Impact of a Physician Dashboard on Episiotomy Utilization at William P. Clements Jr. University Hospital

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Abstract

OBJECTIVE: Third and fourth degree vaginal lacerations following delivery are associated with long-term pelvic floor complications including pain and incontinence. Routine performance of episiotomy in a spontaneous vaginal delivery increases the likelihood of a severe perineal laceration and routine utilization of episiotomy is discouraged. High provider variation in adherence to this recommendation is known. The objective of this study was to determine if the adoption of a physician dashboard that reported individual and group rates of episiotomy utilization could reduce both institutional and individual rates to below the national benchmark of 5.5%.

STUDY DESIGN: Baseline data extracted from records of patients delivering between January 1, 2015 and July 15, 2015 were entered into a green-yellow-red dashboard that listed all generalist obstetricians performing deliveries at Clements University Hospital (CUH). Physician identities were blinded on the dashboard; individual physicians were provided their code in written and email communications. Data on episiotomy utilization were collected prospectively following distribution of the dashboard.

RESULTS: The baseline rate for episiotomy performance was 9.5% at CUH prior to the development of the physician dashboard, with individual rates ranging from 0.0% to 55.6%. Following implementation of the dashboard there was a significant reduction in the institutional rate of episiotomy (9.5% pre-intervention vs. 0.52% post-intervention, p<0.001) and all providers met the target rate of <5.5%. Our analysis of data also validated the increased risk of severe perineal lacerations with the performance of episiotomy at CUH (Table below).

Pre-Intervention	No episiotomy	Episiotomy
Total deliveries	458	52
3rd/4th degree laceration	9 (1.97%)	4 (7.69%)
	p=0.01; Odds ratio 4.1 (1.2, 14.0)	

Despite the reduction in episiotomy utilization we were unable to demonstrate a reduction in the frequency of severe perineal lacerations (2.42% pre-intervention vs. 1.55% post-intervention, p=0.48), suggesting that multiple factors contribute to these events.

CONCLUSION: When variation in physician performance exists, utilization of a physician dashboard comparing individual provider behavior to peers can result in a significant improvement in provider and institutional performance on specific metrics.

Introduction

- Severe perineal lacerations include third degree (involving the external anal sphincter) and fourth degree (involving the external and internal anal sphincters as well as rectal mucosa) lacerations.
- Severe perineal lacerations are associated with dyspareunia and long-term anal incontinence.
- Routine performance of episiotomy was once thought to be protective, however routine use is now recognized to be associated with a doubling in the risk of severe perineal lacerations[1].
- The national benchmark for episiotomy utilization in routine deliveries is currently set at 5.5%[2].
- There is high variability in individual physician utilization of this procedure[3] and physician specific factors like local professional norms, training experience, and personal provider preference all contribute to utilization[4].

Objectives

- To assess the frequency of episiotomy utilization among generalist obstetricians at UT Southwestern.
- To validate the association of severe perineal lacerations with episiotomy utilization in our patient population.
- To determine if providing individual physicians with information regarding their use of episiotomy as compared to their peers would result in a decrease in utilization of that procedure.

Materials and Methods

- The electronic medical record was reviewed of all patients who underwent a vaginal delivery from January 1, 2015-July 15, 2015 at Clements University Hospital and information on delivering physician, type of vaginal delivery, use of episiotomy, and presence of other vaginal lacerations was recorded.
- Data was analyzed by specific provider for spontaneous vaginal deliveries without shoulder dystocia and operative vaginal deliveries.
- Based on national benchmarks, a red-yellow-green dashboard was created with individual identities removed.
- Individual physicians received a copy of the dashboard with their identification code via written and email communication (**Figure 1**) in mid-July, 2015.
- Data on episiotomy utilization was collected prospectively from July 16- December 31, 2015.

Figure 1. Physician Communication of Dashboard

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 2015)	Total # of Vaginal Deliveries (Jan - July 2015)	Episiotomy Rate: Operative Deliveries	Episiotomy Rate: Total
A	0	11	0.0%	3	4	75.0%	20.0%
B	0	35	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	41	0.0%	1	7	14.3%	2.1%
Fellows	1	57	1.8%	0	1	0.0%	1.7%
Midwives	2	52	3.8%	0	0	0.0%	3.8%
H	1	22	4.5%	3	10	30.0%	12.5%
I	1	21	4.8%	0	2	0.0%	4.3%
J	3	37	8.1%	1	10	10.0%	8.5%
K	3	32	9.4%	1	5	20.0%	10.8%
L	6	51	11.8%	1	1	100.0%	13.5%
M	5	25	20.0%	1	3	33.3%	21.4%
N	12	26	46.2%	0	2	0.0%	42.9%
O	10	18	55.6%	5	5	100.0%	65.2%
Institutional Rate	52	510	10.2%	19	59	32.2%	12.5%

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.

Results

- The overall baseline rate for episiotomy utilization prior to the study was 9.9% (**Table 1**).

Table 1. Episiotomy Utilization Rate

Non-Operative Vaginal Deliveries without Shoulder Dystocia		
	Episiotomies (%)	Total Spontaneous Vaginal Deliveries
Pre-Intervention	45 (9.9)	454
Post-Intervention	9 (2.1)	432
p<0.001		

- High variation in individual performance of episiotomy was noted in our physician population (**Figure 2**).

Figure 2. Individual Performance of Episiotomy

Non-Operative Vaginal Deliveries without Shoulder Dystocia			
Provider	# of Episiotomies (Jan - July 2015)	Total # of Vaginal Deliveries (Jan - July 2015)	Episiotomy Rate (%)
A	0	11	0.0%
B	0	35	0.0%
C	0	13	0.0%
D	0	13	0.0%
E	0	41	0.0%
F	2	57	3.5%
G	2	52	3.8%
H	1	22	4.5%
I	1	21	4.8%
J	3	37	8.1%
K	3	32	9.4%
L	6	51	11.8%
M	5	25	20.0%
N	12	26	46.2%
O	10	18	55.6%
Institutional Rate	45	454	9.9%

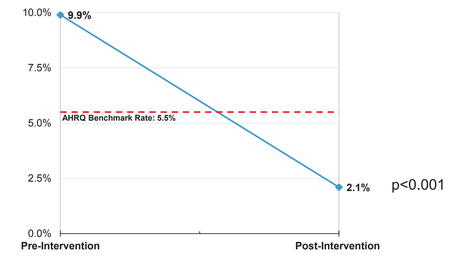
- The performance of episiotomy was associated with a **four-fold** increase in the likelihood of a severe perineal laceration (**Table 2**).

Table 2. Association between episiotomy utilization and severe perineal lacerations

Non-Operative Vaginal Deliveries without Shoulder Dystocia		
	With Episiotomy	Without Episiotomy
Deliveries with Severe Lacerations	4	9
Total # of Deliveries	52	458
Rate of Severe Lacerations	7.69%	1.97%
p = **0.01**; OR (95% CI): **4.1** (1.2, 14.0)		

- Sharing individual performance metrics via a dashboard that contained personal and group metrics resulted in a significant reduction in the performance of the non-desired behavior (episiotomy utilization) (**Figure 3**).

Figure 3. Episiotomy Utilization Rate



- While routine episiotomy utilization declined significantly after the intervention, the rate of severe perineal lacerations was not significantly reduced (**Table 3**).

Table 3. Incidence of Severe Perineal Laceration

Non-Operative Vaginal Deliveries without Shoulder Dystocia	
Pre-Intervention	2.42%
Post-Intervention	1.16%
p = 0.18	

Conclusions

1. Episiotomy performance was associated with an increased risk for severe perineal lacerations in our patient population.
2. Using episiotomy performance as an example, we demonstrated that when variation in physician performance exists, utilization of a physician dashboard comparing an individual's performance to that of peers can positively impact individual behavior.
3. Despite an overall reduction in episiotomy utilization to below the national benchmark, we were not able to demonstrate a reduction in the incidence of severe perineal lacerations, This suggests that the occurrence of severe perineal lacerations is multifactorial and it is likely that individual patient characteristics, fetal size, and delivery events may have significant roles in the occurrence of such lesions.

References

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