Perinatal Care Matters

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The Future of Vaginal Birth After Cesarean (VBAC)

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Very few topics in clinical obstetrics have raised as much debate and controversy as the delivery management plans of the prior cesarean section patient. The concerns have focused on the safety, patient desires, medicolegal issues, convenience and resource allocations of trial of labor versus planned elective cesarean section. Proponents of both sides have argued the short and long term consequences of method of delivery in a relative vacuum of clinical outcome data and often extrapolated suppositions into strong recommendations with profound swings in the methods of delivering obstetrical care.

Historical Perspective

Trial of labor after cesarean section was once thought to be extremely high risk and to be avoided strictly as Edwin Cragin outlined in "Once a Cesarean, Always a Cesarean".[1] The dictum went unchallenged for decades until the cesarean section rate moved from single digits to above 20% and low transverse uterine incisions replaced the more risky classical uterine incision. Several studies began to demonstrate that catastrophic ruptures were unlikely. [2, 3] VBAC proponents began to paint elective repeat cesarean (ERCS) as an unnecessary procedure and VBAC was literally "forced on patients." VBAC rates rose from less than one in ten previously sectioned women attempting vaginal delivery to near one in three. Thereafter, lawsuits alleging "improper informed consent" arose as a small number of catastrophic outcomes occurred. The American College of Obstetricians and Gynecologists (ACOG) practice recommendation attempted to keep up with the swings in evidence and risk management concerns. The most recent guidelines from a 2004 ACOG practice bulletin[4] states, "Most women with one previous cesarean delivery with a low-transverse incision are candidates for VBAC and should be counseled about VBAC and offered a trial of labor." The 1999 recommendations suggested these labors required "in-house" obstetricians for possible emergent cesarean delivery. This burden, along with medicolegal pressures, led many hospitals and obstetricians to overtly or covertly discourage patients from trial of labor. Today, even in hospitals where VBACs are offered, rates have fallen to the single digit percentages.

Will VBAC follow the fate of destructive procedures and mid-forceps rotations into historical-only procedures of obstetrics? Outcome data seems to continue to support the procedure as a safe and viable option when proper patient selection and labor precautions are undertaken. In addition, many of the concerns of long term morbidity to women's reproductive tracts are still questionable. Concerns over maternal and neonatal safety of pregnancies with multiple cesarean sections have arisen. Women are now faced with the task of finding a hospital and physician who will allow a trial of labor. Some women are reverting to "home VBACs" by nurse midwives who believe strongly in the benefits of natural labor. Simultaneously, the primary cesarean rate has climbed into the 20 to 30% range in many hospitals and prior cesarean patients now account for over one in four delivering women.

Risks and Benefits

The latest safety figures place the rupture risk for a single prior low transverse incision at less than 1% but this figure should be adjusted for various clinical conditions. With the addition of a prior vaginal delivery, the risk falls to 0.2 percent in one report.[5] Increased risk of 2-3 fold has been noted in women with inter-delivery intervals less than 24 months.[6] While ruptures are higher in labors utilizing oxytocin, the rate is relatively low (1%) compared to labors utilizing prostaglandin ripening agents which have a 2.4% rate.[7] Data from one institution has raised concerns over single layer uterine closure and subsequent uterine rupture rates.[8] Most authors continue to report successful trials of labor in the 60-80% range increasing to over 90% if there is a prior vaginal delivery.[2, 3]

The risks and benefits of both ERCS and VBAC should be discussed with all patients. The benefits of ERCS include 1) convenience, 2) avoidance of labor pain, 3) reduced risks of infections and bleeding compared to cesarean following labor, 4) possible reduction of short term complications of pelvic relaxation, 5) avoidance of birth trauma and asphyxial damage to the infant and 6) reduced malpractice risks. Of these, the most controversial is the avoidance of long term pelvic damage. Many studies have shown little benefit for multiple pregnancies regardless of route of delivery. In an interesting study involving

continued on page 2

Future of VBAC continued

nuns, the authors concluded that post-menopausal rates and types of urinary incontinence between the nuns and parous women do not seem to demonstrate significant differences. [9] Such studies suggest age is a much larger determinant than remote childbirth. The reduction of hypoxic-ischemic encephalopathy is small numerically (less than 1:2,000) but highly significant in such cases.[10] Against these benefits of ERCS must be weighed the increased blood loss, operative complications such as hysterectomy, and infection. In addition, the rather benign complication of transient tachypnea occurs in 3-4 % of infants. The serious complication of persistent pulmonary hypertension must be considered.[11] Lastly, consistent reports of increased complications of readmissions, placentation, hysterectomy, ICU admission, transfusion, complications to future pelvic surgery and uterine rupture in subsequent pregnancies are associated with multiple cesarean sections. [12,13]

The benefits of VBAC include 1) reduced maternal risks of infection and bleeding, 2) shorter recovery time, 3) more maternal involvement in labor, 4) decreased length of hospital stay and 5) decreased admissions to the neonatal intensive care unit. The risks have been discussed above and should also include vaginal trauma, neonatal infection risks and retained placenta. All of these risks for both VBAC and ERCS should be thoroughly discussed with patients to ensure informed consent, since complications can occur with both choices regarding trial of labor.

Future Trends in VBAC

The final fate of VBAC will be determined by patients who are making the informed choices. The risks will continue to clarify with increasing data availability. Using an all risk decision analysis, the risks are reasonable when success rates are above 50% and the likelihood of subsequent pregnancy is greater than 10-20%.[14] Currently we place significant stringent safety requirements and medicolegal pressure on hospitals and physicians to perform VBAC. Yet, crash cesarean sections for rare obstetrical events such as prolapsed cord are three times more likely to occur than a suspected uterine rupture from VBAC.[15] Shouldn't all labors have these safety measures available for maternal and fetal safety? Perhaps as we see more hospitals adopting "Laborists" or "Obstetrical Hospitalists," all labors will have readily available respondents. This will ensure immediate availability to satisfy VBAC requirements and remove their additional burden to health care providers and add safety to hospitals offering all obstetrical services. Coupled with the rising rates of cesarean hysterectomy and maternal deaths from obstetrical hemorrhage, many which are likely caused by increased numbers of prior cesareans, we may yet see a reversal of the dwindling VBAC trend.

Submitted by David Lagrew, MD for
RPPC Region 8, Orange County Regional Perinatal Program.

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SPOTLIGHT ON…
Senate Bill 22: Migden - Breastfeeding

As part of the ongoing effort to improve breastfeeding rates across California, this bill would direct the State Department of Public Health to recommend specified training to general acute care hospitals and special hospitals that provide maternity care, and that have exclusive patient breastfeeding rates in the lowest 25%. The training would target appropriate hospital administrative and supervisory staff and would consist of a minimum of eight hours of education on hospital policies and recommendations that promote exclusive breastfeeding. This bill would also require the department, before July 1, 2008, to begin expansion of the breast-feeding peer counseling program at local agency California Special Supplemental Food Program for Women, Infants, and Children (WIC) sites. It would further require the department to streamline and simplify existing Medi-Cal program procedures to improve access to lactation supports and breast pumps among Medi-Cal recipients.

To voice your opinion on this piece of legislation, please call Senator Carole Migden's office at (916) 651-4003 or contact your local legislator (find your local representative by visiting http://www.assembly.ca.gov and clicking "Find My District").

For more legislative information see page 6.

Rate of Perinatal Group B Streptococcal Disease (GBS) Before and After Universal Screening

GBS is a leading cause of neonatal morbidity and mortality in the United States. In 2002, the Centers for Disease Control and Prevention (CDC), the American College of Obstetricians and Gynecologists (ACOG), and the American Academy of Pediatrics (AAP) issued revised guidelines for the prevention of perinatal GBS disease. These guidelines recommend universal screening of pregnant women by culture for rectovaginal GBS colonization at 35-37 weeks' gestation and the use of intrapartum antibiotic prophylaxis for GBS carriers. A report in Morbidity and Mortality Weekly Report (MMWR) published on July 20, 2007 described the results of an analysis to examine rates of neonatal and pregnancy-associated GBS disease after the revised guidelines were issued.

Data for the analysis were drawn from the Active Bacterial Core surveillance (ABCs) system, a laboratory- and population-based surveillance in selected counties of 10 states for invasive GBS disease. In 2004, the surveillance area represented approximately 455,000 live births; 72% of the infants were white, 19% were black, and 9% were of other race. Surveillance areas used standardized case-report forms to collect demographic, neonatal, and obstetric data from medical records. Race and ethnicity data were determined from medical records or birth certificates. Live-birth data from state vital records and national vital statistics reports were used to calculate incidence. Average incidence during 2000-2001, designated as the baseline period, was compared with incidence during 2003-2005.

Findings

During 2003-2005, the annual incidence of GBS infection among pregnant women remained stable and was similar to the baseline incidence.

The average incidence of early onset GBS disease after the revised guidelines were issued in 2003:

- Decreased steadily among white infants;
  - This decrease was pronounced in term white infants while the rate in premature white infants increased slightly
- Increased by 70% among black infants
  - The increase was noted in both term and premature black infants. Figure 1 and 2.

Figure 1: Rate (per 1,000 live births) of early–onset (0-6 days of life) invasive group B streptococcal disease, by race and year – Active Bacterial Core surveillance system, United States, 2000-2005

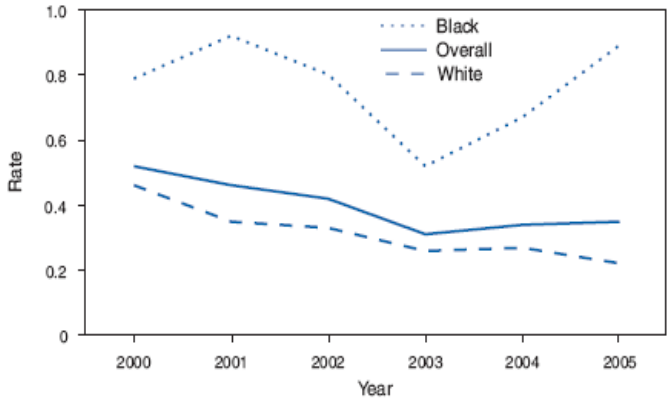
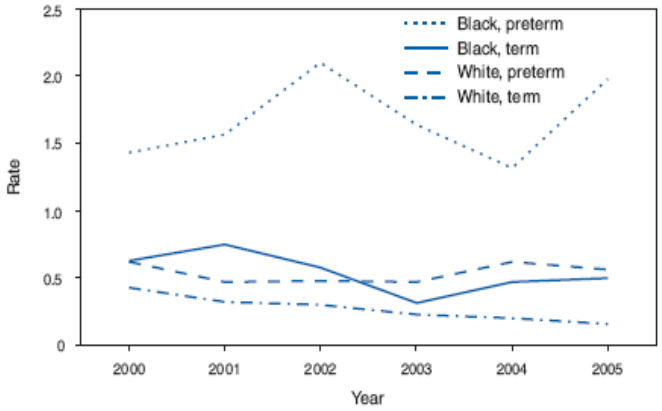


Figure 2: Rate (per 1,000 live births) of early–onset (0-6 days of life) invasive group B streptococcal disease, by race, prematurity status and year – Active Bacterial Core surveillance system, United States, 2000-2005



Average incidence of late-onset GBS disease (among infants aged 7-89 days) was similar before and after the revised guidelines were issued.

California's rate was lowest for both early- and late – onset disease among the ten states participating in ABCs. The rates of both early- and late-onset disease was 0.16 per 1,000 live births, while the pregnancy related rate was 0.12 per 1,000 live births.

Table 1: Number and rate (per 1,000 live births) of perinatal group B streptococcal disease cases, by disease type and state of surveillance area – ABCs, United States, 2005

	Early-onset disease†		Late-onset disease§		Pregnancy-associated disease	
State	No.	Rate	No.	Rate	No.	Rate
California	7	0.16	7	0.16	5	0.12
Colorado	10	0.28	11	0.30	0	0.00
Connecticut	10	0.24	18	0.43	0	0.00
Georgia	30	0.40	44	0.59	12	0.16
Maryland	33	0.44	29	0.39	15	0.20
Minnesota	15	0.22	18	0.26	12	0.17
New Mexico	17	0.60	5	0.18	0	0.00
New York	7	0.30	8	0.34	7	0.30
Oregon	8	0.38	4	0.19	0	0.00
Tennessee	30	0.70	21	0.49	2	0.05
Total	**167**	**0.37**	**165**	**0.36**	**53**	**0.12**

While overall rates of perinatal GBS have declined significantly, rates among some populations remain disproportionately high. Continued surveillance is needed to monitor the impact of the guidelines on Perinatal GBS disease and trends in racial disparities and to guide interventions and reduce disparities. Additional information on GBS is available at: http://www.cdc.gov/groupbstrep .

Reingold A, et al. Morbity and Mortality Weekly Report 2007;56(28) :701-705. Perinatal group b streptococcal disease after universal screening recommendations US, 2003-2005. http://www.cdc.gov.mmwr/preview/mmwrhtml/mm 28al.htm?s_cid=mm5628al_e

California Department of Health Care Services Endorses the American Academy of Pediatric Guidelines on Vitamin D Supplementation

Vitamin D deficiency is a significant pediatric health issue, with complications including rickets, hypocalcemic seizures (seizures caused by low calcium levels), limb pain and fracture.

For older infants and children, risk factors include:

- dark skin color;
- prolonged exclusive breastfeeding without a vitamin D supplement;
- restricted sun exposure including use of sunscreen; and
- certain medical conditions.

In situations where there is a risk of vitamin D deficiency, such as lack of dietary vitamin D, restricted sunlight exposure, or dark skin, steps to ensure appropriate vitamin D supplementation should be provided.

The California Department of Health Care Services (DHCS) endorses the American Academy of Pediatrics (AAP) guidelines on vitamin D supplementation. Its support of the AAP guidelines includes reimbursing for vitamin D supplementation as a Medi-Cal drug benefit.

The sources of vitamin D in breastfed infants are human milk and sun exposure. A major risk factor for breastfed infants is maternal vitamin D deficiency, though vitamin D from maternal milk is insignificant. Breastmilk naturally contains low levels of vitamin D and supplementing the mother with the tolerable upper limit of vitamin D does not substantially increase the concentration in breastmilk. To increase the vitamin D concentration of breastmilk to a level adequate to prevent vitamin D deficiency in the infant, breastfeeding mothers would need to be supplemented with a level of vitamin D that is above the level currently considered safe (per Dietary Recommended Intake for vitamin D).

To prevent vitamin D deficiency in newborn infants, pregnant women at risk for vitamin D deficiency (especially those who are dark-skinned or veiled) should be screened and treated. Breastfed infants should be supplemented with vitamin D, even if the mother is vitamin D-sufficient. It is important to note that the AAP recommends no direct sunlight exposure for infants under 6 months of age.

The most common dietary source of vitamin D is from vitamin D fortified foods such as cow milk and vitamin D fortified formula. Soy milk, cheeses and yogurts may not be fortified with vitamin D. Sixteen ounces per day of vitamin D fortified milk or infant formula will supply 200 IU of vitamin D, the level currently considered to be adequate by the Institute of Medicine. Regular sunlight exposure can prevent vitamin D deficiency, but the safe exposure time for children is unknown. Persons with darker skin, including African Americans, are at increased risk of vitamin D insufficiency because melanin in skin interferes with vitamin D synthesis from sunlight. Therefore, persons with darker skin need to spend more time in sunlight to synthesize the same amount of vitamin D as a person with lighter skin.

The AAP recommends, beginning by two months of age, 200 IU of vitamin D should be given in the following situations:

- Exclusively breastfed infants under one year of age ;
- Breastfed infants under one year of age, who ingest less than 500mL per day (approximately 16 oz.) of vitamin D fortified infant formula;
- Non-breastfed infants under one year of age who ingest less than 500mL per day of vitamin D fortified infant formula; and
- Children and adolescents who do not get regular sunlight exposure, and do not ingest at least 500mL per day of vitamin D fortified milk, or don't take daily multi-vitamin supplements containing at least 200 IU of vitamin D.

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Hearing Tests May Predict Risk for SIDS

Sudden infant death syndrome (SIDS) kills about one in 1,000 infants worldwide. Most of the victims are between two and four months old. Boys are more likely than girls to die of SIDS. A simple hearing test soon after birth may help identify babies at risk for SIDS.

Dr. Daniel D. Rubens and colleagues at the Children's Hospital and Regional Medical Center in Seattle, analyzed data on 31 Rhode Island babies who died of SIDS. The study was published in the July issue of the journal *Early Human Development.*

Findings included:

- The babies who died of SIDS all shared the same distinctive difference in newborn hearing test results for the right inner ear.
- Compared with other babies, those who died of SIDS scored four points lower in standard newborn hearing tests, across three different sound frequencies in the right ear.
- Healthy infants typically test stronger in the right ear than in the left. However, the infants who died of SIDS had lower scores for the right ear than the left.

"This discovery opens a whole new line of inquiry into SIDS research," Rubens said in a prepared statement. "For the first time, it's now possible that with a simple, standard hearing test, babies could be identified as at risk for SIDS."

The inner ear contains tiny hairs involved with both hearing and vestibular (balance) function. Vestibular hair cells may play an important role in transmitting information to the brain about levels of carbon dioxide in the blood, Rubens suggested. Injury to vestibular hair cells may disrupt respiratory control and predispose infants to SIDS. Rubens urged further research in this area.

Children's Hospital and Regional Medical Center, Seattle, News Release, July 26, 2007. http://www.healthfinder.gov/news/newsstory.asp?docid=606854

Progesterone Treatment & Preterm Birth

Premature infants are often very small and at greater risk for life-threatening infections, blindness, breathing problems, learning and developmental disabilities, and cerebral palsy. Premature babies are also more likely to die from SIDS. Premature birth is one of the leading causes of infant death.

Pregnant women at risk for preterm delivery include:
- those who have previous given birth prematurely;
- women carrying twins or higher order multiples;
- those with a shortened cervix (the lower part of the uterus);
- women with certain infections of the reproductive tract.

A large team of researchers sponsored by the National Institutes of Health (NIH), have conducted several studies on the effect of administration of a form of progesterone known as 17-alpha hydroxyprogesterone caproate (17-P) on the timing of premature birth. Progesterone is produced in large quantities in the body during pregnancy.

Previous preterm birth has proven to be the strongest predictor of future preterm birth. Researchers reported in 2003 that weekly injections of 17-P reduced the risk of preterm birth by 34% among pregnant women with a singleton pregnancy who had given birth prematurely in an earlier singleton pregnancy.

Two studies found in the August 2, 2007 issue of *The New England Journal of Medicine* reported on the effect of 17-P on women with twin pregnancies and shortened cervical length. Women pregnant with twins are at higher risk for preterm birth, with more than half delivering prematurely. Between 1980 and 2004, the rate of twin birth rose from 18.9 to 32.2 per 1,000 live births according to data from the National Center of Health Statistics. 41.5% of women receiving 17-P treatments delivered prematurely (before 35 weeks) or experienced fetal loss versus 37.3% of women receiving placebo injections. These findings lead to the conclusion that 17-P therapy does **not** reduce the chances of preterm birth in women pregnant with twins.

Cervical length has also been demonstrated to provide a reliable warning for potential preterm birth. The effect of nightly vaginal administration of 17-P, in women with a cervical length of 15 mm or less, demonstrated that the risk spontaneous delivery before 34 weeks of gestation was significantly less (44%) in the women using 17-P versus placebo (relative risk, 0.56).

To date, findings indicate that 17-P is beneficial in the prevention of preterm birth among women with a singleton pregnancy who have previously given birth prematurely as well as women with short cervical length. 17-P therapy does not reduce the risk of preterm delivery for women with twins.

Eduardo B. Fonseca, M.D, et al. Progesterone and the Risk of Pretierm Birth among Women with a Short Cervix. New England Journal of Medicine. 2007;357(5): 462-469.

Paul Meis, MD, et al. Prevention of Recurrent Preterm Delivery by 17 Alpha-Hydroxyprogesterone Caproate 2003; 348(24) :2379-2385.

Dwight J. Rouse, M.D., et al. A Trial of 17 Alpha-Hydroxyprogesterone Caproate to Prevent Prematurity in Twins. 2007;357(5): 454-461.

Periconceptional Multivitamin Use Linked a Reduced Risk of Preterm, SGA Births

Women who take multivitamins regularly in the 6 months before becoming pregnant appear to have a reduced risk of preterm birth and of small-for-gestational-age (SGA) births, according to findings published in the August 1st issue of *American Journal of Epidemiology*.

"Nutrition is believed to play a role in the pathogenesis of adverse pregnancy outcomes, including preterm birth and growth restriction as measured by small for gestational age," write Dr. Janet M. Catov and colleagues from the University of Pittsburgh. "Several studies have reported a relationship between prenatal vitamin and mineral supplementation and risk of SGA or preterm birth. However the few studies relating periconceptional vitamin use to either outcome report conflicting results or the estimates have been imprecise." The periconceptional period is the time from three to six months prior to conception. Increasing emphasis in the healthcare community is placed on preparation for a healthy pregnancy and childbirth. This study appears to support the role of multivitamin and mineral supplementation in the preparation for pregnancy.

The researchers examined the relationship between periconceptional multivitamin use and the risk of SGA births (below the 5th percentile and between the 5th and 10th percentiles) or preterm births (less than 34 weeks and between 34 and 37 weeks). The study included 1,823 women enrolled in the Pregnancy Exposures and Preeclampsia Prevention program who reported regular multivitamin use on preterm birth between 34 and 37 weeks.

About one-half (47%) of the women reported regular periconceptional multivitamin use. Dr. Catov's group observed that infants who were born to these women were less likely to be delivered less than 34 weeks preterm (odds ratio 0.29), but there was no effect of multivitamin use on preterm birth between 34 and 37 weeks. The risk of SGA (below the 5th percentile) was reduced among regular vitamin users (odds ratio 0.64) after adjustment for smoking, education, parity, baseline gestational age, and pre-pregnancy body mass index. There was no difference in SGA births between the 5th and 10th percentiles.

The relation between periconceptional multivitamin use and the risk of SGA was modified by pre-pregnancy obesity. After adjustment for confounders, non-obese women who use multivitamins have about half the risk of SGA (below the 5th percentile) compared with non-obese women who do not use multivitamins (OR = 0.54). The risk of SGA was not altered by multivitamin use among obese women.

The researchers say that their results should be considered in light of several important limitations. These include the self-reported nature of vitamin use, and unmeasured factors relating to lifestyle, nutrition, access to health care, and maternal genetic variation.

Janet M. Catov, Lisa M. Bodnar, Roberta B. Ness, et al. Association of Periconceptional Multivitamin Use and Risk of Preterm of SGA Births, Am. J. Epidemiol. 2007; 166: 296-303

Low Birth Weight Linked to Fetal A1C Levels

Research has shown a link between low birth weight and poor glycemic control and cardiovascular disease later in life. A recent report published in *Circulation* adds another compelling piece to the puzzle: low birthweight babies have elevated levels of fetal glycated hemoglobin (A1C) .

Investigators measured A1C levels in 1,295 consecutive babies born at a medical center in Berlin, Germany and their mothers. Analysis considered factors including gestational age at delivery, the child's gender, maternal body mass index and smoking during pregnancy. An inverse relationship was found between total fetal and maternal A1C and birthweight. Each one percent increase in fetal A1C(FGH) was associated with an average birth weight reduction of 135 grams (four and one half ounces), while the same increase in maternal A1C was linked to a birth weight increase of 88 grams (~ 3 ounces).

"The ratio of fetal/maternal A1C suggests that lighter newborns have a higher percentage of A1C than would be expected from the maternal A1C," researchers conclude. "The study demonstrates for the first time in a large population that there is an inverse association between FGH of a newborn and its birth weight." This might be due to increased insulin resistance in the newborn with lower birth weight. This data suggests that the pathophysiological mechanisms linking prenatal growth and postnatal sensitivity to insulin are present as early as the fetal period.

Pfab T, Slowinskki T, Godes M, et al. Low birth weight, a risk factor for cardiovascular disease later in life, is already associated with elevated fetal glycosylated hemoglobin at birth. Circulation. 2006; 357: 1687-1692.

Risk of Maternal Death and C-Section Linked

Pregnant woman who deliver by Cesarean Section (C/S) are more than three times as likely to die as their peers who deliver vaginally, according to a report in the September, 2006 issue of *Obstetrics and Gynecology*. The heightened mortality risk appears to relate to an increased risk of complications from anesthesia, infection, and thromboembolism.

The rising rates of C/S in many parts of the world as well as conflicting results from previous older studies prompted the evaluation of the association between C/S and maternal mortality.

In a population-based study in France, the researchers compared obstetrical factors in 65 pregnant woman who died following delivery between 1996 and 2000 and 10,244 control subjects who delivered uneventfully in 1998. Women who delivered by C/S were 3.6 times more likely to die than those who delivered vaginally. A significantly elevated mortality rise was seen whether the C/S was performed before or during a trial of labor. Further analysis showed that C/S was linked to increased risks of death from anesthesia complications, infection, and venous thromboembolism, but not from postpartum hemorrhage. "Although C/S delivery is increasingly perceived as a low-risk procedure, the present study suggests that it is still associated with an increased risk of postpartum maternal death as compared with vaginal delivery, even when performed before labor," the researchers emphasize. "Knowledge of the specific causes involved in this excess maternal mortality risk should inform preventive strategies at cesarean delivery," they conclude.

Catherine Deneux-Tharaux, et al. Postpartum Maternal Mortality and Cesarean Delivery. Obstet, Gynecol. 2006;108: 541-548

Public Policy & Legislation

ASSEMBLY & SENATE BILLS TO WATCH

AB 34: Portantino – Umbilical Cord Blood Collection Program: This bill would require the State Department of Public Health to develop the Umbilical Cord Blood Collection Program to collect and store a diverse umbilical cord blood supply for public use.

AB 81: Torrico – Child Protection, Safe Surrender: This bill would expand the scope of the Safely Surrendered Baby Law to apply to children who are 21 days old or younger, would designate additional safe-surrender sites, and would mandate that safe-surrender site personnel give the surrendering party information on alternative options to surrender.

AB 741: Bass - Infant Mortality: Interpregnancy Care: This bill would require the State Department of Public Health to develop a 5-year demonstration program offering interpregnancy care to women who enroll in the program and meet specified criteria, in an effort to improve child spacing and adverse pregnancy outcomes for women who have had a previous very low birth weight delivery.

SB 137: Torlakson – Children's Health, Medical Treatment: This bill would change California Children's Services (CCS) eligibility to include persons in a family with an annual or monthly income ≤ 400% of the federal poverty level.

SB 164: Migden – Prenatal Screening: This bill would modify the existing Birth Defects Monitoring Program and charge investigators who use pregnancy blood for research purposes for related costs.

SB 468: Padilla – Shaken Baby Syndrome: This bill would revise existing law regarding the provision of instructional materials to parents or guardians of newborns upon discharge from a health facility, and would establish the voluntary Shaken Baby Syndrome Education Pilot Program.

SB 850: Maldanado – Vital Statistics: Certificate of Still Birth: This bill would enact the Missing Angels Act, requiring the local registrar of births and deaths of the county in which a fetal death (≥ 20 weeks gestation) is registered to issue to the parent,, upon request, a Certificate of Still Birth.

For a detailed summary of these bills and other important Maternal and Child Health legislation, please visit http://www.paclac.org/policy/policyLegislative.htm