboard reporting Episiotomy Performance Rate

The baseline "pre-intervention" institutional incidence rate of episiotomy utilization at CUH was 9.0%. This value is consistent with the reported national average of episiotomy incidence of 11.6% in 2012 (Friedman AM et al., 2015), yet is greater than The Leapfrog Group's recommended benchmark rate of 5.0%. Furthermore, consistent with multiple studies, (Low LK et al., 2000), our baseline data demonstrates wide variability in individual providers' incidence rates of episiotomy utilization, ranging from 0.0% to 50.0% in our pre-intervention period. Notably, the rates of episiotomy utilization across the 4 midwives at CUH were consistently below the benchmark rate, thus suggestive that philosophies of training amongst obstetricians may be a contributing factor to episiotomy performance.

Upon implementation of the individual physician dashboard, a significant decrease in the incidence rates of episiotomy utilization was observed. This decrease in the incidence rate to below the benchmark value was sustained across all subsequent quarters in the post-intervention period. Furthermore, to assess the sustainability and longevity of the impact of utilizing a physician dashboard, analysis of the deliveries that occurred during the second PDSA cycle was conducted. The incidence rate of episiotomy utilization was 3.8% and 3.4% in Quarters A and B respectively. Thus, twelve months after the completion of our initial intervention, the institutional incidence rate of episiotomy performance remained below the benchmark goal, further demonstrating that the utilization of a physician dashboard can serve as an effective means to drive physician behavior.

Although implementation of a physician-specific dashboard did reduce the incidence rate of episiotomy utilization across providers and the institution significantly, a similarly significant reduction in the incidence rate of severe perineal lacerations was not observed. This suggested that causes of severe perineal lacerations are multifactorial - with episiotomy utilization serving as one contribution factor - and drove us to explore additional intervention opportunities to directly modify and impact the incidence rate of severe perineal laceration within our patient population.

Intervention 2: Heat Pack Application during Labor

The results of our first intervention demonstrated that the factors driving occurrence of severe perineal laceration likely extended beyond episiotomy performance. The baseline incidence rate of severe perineal laceration prior to the initiation of the intervention was 3.09%. Over the course of our post-intervention period, we did not see significant changes in the incidence rate of lacerations. However, over the course of the intervention period, heat packs were applied in fewer than one-quarter (22.09% in Quarter A and 14.51% in Quarter B) of the deliveries.

A number of factors may have contributed to the limited application of heat packs. Of note, no record of heat pack application (or non-application) was documented in 490 of the 608 eligible deliveries, amounting to 80% of the deliveries performed in our post-intervention period. In our data analysis, no recorded documentation of heat pack application was interpreted to mean that no heat pack was applied during the respective labor. However, upon subsequent discussion with the nursing staff, it became apparent that a portion of deliveries with heat pack application

was going undocumented. This not only highlights an area of improvement that must optimized prior to subsequent analysis of the impact of the heat pack intervention on the institutional incidence rate of severe perineal laceration, but also presents a previously unrecognized process measure of intervention success: appropriate documentation of heat pack application or non-application.

Furthermore, while the nursing staff was educated at the start of the intervention in appropriate heat pack application indications and technique, limited checks and reminders were performed over the course of the intervention. We hypothesize that the limited education on the heat pack intervention and lack of routine reassessments may have contributed the low rates of appropriate documentation (and subsequently low rates of heat pack application) in this initial post-intervention period. Thus, our current intervention is directed towards improving the rates of appropriate documentation and heat pack application rates by initiating a re-education intervention. With the assistance of the L&D nurse manager, we are integrating brief educational sessions during the morning shift “Quick Hits” meeting and will be analyzing rates of appropriate documentation in future analysis of the intervention.

Concluding Remarks

Because of its association with maternal morbidity factors like anal incontinence and increased perineal pain, reducing the incidence rate of severe perineal lacerations has become a focus amongst obstetric providers. Certain physician behaviors, including performance of episiotomies, have been documented to significantly increase the risk of severe perineal laceration. The results of our first intervention - implementing a physician-specific dashboard reporting the incidence rates of episiotomy utilization - demonstrated that a physician specific dashboard not only is an easily implemented reporting tool, but that its implementation can significantly impact physician behavior and reduce the incidence rates of episiotomy utilization. However, analysis of our initial intervention also demonstrated that significantly reducing our institutional incidence rate of episiotomy utilization did not significantly impact the maternal morbidity outcome measure of severe perineal lacerations.

Our subsequent analysis of factors driving the occurrence of severe perineal laceration directed us to target our second intervention towards improving the intrinsic perineal environment through application of heat packs. However, during our initial implementation of our process intervention, we were unable to appropriately optimize our intervention to achieve adequate documentation, thereby limiting the statistical significance of our data analysis of the initial post-intervention period. Thus, the focus of our subsequent modifications to our heat pack application intervention will be directed towards ensuring both appropriate documentation of heat pack application, or non-application, in future eligible deliveries.

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HELP US REDUCE YOUR RISK OF SEVERE PERINEAL TEARS

A major complication of vaginal births is severe perineal tears, which can lead to pelvic floor dysfunction and anal incontinence.

Application of warm packs to the perineum during labor has been shown to decrease the risk of severe perineal tears in women by 50%.

The American College of Obstetricians and Physicians recommends application of warm packs starting when you are 6-8 cm dilated and while you are pushing to reduce the risk of perineal trauma.

ASK YOUR NURSE

You will be offered warm packs when you are 6-8 cm dilated. These will be changed every 1 -2 hours until delivery, but if they cool down sooner, let us know so that we may offer you a new one!

WARM PACK APPLICATION

PROTECTING YOUR PERINEUM