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Improving Documentation In Shoulder Dystocia

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1. Hustedt MM, Thung SF, Lipkind HS, Funai EF, Raab CA, Pettker CM. Improvement in delivery note documentation after implementation of a standardized shoulder dystocia form. *American Journal of Obstetrics and Gynecology*. Submitted 2013.
2. Hustedt MM, Raab CA, Pettker CM. Shoulder dystocia demographics. *Yale J Biol Med*. Submitted 2013.

DOCUMENTATION IMPROVEMENT AND DEMOGRAPHICS OF SHOULDER DYSTOCIA

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Shoulder dystocia (SD) is difficult to predict and one of the most highly litigated obstetrical emergencies. Consequently, our institution implemented a standardized SD form in order to help facilitate adequate and accurate documentation in cases of SD. Our study aimed to utilize the information recorded in the newly implemented SD form to investigate the demographics of patients, practices, and outcomes in SD cases at Yale-New Haven Hospital (YNHH) and to study the effect of implementing a standardized SD form on medical record documentation practices.

We collected 41 discrete data points from the SD form and the medical record in cases of SD occurring at our institution. We identified SD cases beginning in January 2004 and tracked inclusion of delivery information in the SD form and in narrative delivery notes for one year before and four years after implementation. Overall, 152 consecutive cases of SD were included and the presence as well as the mean and standard deviation, or percentage, for each data point was collected and calculated.

Elements from the SD form increased significantly in narrative delivery notes after implementation of the form (p=.011). Data elements included at higher rates in the medical record after implementation included estimated prepregnancy maternal weight (13% to 28%, p=.043), total maternal pregnancy weight gain (19% to 36%, p=.033), estimated fetal weight (60% to 77%, p=.025), time of onset of active labor (40% to 65%, p=.004), time of onset of second stage (27% to 52%, p=.003), and time of head delivery (4% to 30%, p=<.001). The demographics of our patient population were comparable to that of others reported in the literature.

Our results show that use of a mandatory SD form results in significant improvements in documentation within provider narrative delivery notes and may improve the attention of providers to more complete and accurate charting. Such improvements in documentation may better demonstrate standards of care in the management of SD cases and decrease litigation exposure when events are reviewed.

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Introduction

Some of the highest rates of malpractice litigation occur in the field of obstetrics and gynecology, involving a disproportionate amount of risk management expenditures when compared to other fields.(1, 2) One of the leading causes of allegations in obstetrics is shoulder dystocia (SD), which additionally accounts for some of the highest monetary amounts of litigation payments.(3) Litigation in SD cases often arises because of inevitable and often unpreventable adverse outcomes; however, it is well recognized that many of these adverse outcomes are not necessarily due to poor standards of management and care.(4, 5)

Some of these adverse outcomes are due to the fact that SD is difficult, if not impossible, to predict as even the best antenatal predictors have a low positive predictive value(6). The only preventative measure is cesarean delivery, but a high number of cesarean deliveries would have to be performed to prevent a single case, exposing too many women to the risks and morbidities of cesarean birth.(7, 8) Furthermore, once diagnosed, a shoulder dystocia is challenging to resolve. There exist no algorithms for either diagnosis or management and in 10-20% of cases it is associated with birth injuries, which are potentially permanent. This is what leads SD cases to be the most frequently litigated issue in obstetrics.(3)

Narrative delivery notes from SD cases sometimes lack critical elements of documentation and these gaps in documentation are frequently the cornerstone of a plaintiff attorney's argument that proper care was not followed.(9, 10) Complete, clear, and accurate documentation of the appropriate management of SD cases, as recorded in narrative delivery notes, is crucial to prevent this and defend against litigation when adverse outcomes result, even when standards of care were provided.(4, 11-16)

Additionally, it is important to utilize improved documentation to continue to investigate many cases over several years in order to try and better understand the circumstances under which SD is occurring. As a significant proportion of SD cases still occur in situations in which risk factors are not present (17, 18), it is necessary to continually examine our patient population from which SD cases arise. In addition to examining documentation practices we also examined the demographics of patients, practices, and outcomes in SD cases at Yale-New Haven Hospital (YNHH) as compared to other reports on SD in an attempt to better understand SD risk factors and its prevalence in our population.

As in much of medicine, forms and checklists are becoming increasingly introduced into the field of obstetrics and gynecology, attempting to ensure accurate and faithful attention to standards.(19, 20) One study has reported that the use of a standardized checklist in SD cases resulted in the addition of many critical elements within the medical record.(21) However, previous reports have not studied whether a standardized SD form affects narrative delivery notes. Intending to help providers improve their completeness and clarity when completing their delivery records, our institution incorporated a SD form for documenting SD cases starting in February 2005.

This study aimed to evaluate the effects of this comprehensive standardized SD form on care providers' narrative delivery notes and to additionally examine the demographics of the patients in our population in which SD is occurring as compared to other populations of SD cases. We sought to evaluate changes by comparing delivery note documentation before and after implementation of the SD form and to compare our demographics to other similar populations reported in the literature. Specifically we aimed to determine if a SD form would improve provider narrative delivery notes and if our SD case population differed from other similar groups.

Methods

We performed a retrospective analysis of narrative delivery notes from vaginal deliveries complicated by SD occurring at Yale-New Haven Hospital (YNHH) from January 1, 2004 to January 1, 2010. Inclusion criteria included singleton pregnancies with documented SD, as defined by failure of the fetal shoulders to be delivered spontaneously after the head, caused by impaction of the anterior shoulder against the symphysis pubis, as judged by the provider delivering the fetus and requiring maneuvers other than the usual gentle downward traction.(22) The Yale School of Medicine Human Investigation Committee approved the research protocol prior to onset. All patient data collection, statistical calculations, and manuscript preparations were conducted predominantly by myself.

As part of the YNHH obstetric quality assurance program, cases were initially identified by the perinatal safety nurse (C.A.R.) from attendance at daily rounds, reports to our adverse event reporting system, and review of the daily delivery log. In order to ensure complete identification of cases during the study period, administrative (coding and billing) databases were also reviewed, using codes for SD and neonatal birth injuries. SD was recognized using the ICD-9 codes of 660.40 (shoulder dystocia, unspecified as to the episode of care or not applicable), 660.41 (shoulder dystocia, delivered, with or without mention of antepartum condition), and 660.43 (shoulder dystocia, antepartum condition or complication) when searching for cases in the mother and 763.1 (Other malpresentation, malposition, and disproportion during labor and delivery affecting fetus or newborn) for cases in the neonate. Confirmation of the diagnosis of SD was obtained through review of maternal and neonatal hospital charts. We divided cases into two groups: those that occurred before the implementation of the SD form (February 1, 2005) and those that occurred after.

YNHH is a tertiary-level academic center serving a diverse urban and suburban population, delivering approximately 4,600 women annually. Providers performing deliveries at YNHH include community physicians and certified nurse midwives (CNMs), University-based CNMs, and maternal-fetal medicine specialists. All providers at YNHH are required to complete a narrative delivery note describing the events of the procedure. Delivery notes reviewed included those written by attending providers and/or residents; student notes did not qualify as documentation. Though the service transitioned to an electronic medical record system (Sunrise Clinical Manager, Eclypsis) in April 2008, the delivery note continues to be a narrative-style free-text document and does not involve 'drop-down' menus, check-boxes, or selection buttons. Thus, providers are free to write a descriptive account of the events and facts.

Since February 2005, providers (attending physicians, resident physicians, or midwives) participating in a delivery complicated by SD are required to complete a standardized SD form (Figure 1), in addition to their narrative note. The form was drafted by consensus of a group (the Obstetrical Patient Safety Committee) composed of providers, administrators, and attorneys with the aim of standardizing documentation for optimum memorialization of the clinical events. This form contains 29 discrete antepartum and intrapartum data points critical to SD documentation. Providers are advised to complete the SD form as soon after the delivery as possible and before completing the narrative delivery note. Any provider participating in the delivery can complete the SD form. Paper forms are placed in the corresponding patient charts and are reviewed by the perinatal patient safety nurse.

SD forms were reviewed for completeness, consisting of affirmation or inclusion of specific data elements; narrative delivery notes were reviewed for inclusion of these elements as well. Information requested on the SD form falls into three categories: general, antepartum, and intrapartum. General information includes delivery date, time, attending MD/CNM, assistant, nurse, and other staff present. Antepartum information includes gravida, para, diabetic status (gestational/pregestational), maternal weight (estimated prepregnancy, current, total weight gain), maternal height, history of SD or arrest of descent or dilatation, gestational age, and estimated fetal weight (with method of estimation, i.e. ultrasound or clinical). Intrapartum information includes use of oxytocin, time of onset of active labor, time of second stage, delivery of head time, delivery of body time, delivery of posterior shoulder time, mode of delivery (spontaneous, forceps, vacuum), shoulder dystocia diagnosis, involved shoulder, episiotomy, perineal laceration, and maneuvers in order performed.

In addition, other information was gathered from the medical record, which was not on the SD form. This included maternal age, race, glucose challenge test, glucose tolerance test, if anesthesia was used intrapartum and what type, neonatal sex, actual birth weight, 5 min APGAR, arterial and venous umbilical cord pH and base excess, and neonatal injury

The primary outcome for this thesis was overall inclusion of the data elements from the SD form within the chart for documentation. Comparisons were made to examine differences in documentation before and after implementation of the SD form, to estimate any difference in inclusion of the critical data elements. Demographic information was complied by totaling data and calculating percentages or medians/means with ranges or standard deviations for each data point, as appropriate. Finally the percentages or means and standard deviations were compared between our cases of SD and those reported in other studies. Student *t* test (2-tailed) and χ^2 testing was performed where appropriate. Any cases which occurred after the implementation of the SD form, regardless of whether the SD form was used or not, were included in the post implementation group. Statistical significance was defined as $P<0.05$. All analysis was performed with statistical software (SPSS 16.0; SPSS Inc., Chicago, IL).

Results

In total, we identified 152 cases of shoulder dystocia; 52 cases occurred before and 100 cases occurred after implementation of the SD form. Of the 100 SD cases that occurred after the SD form was implemented, 91 (91%) SD cases had a corresponding SD form.

Shoulder Dystocia Demographics

The calculated mean and standard deviation, or percentage, along with the maximum, and minimum value for each data element collected is as appropriate reported in Table 1. The last column on the right hand side of Table 1 indicates the number of SD cases out of the possible 152 cases in which a value was recorded. The descriptive statistics in these demographic data are similar to the demographics or risk factors reported in other studies(23-25).

Table 1: Mean Values of SD Documentation Form Data Elements

Variable	Mean ± SD	Max	Min	n/152 (%)
Maternal Demographics				
Maternal Age (years)	28.8 ± 6.5	43	14	152 (100)
Maternal Race				150 (99)
Caucasian	53% (n=81)			
African American	19% (n=29)			
Hispanic	22% (n=33)			
Oriental	2.0% (n=3)			
Other	2.6% (n=4)			
Unknown	1.3% (n=2)			
Gravida	3 ± 1	7	1	152 (100)
Number of term births	1 ± 1	4	0	152 (100)
Number of preterm births	0 ± 0	2	0	152 (100)
Number of abort/miscarriages	1 ± 1	5	0	152 (100)
Number of living children	1 ± 1	4	0	152 (100)
Diabetes	6.0% (n=9)			149 (98)
GCT[A] $\geq$140	12% (n=15)	171	31	126 (78)
Est. Prepreg Maternal Wt. (lbs)	156.3 ± 39.3	305	85	133 (88)

Gestational Age (weeks)	39.8 ± 1.3	41.857	36.287	146 (96)
Estimated Fetal Weight (g)	3543.1± 343.3	4582	2125	129 (85)
Clinical Estimation	87% (n=60)			
Ultrasound Estimation	13% (n=9)			
Maternal Height (in)	63.5 ± 3.1	71	52	140 (92)
Est. Prepreg Mat. BMI (kg/m^2)	26.79 ± 5.7	46	15.7	132 (87)
Term Maternal Wt. (lbs)	189.8 ± 35.6	317	127	143 (94)
Term Maternal BMI (kg/m^2)	32.77 ± 5.3	49.2	21.6	141 (93)
Total Weight Gain (lbs)	34.17 ± 13.5	80	0	130 (86)
Prior SD	9.1% (n=8)			88 (58)
Labor Characteristics				
Oxytocin Use	52% (n=79)			151 (99)
Oxytocin for Induction	23% (n=39)			
Oxytocin for Augmentation	31% (n=40)			
If Oxyt. used, last dose (mU)	7.9 ± 5.2	20	1	57/79 (72)
Time, last dose to del (min)	31.5 ± 50.9	208	0	57/79 (72)
First Stage of Labor				
4cm to complete, time (min)	311.6 ± 228.3	1060	10	89 (59)
4cm to complete Rate (cm/hr)	1.4 ± 35.7*	36	.34	
4cm to comp. Rate<1.2(cm/hr)	45% (40)			
Second Stage of Labor				131 (86)
Multiparous Duration (min)	20.0 ± 188*	194	0	81/100(81)
Nulliparous Duration (min)	82.5 ± 53.7	218	17	50/52 (96)
Percipitous, <20 min	35% (n=46)			
Prolonged, >120 min	11% (n=14)			
Mode of Delivery				150 (99)
Spontaneous	90% (n=135)			
Vacuum	8.7% (n=13)			
Forceps	1.3% (n=2)			
Maneuvers				152 (100)
Use of McRoberts	97% (n=148)			
Use of Suprapubic Pressure	92% (n=140)			
Use of Rubin	11% (n=16)			
Use of Woods	16% (n=25)			
Delivery of Posterior Arm	6.6% (n=10)			
1 Maneuver required	7.2% (n=11)			
2 Maneuvers required	61% (n=93)			
3 Maneuvers required	26% (n=39)			
4 Maneuvers required	5.3% (n=8)			
5 Maneuvers required	0.7% (n=1)			
Right Shoulder Anterior	6.2% (n=56)			91 (60)
Episiotomy Cut	40% (n=57)			143 (94)
Perineal Laceration				109 (72)
None	17% (n=19)			
1st Degree	23% (n=25)			
2nd Degree	41% (n=45)			
3rd Degree	15% (n=16)			
4th Degree	3.7% (n=4)			
Epidural Used	61% (n=67)			110 (72)
Neonatal Demographics				

Actual Fetal birth weight (g)	3921.4± 454.7	5150	2850	151 (99)
Male Gender	55% (n=84)			152 (100)
5 min Apgar	8.70 ± 0.7	9	4	152 (100)
Cord pH, Arterial (mmHg)	7.21 ± 0.06	7.33	7.02	31 (20)
Base excess, Arterial	-6.53 ± 3.1	-12.8	-1.9	31 (20)
Cord pH, Venous (mmHg)	7.29 ± 0.07	7.39	7.06	30 (20)
Base excess, Venous	-5.68 ± 2.6	-11.6	-0.8	30 (20)

Data is expressed as % (number) or mean ± SD. * These data elements are reported as median ± range as they did not fit a parametric distribution. [A] GCT=Glucose Challenge Test.

Table 2 presents the descriptive statistics, from our study in comparison to three other recent studies by Mehta, Poggi, and McFarland when a comparison value was available. Overall, our study found that patient demographics in SD cases at YNHH similarly resemble those in other studies conducted at other institutions. The risk factors in our population and outcomes were also similar. Risk factors considered include macrosomia and fetal anthropometric variations, maternal diabetes and obesity, operative vaginal delivery, precipitous delivery and prolonged second stage of labor, history of shoulder dystocia or macrosomic fetus, fetal gender, postterm pregnancy, and advanced maternal age.

Table 2: Mean Values of SD Documentation Form Data Elements as Compared to Mehta, Poggi, and McFarland

Variable	**Hustedt** (n=152)	**Mehta**[A] (n=65)	**Poggi** (n=160)	**McFarland** (n=276)
Maternal Demographics				
Maternal Age (years)	28.8 ± 6.5	23 ± 7.2	25.5 ± 6.0 (n=157)	25.7 ± 6
Maternal Race				
Caucasian	53% (n=150)		66% (n=154)	
African American	19% (n=150)	68%	25% (n=154)	
Hispanic	22% (n=150)		7% (n=154)	77.5%
Diabetes	6% (n=149)	4.4%	14%	15.8%
Term Maternal Weight (lbs)	189.8 ± 35.6 (n=143)		201.5 ± 43.4(n=142)	182.7 ± 41.7
Term Maternal BMI (kg/m^2)	32.77 ± 5.3 (n=141)	34.8 ± 8.4	34.2 ± 7.1 (n=136)	
Labor Characteristics				
Oxytocin Use	52% (n=151)	77%		
Oxytocin for Induction	23% (n=151)	52%		22%

First Stage of Labor				
4cm to complete Rate (cm/hr)	1.4 ± 35.7* (n=89)	1.3 ± 0.8		
4cm to comp. Rate<1.2(cm/hr)	45% (n=89)	46%		
Second Stage of Labor				
Multi+Nullip Duration(min)	50.5 ± 49.6 (n=131)			40.8
Multiparous Duration (min)	20.0 ± 188* (n=131)		41.4 ± 45.4 (n=105)	
Nulliparous Duration (min)	82.5 ± 53.7 (n=131)	76 ± 58	98.7 ± 59.6 (n=49)	
Precipitous, <20 min	35% (n=131)		32% (n=154)	
Prolonged, all >120 min	11% (n=131)	21.5%		7%
Prolonged, multip >120 min nullip >180 min	6% (n=131)		10% (n=154)	
Mode of Delivery				
Spontaneous	90% (n=150)		74%	
Vacuum	8.7% (n=150)		15%	
Forceps	1.3% (n=150)		8%	
Operative Vaginal Delivery	10% (n=150)	26%	26.25%	16.5%
Maneuvers				
1 Maneuver required	7% (n=11)			44.2%(n=190)
2 Maneuvers required	61% (n=93)			39.5%(n=190)
3 Maneuvers required	26% (n=39)			11.6%(n=190)
4 Maneuvers required	5.3% (n=8)			4.7% (n=190)
5 Maneuvers required	0.7% (n=1)			
Mean # of maneuvers used	2.3 ± 0.7		2.2 ± 1.0	
Epidural Used	61% (n=110)	72%		
Neonatal Demographics				
Gestational Age (weeks)	39.8 ± 1.3 (n=146)	39.6 ± 1.5	39.5 ± 1.6 (n=154)	40.2 ± 1.6
Actual Fetal birth weight (g)	3921.4 ± 454.7 (n=151)	3782 ± 483	4189 ± 433.2	4059.3 ± 487.6
Birth weight >4000g	39.7% (n=151)	28%		58.6%
Male Gender	55%		54%	
5 min Apgar <7	1.3%		8.9% (n=157)	
Cord pH, Arterial (mmHg)	7.21 ± 0.06	7.23 ± 0.08		
Cord pH, Arterial <7.20 (mmHg)	29% (n=31)			27.2%

Data are expressed as % or mean ± SD, where (n=#) data are missing. * These data elements are reported as median ± range as they did not fit a parametric distribution. [A]Mehta's study included only nulliparous patients.

Shoulder Dystocia Documentation

Prior to the implementation of the SD form, on average 14 (13.9/29) or 47.9% of the discrete data elements from the SD form were identified in the narrative delivery note. Discrete data elements from the SD form identified in the narrative delivery notes prior to implementation ranged from 7 to 20. After the implementation of the SD form, on average 16 (16.0/29) or 55.4% of the discrete data elements from the SD form were identified in the narrative delivery note. Discrete data elements from the SD form identified in narrative delivery notes after implementation ranged from 8 to 23. Overall, the percentage of data elements from the SD form increased significantly in the narrative delivery notes (*p*=.0115) of providers and in the medical record (*p*<.001) after implementation of the SD form.

Table 3: Percent of SD Documentation Form Data Elements Before and After Implementation

Percent Complete	Delivery Notes Before SD Form (N=52)	Delivery Notes After SD Form (N=100)	P Value	Medical Record After SD Form (N=100)	P Value
75-100% Complete	0 (0%)	1 (1%)	1.00	89 (89%)	**<.001**
50-75% Complete	23 (44%)	70 (70%)	**.003**	7 (7%)	**<.001**
25-50% Complete	27 (52%)	28 (28%)	**.005**	4 (4%)	**<.001**
0-25% Complete	2 (4%)	1 (1%)	.270	0 (0%)	.116

Data are n (%)

Table 3 further breaks down the percentage of data elements found in the narrative delivery notes and medical record from both before and after the implementation of the SD form. Prior to the implementation of the SD form, 52% of the narrative delivery notes included 25-50% of the data elements and 44% of the narrative delivery notes included 50-75% of the data elements. After the implementation of the SD form, the percent of narrative delivery notes including 25-50% of the data elements decreased to 28% (p=.005) and the percent of narrative delivery notes included 50-75% of the data elements increased to 70% (p=.003). The medical record also became extremely robust after the implementation of the SD form with 89% of SD cases having 75-100% of the discrete data elements recorded.

Table 4: SD Documentation Form Data Elements Evaluated Before and After Implementation

SD From Data Element	Delivery Notes Before SD Form (N=52)	Delivery Notes After SD Form (N=100)	P Value	Medical Record After SD Form (N=100)	P Value
Delivery Date	51 (98)	97 (97)	.698	100 (100)	.164
Delivery Time	19 (37)	53 (53)	.054	89 (89)	**<.001**
Provider Present	52 (100)	100 (100)		100 (100)	
Assistant(s) Present	18 (35)	39 (39)	.596	84 (84)	**<.001**
Nurse Present	0 (0)	3 (3)	.207	84 (84)	**<.001**
Other Staff Present	16 (31)	52 (52)	**.013**	82 (82)	**<.001**
Gravida	10 (19)	99 (99)	**<.001**	100 (100)	**<.001**
Para	10 (19)	100 (100)	**<.001**	100 (100)	**<.001**
Diabetic	47 (90)	89 (89)	.792	99 (99)	**.010**
Est. Pre-Pregnancy Wt	7 (13)	28 (28)	**.043**	79 (79)	**<.001**
Maternal Height	35 (67)	71 (71)	.638	87 (87)	**.004**
Current Maternal Wt	35 (67)	67 (67)	.969	89 (89)	**.001**
Total Wt Gain	10 (19)	36 (36)	**.033**	83 (83)	**<.001**
Prior SD	0 (0)	6 (6)	.072	89 (89)	**<.001**
Prior Cesarean Section	0 (0)	1 (1)	.469	89 (89)	**<.001**
Gest Age at Admission	42 (81)	95 (95)	**.005**	99 (99)	**<.001**
EFW	31 (60)	77 (77)	**.025**	100 (100)	**<.001**
Clinical or U/S	14/31 (45)	55/77 (71)	**.015**	94 (94)	**<.001**
Oxytocin Use	27 (52)	49 (49)	.732	91 (91)	**<.001**
Time of Active Labor	21 (40)	65 (65)	**.004**	90 (90)	**<.001**
Time of 2nd Stage	14 (27)	52 (52)	**.003**	86 (86)	**<.001**
Time of Del Head	2 (4)	30 (30)	**.001**	90 (90)	**<.001**
Time of Del Post Shldr	1 (2)	8 (8)	.132	76 (76)	**<.001**
Time of Del Body	19 (37)	49 (49)	.143	93 (93)	**<.001**
Mode of Delivery	35 (67)	62 (62)	.518	96 (96)	**<.001**
Spontaneous	26	56		90	
Forceps	2	0		0	
Vacuum	7	6		6	
R or L Shoulder	3 (6)	15 (15)	.095	87 (87)	**<.001**
Episiotomy	33 (63)	50 (50)	.114	93 (93)	**<.001**
Laceration	38 (73)	63 (63)	.212	89 (89)	**.012**
Maneuvers	49 (94)	97 (97)	.405	100 (100)	**.015**
McRoberts	47	93		97	
Suprapubic Pres	39	85		92	
Anterior Rubins	5	9		10	
Posterior Rubins	0	1		1	
Del. Of Post. Arm	1	9		9	
Woods Corkscrew	6	17		19	
Other Maneuver	1	18		23	

Data are n (%)

Table 4 compares each of the 29 discrete data elements and demonstrates how they increased in both the narrative delivery note and the medical record as a whole (including the SD form and narrative delivery note). P-values indicating statistically significant increases in documentation between both the narrative delivery note and the medical record are in bold. Statistically significant differences were found in several important data elements which were included at higher rates in narrative delivery notes after implementation of the SD form, including the documentation of other staff present (31% to 52%, p=.013), estimated pre-pregnancy maternal weight (13% to 28%, p=.043), total maternal pregnancy weight gain (19% to 36%, p=.033), EFW (60% to 77%, p=.025), time of onset of active labor (40% to 65%, p=.004), time of onset of second stage (27% to 52%, p=.003), and time of delivery of head (4% to 30%, p<.001). Additionally, overall documentation of elements from the SD form increased significantly in the entire medical record after the implementation of the SD form. This increase occurred primarily because the SD form was placed in patient charts in addition to the narrative delivery account. The sixth column in table 4 shows the comparison between the medical record before implementation of the SD form, shown in column 2, and the medical record after the implementation of the SD form, shown in column 5. All of the data elements, except for delivery date, increased significantly in the medical record after the implementation of the SD form.

Discussion

Shoulder Dystocia Demographics

Overall, our study found that patient demographics in SD cases at YNHH resemble those in other studies conducted at other institutions. The risk factors in our population and outcomes were also similar. Risk factors considered include macrosomia and fetal anthropometric variations, maternal diabetes and obesity, operative vaginal delivery, precipitous delivery and prolonged second stage of labor, history of shoulder dystocia or macrosomic fetus, fetal gender, postterm pregnancy, and advanced maternal age. Unfortunately, while many investigators have proposed all of these factors as actual risk factors for predicting SD, ultimately many of these proposed risk factors are only correlated with macrosomia, which is itself associated with SD.

Due to the interrelated nature of these factors, it has been difficult for researchers to elucidate factors that independently convey an increased risk of SD. For example, mothers with diabetes also have higher incidences of macrosomic fetuses and histories of a previous large infant.(26) Ultimately, Belfort(27) performed multiple regression analyses and reported that only three factors remained independently statistically significant for SD: birth weight, diabetes, and operative vaginal delivery. Yet still, even with known risk factors, a significant proportion of SD cases happen in situations in which risk factors are not present.(17, 18) This necessitates the need to continually examine our patient population from which SD cases arise.

Age

Advanced maternal age is associated with increasing incidences of many coexisting medical conditions, including diabetes (both gestational and pregestational) and obesity. Therefore, it makes sense that advanced maternal age confers an increased risk of macrosomia and consequently SD.(28) However, while there appears to be a correlation, Langer(17) specifically reported no direct causative effect of maternal age on increased incidence of SD.

In our study, maternal age ranged from 14 to 43 with a mean age of 28.8 ± 6.5 years. This was similar to the mean maternal age reported in other studies: Mehta(24) reported 23 ± 7.2 years, Poggi(25) reported 25.5 ± 6.0 years, and McFarland(23) 25.7 ± 6 year. Mehta's mean maternal age is likely decreased due to the fact that it included only nulliparous patients who are likely to be younger than mulitparous patients. Our mean maternal age may be increased slightly from other reported mean maternal ages due to differences in compilation of nulliparous and multiparous patients in each study. Our study included more multiparous patients at 65.8%.

Ethnicity

Different studies have both supported and rejected the hypothesis that ethnic differences correspond to the occurrence of SD. Cheng(29) reported an increased incidence in African American women and Wolf(30) in "non-Caucasian" women. However, two different studies reported just the opposite. Nesbitt's study(31), conducted in California, reported a decreased incidence of SD in Hispanic patients and

Mazouni(32), from France, concluded that after controlling for confounding factors, ethnic origin was not an independent factor associated with SD.

While our study was not able to compare incidence in the general population, we found that our cases of SD were primarily occurring in Caucasian women at 53% of the time, African American women 19%, and Hispanic women 22%. Each study population is different; Mehta(24) for example reported a predominantly African American population with 68%, Poggi(25) reported a Caucasian predominance of 66%, and McFarland(23) reported a primarily Hispanic population of 77.5%. We feel that our rates appropriately reflect the ethnic backgrounds found in the population surrounding YNHH. However, as our study did not include a study of the ethnicities in general at YNHH we cannot support or refute that ethic origin does not independently confer risk of SD.

Weight

Weight has only been associated with SD in as far as maternal obesity is associated with macrosomia, which is an independent risk factor for SD.(9, 32-35) ACOG states that “maternal obesity is associated with macrosomia and thus, obese women are at risk for shoulder dystocia.”(22) In our study prepregnancy body mass index (BMI) ranged from 15.7 to 46 with a mean of 26.8 ± 5.7. 26.5% classified as obese with a prepregnancy BMI >30.

Our maternal term weights ranged from 127 to 317 with a mean of 189.8 ± 35.6, which was in between 182.7 ± 41.7 reported by McFarland(23) and 201.5 ± 7.1 reported by Poggi(25). BMIs at full term ranged from 21.6 to 49.2 with a mean of 32.8 ± 5.3.

This was similar to the mean BMIs of 34.8 ± 8.4 and 34.2 ± 7.1 reported by Mehta(24) and Poggi(25) respectively.

Fetal Macrosomia

Macrosomia is a well defined risk factor for SD. ACOG supports using an EFW cutoff of 4500g to diagnose macrosomia because after this weight a sharp increase in morbidity of infants and mothers is seen.(36) While correlating EFW with SD is a convenient marker for those trying to identify risk factors, we still struggle to consistently identify macrosomic fetuses antenatally.

An assessment of maternal risk factors for macrosomic fetuses such as diabetes, prior history of macrosomic infant, maternal prepregnancy weight, weight gained during pregnancy, male fetus, and maternal birth weight may all be helpful in predicting fetal macrosomia(37) but the most common methods used to predict EFW remain clinical examination and ultrasound measurements. Clinical examination involves Leopold maneuvers and most commonly the ultrasound is used to measure the fetus' biparietal diameter, head circumference, abdominal circumference, and femur length, which are then placed in Hadlock's formula for an EFW.(38)

While it may seem that ultrasound measurements would provide the most accurate indication of EFW, several studies have indicated that this is not the case.(29, 39, 40) Chauhan(39) found that EFW measurements were within 10% of the actual birth weight in 66.1% of clinical estimates as compared with 42.2% for ultrasonographic estimates. Similarly in our study we found that EFW measurements were within 10% of the actual birth weight in 55.9% of clinical estimates as compared with 33.3% for ultrasonographic estimates. Weiner(40) further validated these results in a study which reported a sensitivity for clinical and ultrasonographic predictions of macrosomia (defined as birth weight >4000g) as 68% and 58% respectively. We were unable to calculate similar results in our study due to insufficient variability of predicted EFW at our macrosomia cutoff of 4500g.

In our study 123 SD cases had an EFW recorded with only one EFW >4500g (via ultrasound), however the neonate ultimately weighed <4500g. Overall, 10.6% of the neonates did end up with an actual birth weight >4500g (13 were > 4500g and 3 were >5000g). All had EFWs recorded as <4500g, 5 were reported as being measured clinically, 1 with ultrasound, and 10 cases did not have a method recorded. The mean actual birth weight was 3921 ± 455 grams which was in between the means of 3782 ± 483 reported by Mehta(24) and 4059.3 ± 487.6 or 4189 ± 433.2 as respectively reported by McFarland(23) and Poggi(25). Similarly we found that 40% of birth weights were >4000g which is in between 28% reported by Mehta(24) and 59% reported by McFarland(23).

Maternal Diabetes

Maternal diabetes, with either a requirement of insulin before or during the pregnancy or an abnormal oral glucose tolerance test, is another known independent risk factor for SD, in addition to being a known risk factor for fetal macrosomia.(22, 25, 28, 35, 36, 41) Langer(17) reported that the cumulative incidence of SD was significantly higher among diabetic patients when compared to non-diabetic patients. Controlling for the confounding factor of birth weight validated Langer's findings. The study reported that when compared gram-to-gram, the perinatal mortality rate, incidence of birth injuries, and incidence of SD all still increased in neonates born to diabetic mothers. Dildy(28) specifically calculated the risk of SD as being six times greater for diabetic mothers as compared to that of the normal population. Nesbitt(31) discovered that even among all births in which the SD diagnosis is made, the risks of adverse neonatal outcome is higher when maternal diabetes is present.

It is still not completely understood why infants of diabetic mothers are at increased risk of SD, even when compared gram-to-gram to their counterparts of non-diabetic mothers, however McFarland(42) reported that macrosomic infants of diabetic mothers are characterized by larger shoulder and extremity circumferences, decreased head-to-shoulder ratio, higher body fat, and thicker upper extremity skin folds as compared with infants of non-diabetic mothers of similar birth weight and length.

In our study 6% of SD cases occurred in diabetic mothers. This compares to 4.4% as reported by Mehta(24), 4.9% by Acker(43), 14% by Poggi(25), and 15.6% by McFarland(23).

Previous Shoulder Dystocia

Baskett(44) and Ginsberg(45) both reported that previous SD was a risk factor for future SD. Baskett reported the incidence of recurrent SD among women with a previous SD was 1.1% and Ginsberg reported 16.7%. However these studies were retrospectively conducted and it is likely that patients with a previous history of SD were more prone to have cesarean sections during subsequent pregnancies and thus were excluded from analysis, decreasing the reported rates. As a prospective randomized trial assigning patients with a previous history of SD to cesarean verses vaginal delivery is not ethical, it is difficult to know the exact recurrence rate of SD in these patients.

ACOGs formal stance is that “because most subsequent deliveries will not be complicated by shoulder dystocia, the benefit of universal elective cesarean delivery is questionable in patients who have a history of shoulder dystocia.”(22) In our study only 88 cases reported on previous history of SD and of those only 9% reported a positive previous history of SD. It is likely that patients at our institution with a history of previous SD were also more prone to have a cesarean section during subsequent pregnancies and thus were excluded from our analysis, decreasing our reported rate.

Post Dates

Prolonged pregnancy has only been associated with SD to the extent that increasing gestational age past 40 weeks increases the risk of macrosomia,(37) which is an independent risk factor for SD. Due to this, Campbell(46) concluded that prolonged pregnancy increases the risk of SD. However, several other studies have reported finding no independent relationship between post dated pregnancies and SD.(24, 31, 35, 41)

In our study the gestational age ranged from 36.3 weeks to 41.9 weeks with a mean of 39.8 ± 1.3 weeks. There was no reported case past 42 weeks. This was extremely similar to results published by Mehta(24) with a mean of 39.6 ± 1.5 weeks, Poggi(25) 39.5 ± 1.6, and McFarland(23) 40.2 ± 1.6.

Fetal Gender

Several studies have reported an increased prevalence of male gender in SD cases as compared to the prevalence of male gender in the general obstetric population. Reported rates range from 54% to 68%.(25, 28, 47) In our study male prevalence was 55%, also higher than that reported in the general obstetric population. It is unclear why this may be occurring, but Dildy(28) suggested that it might be due to the fact that newborn males have a greater average birth weight in comparison to newborn females. Dildy postulated that perhaps the male greater birth weight places them at greater risk for fetal macrosomia and thus SD.

Labor Pattern

Many studies have tried to better understand the relationship between labor patterns and SD risk. Some studies have found no association between labor abnormalities and SD(23, 32, 33, 35) while others have found either precipitous deliveries(25, 48) or prolonged labor patterns(24, 41, 44, 49) to be associated with an increased incidence of SD.

Gherman(48) proposed that in precipitous deliveries the neonatal trunk does not rotate into an oblique diameter, which causes a persistent anteroposterior location of the fetal shoulders at the pelvic brim leading to SD. In our study 35% of cases were precipitous (defined as a second stage <20 min, when second stage is described as the interval from complete dilation of the cervix to delivery of the neonate) and compared to 31.8% reported by Poggi(25), 32% reported by Acker(50) and 38% reported by Gherman(51).

Cases of prolonged labor patterns have also been associated with a three times higher incidence of SD by Baskett(44) and a seven times higher incidence by Mehta(24). Mehta reported that in nulliparous cases of SD the average duration of the second stage of labor was 76 ± 58 minutes whereas in our study we found the nulliparous duration to be even longer at 82.5 ± 53.7 minutes. Mehta also reported that 22% of patients with SD had a second stage of labor >2 hours, McFarland(23) reported 7%, and our study found 10.7%. Similarly Poggi(25) defined prolonged labor more specifically as >2 hours for multiparous patients and >3 hours for nulliparous patients and reported that 10.4% of patients had prolonged labor which compares to 6.1% with this definition in our study.

Mehta also reported on the rate of cervical dilation during the active phase of the first stage of labor, defined as an abrupt change in the slope of the cervical dilation curve from 4 cm to complete. Their study found that from 4 cm to complete the average rate in cases of SD was 1.3 ± 0.8 cm/hr whereas in our study we found a median rate of 1.4 ± 4.9 cm/hr for cases of SD. Mehta reported 46% of SD cases dilated at a rate of <1.2cm/hr and we found similarly that 45% of SD cases dilated at a rate of <1.2cm/hr.

Oxytocin Use

Like many other possible risk factors, the use of oxytocin in association with SD has been debated. Bahar(52) reported that oxytocin use is associated with an increased risk of SD. However, it is unlikely that the use of oxytocin for either labor augmentation or induction alone confers an increased risk of SD. Its use is associated with labor dystocia, which can be due to fetal macrosomia, and thus it can inadvertently be associated with SD. Gonen(53) performed a prospective study in which patients carrying a neonate at term with an EFW between 4000g and 4500g were randomized to either induction of labor or expectant management. Their data showed no difference in the incidence of SD, cesarean section, or neonatal morbidity between the two groups.

ACOG recommends that as induction does not improve maternal or fetal outcomes, suspected fetal macrosomia in non-diabetic patients is not an indication for induction of labor.(36) In our study oxytocin was used for labor induction in 23% of cases and labor augmentation in 31% of cases, with an overall 54% of cases in which oxytocin was used. Our use of oxytocin for labor induction was less than the 52% reported by Mehta(24), but similar to the 22% reported by McFarland(23). Mehta also reported an increase in overall use of oxytocin at 77% of SD cases.

Use of Anesthesia

There are no reports of anesthesia having a relationship with SD and our study found a rate of epidural use of 76%, which was similar to the 72% reported by Mehta(24).

Method of Delivery

Incidences of SD clearly increase with operative vaginal deliveries, especially when midpelivc extractions are required.(24, 25, 27-29, 31, 35, 44, 54, 55) However, it is still difficult to understand whether it is the operative extraction that resulted in SD or other factors that would have led to SD on their own which required the operative extraction. Either way, while some studies have reported no association between SD and operative vaginal delivery(41, 56) many more studies have concluded that operative vaginal delivery does increased the risk of SD.(24, 25, 27-29, 31, 35, 44, 54, 55) Reported odds ratios range from 4.6 to 28.0 and depend on different factors such as station at application or device used.

Some studies have suggested that vacuum operative delivery confers an increased risk of SD as compared to forceps.(25, 29, 54, 55) However, this may be confounded by the fact that current providers seem to be more comfortable with vacuums and thus favor vacuum deliveries over forceps. Due to the rare occurrence of SD and different comfort levels of providers with vacuums verses forceps a prospective randomized trial is not feasible.

What does seem to be apparent, however, is that the sequential use of more methods for delivery further increases the risk of SD, especially brachial plexus injury.(57) Again, however it is difficult to know if the sequential use increased the risk of SD or if other factors produced the SD which then required multiple methods to resolve.

Multiple methods were never required to resolve a case in our study and out of the 152 cases, 89% were delivered spontaneously with only the assistance of maneuvers. Similarly, Mehta(24) and Poggi(25) respectively reported that 90% and 74% of cases were able to be delivered non-operatively. In our study 10% of SD cases were delivered via vacuum, compared to 8.7% reported by Mehta and 15% by Poggi. 1% of cases were delivered via forceps, compared to 1.3% reported by Mehta and 8% reported by Poggi.

Overall operative vaginal deliveries accounted for 9.9% of deliveries in our study. This was much less than reports of 16.5% by McFarland(23), 26% by Mehta(24) and 26.25% by Poggi(25).

Maneuvers Used in Delivery

Once SD has been diagnosed several maneuvers may be applied to help release the impacted anterior shoulder. While there is no algorithm for which maneuvers should be used, or in which order, it is generally accepted that the least invasive and most efficient be used first. ACOG states that the performance of the McRoberts maneuver (exaggerated hyperflexion of the patient's legs), with or without suprapubic pressure, is a reasonable initial approach to SD.(22)

While McRoberts and Suprapubic maneuvers have been found to be helpful in the setting of already diagnosed SD, Beall(58) reported that prophylactic maneuvers were not beneficial in changing outcomes. Furthermore, Poggi(59) reported that the use of the McRoberts maneuver before the clinical diagnosis of SD did not significantly decrease the traction forces applied to the fetal head during vaginal delivery.

While the McRoberts maneuver may not have any use before the diagnosis of SD, it is known to function extremely well, both on its own, or in addition to suprapubic pressure in resolving SD. Buhumschi(60) explained why it might be so efficient by reporting that the use of the McRoberts maneuver nearly doubles the intrauterine pressure developed by contractions alone. In several studies the success of the McRoberts maneuver in resolving SD has been reported between 42% and 58%.(23, 61, 62) In our study the McRoberts maneuver, when used either alone or with suprapubic pressure, resolved 55% of SD cases. In McFarland's study(23), the McRoberts maneuver was the first maneuver used in 82.6% of cases. This closely compares to 87.5% found in our study. In McFarland's study 39.5% of cases resolved with the McRoberts maneuver alone. However, in the majority of our cases in which the McRoberts maneuver was used, suprapubic pressure was also used, thereby providing only 5% of cases in our study being resolved with the McRoberts maneuver alone.

Other maneuvers include the Woods corkscrew, Rubin's maneuver, and delivery of the posterior arm. Woods first described his maneuver in 1943,(63) and it is now called the Woods corkscrew maneuver. In Woods' maneuver, the practitioner abducts the posterior shoulder by exerting pressure on the anterior surface of the posterior shoulder. The Woods corkscrew was used in 16% of SD cases in our study.

When using the Rubin's maneuver, the practitioner applies pressure to the posterior surface of the most accessible part of the fetal shoulder (i.e. the anterior or posterior shoulder) to effect shoulder adduction.(64) In our study the Rubin's maneuver was used in 10.5% of cases (15 cases used anterior Rubin, 1 case used posterior Rubin).

Delivery of the posterior arm was first described by Barnum in 1945.(65) To deliver the posterior arm the practitioner first applies pressure at the antecubital fossa to flex the fetal forearm. The arm is then swept out over the infant's chest. This was reported by Poggi(66) to create a 20% reduction in the shoulder diameter, which then easily reduces the obstruction. In our study, delivery of the posterior arm was used in 6.6% of cases, this is in comparison to 12% as reported in McFarland(23).

When attempting to resolve a SD case, it is best to use the most efficient and least amount of maneuvers possible. McFarland(61) specifically reported that neonatal and maternal morbidity increase with the number of maneuvers employed to resolve SD. McFarland(23) reported that 44.2% of patients were delivered with one maneuver, as compared to 7% in our study. This difference is likely due to the fact that the McRoberts maneuver was used alone in a majority of the cases in McFarland's study, whereas in our study the most common method of resolving SD was the McRoberts maneuver in addition to suprapubic pressure. Therefore it makes sense that in McFarland's study 39.5% delivered with two maneuvers, as compared to 61% in our study. Furthermore, 11.6% required three maneuvers as compared to 25.7% in our study, 4.7% required four maneuvers as compared to 5.3% in our study, and additionally in our study there was one patient (0.7%) who required 5 maneuvers.

Umbilical pH and Base Excess

Cord blood pH values are often obtained as a marker of fetal hypoxia. The average value for an umbilical arterial blood gas pH is considered to be 7.28 ± 0.05.(67) Stallings(68) studied the umbilical arterial blood gas pH in cases of SD and found that while SD did result in a statistically significant drop in pH (pH of 7.23 verses 7.27) it was a clinically insignificant reduction.

In our study the average umbilical arterial cord pH was 7.21 ± 0.06, which was slightly lower than that reported by Stallings and Mehta(24) who reported a mean of 7.23. Additionally, McFarland(23) reported that 27.2% of SD cases had an arterial cord pH of <7.20 which is similar to the 29% found in our study.

Maternal Laceration

Depending on the method type or number of maneuvers employed the means used to resolve SD frequently result in maternal complications, such as vaginal and cervical lacerations. In one study, Gherman(62) reported a 3.8% rate of fourth degree lacerations. Comparatively, in our study we also found a similar rate of 3.7% for fourth degree lacerations, as well as a 14.7% rate for third degree lacerations, 41% for second degree lacerations, 22.9% rate for first degree tears, and 17% of patients who had no laceration at all.

We recognize that there are limitations to the analysis made in this part of our study. While many of our rates, ranges, and averages were similar, differences from those found in other studies may be due to variations in the populations studied or discrepancies of definitions and diagnoses. One such example of a variation in the population is the percentage of nulliparous patients. Discrepancies in definitions and diagnoses arise as the study is retrospective and based on patient charts. It relies on the accurate diagnosis and charting of delivery providers of SD. Since the provider attending the delivery diagnoses SD, the potential for inconsistency in diagnosis exists in our study, just as in other studies of SD. Nonetheless, the definition used to diagnose SD in this study is consistent with the most common definition currently used in the literature and our rates, ranges, and averages fell well within other similar documented rages.

Our study is also unable to judge if these characteristics are indeed risk factors within our population. We were unable to make comparisons to delivered patients who did not experience shoulder dystocia due to the absence of a comprehensive birth database. An approach utilizing a case-control design would have enabled such comparisons, but this type of study was not the primary objective of our work, which was to clarify the impact of a shoulder dystocia documentation tool.

Overall, our study found that patient demographics in SD cases at YNHH similarly resemble those in other studies conducted at other institutions. Specifically, the risk factors in our population paralleled those described in other studies and outcomes discovered in our cases were also similar. Independent risk factors for SD such as maternal diabetes, operative vaginal deliveries, and birth weight were all increased in our population of SD cases and compared to the increased rates found in studies by Mehta(24), Poggi(25), and McFarland(23).

Shoulder Dystocia Documentation

Our study demonstrates that the simple process of including a mandatory standardized SD form with the narrative delivery note after cases of SD can strikingly improve documentation of several critical data elements. Our results are in agreement with other studies which emphasize the importance of a standardized SD form in improving documentation within the medical record.(20),(21) Use of a comprehensive standardized SD form may provide the best solution to ensure complete documentation.

Furthermore, and perhaps more significantly, our findings suggest that a mandatory SD form improves the attention of providers to more complete and accurate charting in the narrative delivery note. Essentially, the SD form appears to effectively promote better provider documentation practices in completing narrative delivery notes. This is important because the medical record becomes the sole source from which information is drawn as to the events that occurred, clinical management decisions that were made, and communication that took place. While the SD form can help assure that such details are recorded, the narrative delivery note may portray the sequence of events (i.e. ‘the story’) best. Its quality can be viewed as a reflection of the provider’s professional practice and the quality of care the patient was rendered.

Thorough narrative delivery notes can provide an extra layer of protection against potential pitfalls afforded by the SD from. Crofts(15) showed that when providers used a preformatted sheet for documentation the use of suprapubic pressure was documented in three cases in which it had not been used. The opposite effect is true as well: the SD form was invaluable after another delivery in which a provider failed to record in their narrative delivery note that suprapubic pressure had been performed when it had been used. An additional study by Crofts(16) found that written narrative delivery notes are important for documentation because some providers could not correctly define Woods' screw and Rubin II maneuvers. This suggests that a written description of what was actually done (eg, "access to the vagina was gained using posterior approach and rotation of the fetal shoulders achieved by pressing on the anterior aspect of the posterior shoulder") is likely to be more accurate than simple check box documentation of an eponymous maneuver (eg, "Woods' screw). While complete and articulate documentation of cases complicated by SD does not eliminate the risk of litigation, it may be used to demonstrate standard of care in the management of SD cases and to remind involved providers of the steps taken in the delivery to decrease the potential for successful malpractice suits and improve their defense.

We recognize that there are limitations of our study. Our study was completed at a time when our institution was still using paper charts. We recognize that currently many institutions are using electronic medical records to document patient care, including narrative delivery notes. However, we feel the results are translatable to the electronic medical record as they show that both elements of the medical record, the narrative delivery note as well as the SD form, are critical to proper documentation, and both should be included in any medical record, whether paper or electronic.

It is also important to recognize that this study, based on patient charts, relies on the accurate diagnosis and charting of delivery providers of SD. Because SD is defined by the provider attending the delivery, the potential for inconsistency in diagnosis exists in our study as well as in other studies of SD. The definition used in this study is consistent with the most common definition currently used in the literature.

By implementing a standardized SD form at our institution we aimed to aid providers in creating accurate and thorough descriptions of SD cases in the medical record, with the use of the SD form in addition to narrative delivery notes, to provide valuable information in reconstructing events surrounding SD cases should litigation ever arise. This may be an important consideration in the conversion to electronic medical records, where narrative notes are being replaced by delivery summaries characterized by drop-down menus, multiple choice dialog buttons, and limited free-text boxes, in the push for discrete data entry. There may still be utility for a narrative delivery note to tell the most accurate and faithful story of events.

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Figures

Figure 1. Shoulder Dystocia Form.

UNIT NO.
NAME
ADDRESS
BIRTH DATE:
VISIT NUMBER:
(If handwritten, record name, unit no., birth date, and visit no.)

YALE-NEW HAVEN HOSPITAL

Shoulder Dystocia Documentation

To be filled out by the delivering caregiver.

SHOULDER DYSTOCIA DOCUMENTATION TOOL

Delivery Date: __________ Delivery Time: __________ Attending MD/CNM: ____________________
Assistant: ____________________

SELECTED PRENATAL INFORMATION

Gravida______ Para______

Diabetic: Yes____ No____ Gestational______ Medical______

Maternal weight: Estimated prepregnancy weight _______ Maternal height _______

Current weight _______ Total weight gain _______lbs.

Obstetrical history: ❑ Prior shoulder dystocia ❑ Prior c/s for FTP

Gestational age on admission: _______wks.

Estimated fetal weight on admission: ___________ ❑ clinical ❑ u/s u/s date_______

LABOR AND DELIVERY

Oxytocin used for: ❑ not used ❑ induction ❑ augmentation

Labor curve: Onset of active labor_____ Start of second stage_____

Delivery of head_____ Delivery of posterior shoulder_____

Delivery of body_____

Mode of delivery: ❑ Spontaneous

❑ Forceps Station at time applied_______ # pulls_____

❑ Vacuum Station at time applied_______ # pulls_____ # pop offs_____

Shoulder dystocia: Anterior shoulder: R L

Episiotomy/laceration: 2nd 3rd 4th None

Maneuvers in order performed:

____

____

____

____

Comments: ____

MD/CNM signature____

Date Completed _________ Time Completed _________