for all women giving birth from 16 California representative hospitals from July 1, 2012 - June 30, 2013. Medical charts were reviewed and true SMM diagnosed based on expert panel agreement using a clinical Gold Standard.

RESULTS: Among 67,468 deliveries, there were 176 maternal ICU admissions with an overall ICU admission rate of 2.6/1000 deliveries(range:0.05-0.40). Higher maternal level of care hospitals had higher rates of ICU admission but each level showed great variation and overlap with other levels (TABLE). The majority of the ICU admissions (150/176 or 85%) had SMM by gold standard criteria. A greater proportion of ICU admissions in lower level hospitals were not for true SMM. Over one third 176/491(36%) of true positive SMM cases were admitted to the ICU. Of the 150 true positive cases amongst ICU admissions, 44% of severe morbidity was obstetric hemorrhage (25% of these were placenta complications, the remainder were atony or lacerations), followed by hypertensive disorders (28%). 58%(102/176) of ICU admissions received at least 1 unit of transfusion and 79% (81/102) of which were massive transfusions ($\geq$ 4 units of blood. Nearly half (47%) of ICU admissions were $\leq$ 24 hours duration, 18% were 2 days, and 35% were $\geq$ 3 days.

CONCLUSION: Although ICU admission was a very good predictor of true SMM, its accuracy varied substantially among hospitals. Higher maternal level of care hospitals had higher levels of both maternal ICU admissions and admissions with true SMM. Hemorrhage and hypertensive diseases were responsible for the largest proportion of ICU admission in this cohort.

	Self-Reported Maternal Levels of Care		
	Levels 1 & 2 Combined	Level 3	Level 4
Total Deliveries	12,989	36,835	17,644
Maternal ICU Admissions	33	84	59
Rate of ICU Admission per 1000 Deliveries	2.54 (0.68 - 3.55)	2.28 (0.50-3.04)	3.34 (2.37-4.04)
Maternal ICU Admissions with True SMM	24	75	51
Rate of ICU Admissions with True SMM per 1000 Deliveries	1.85 (0 - 3.49)	2.04 (0.5 - 3.03)	2.89 (2 - 3.44)

217 Does the increasing cesarean delivery rate explain the increasing rate of postpartum readmissions?

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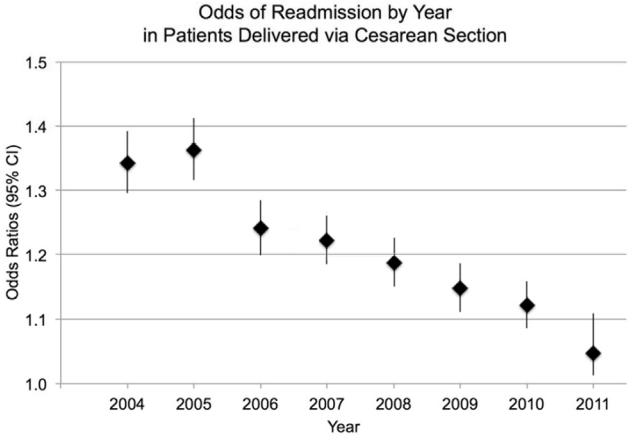
OBJECTIVE: To determine if the increasing cesarean delivery rate in the US explains the increasing rate of postpartum readmissions.

STUDY DESIGN: This retrospective cohort study between 2004-2011 identified deliveries in State Inpatient Databases in California, Florida, and New York. Maternal comorbidities, pregnancy characteristics, and mode of delivery were captured using ICD-9 codes. A postpartum readmission was defined as any admission within 6 weeks of delivery. The effects of cesarean delivery were first assessed via univariate logistic regression to calculate the odds of readmission for patients who had a cesarean delivery by year. Then, multivariate logistic regression models accounting for the effects of demographics, maternal comorbidities, and mode of delivery by year were compared.

RESULTS: Nearly one million deliveries a year were identified, and approximately 600,000 deliveries per year met all inclusion criteria. During this time period, postpartum readmissions increased from 1.72% to 2.16%, and the cesarean delivery rate increased from 30.4% to 33.9%. The odds of readmission for cesarean delivery decreased each year, from 1.343 (95%CI 1.295-1.392) in 2004 to 1.046 (95%CI 1.012-1.108) in 2011, as shown in the figure. In a multivariate model accounting for demographic and hospital characteristics, the odds of readmission based on year was 1.032 (95%CI 1.030-1.035). When cesarean delivery was added to the model, the odds based on year did not change (OR 1.031, 95%CI 1.028-1.035), suggesting mode of delivery had a minimal effect for the increasing readmission rate over time. However, when maternal comorbidities were added to the model, the odds ratio for year became insignificant (OR 1.001, 95% CI 0.998-1.005), suggesting that maternal comorbidities are the main driver of the increasing rate of postpartum readmissions. The maternal comorbidities with the highest odds of readmission were psychiatric disease (OR 2.542), substance abuse (OR 2.016), seizure disorder (OR 1.989), hypertension (OR 1.886), and tobacco use (OR 1.859).

CONCLUSION: The increasing cesarean delivery rate between 2004 and 2011 does not explain the increasing rate of postpartum readmissions. Rather, the increasing postpartum readmission rate appears to be related to the increasing prevalence of maternal comorbidities.



218 Does adjunctive use of progesterone in women with cerclage improve prevention of preterm birth?

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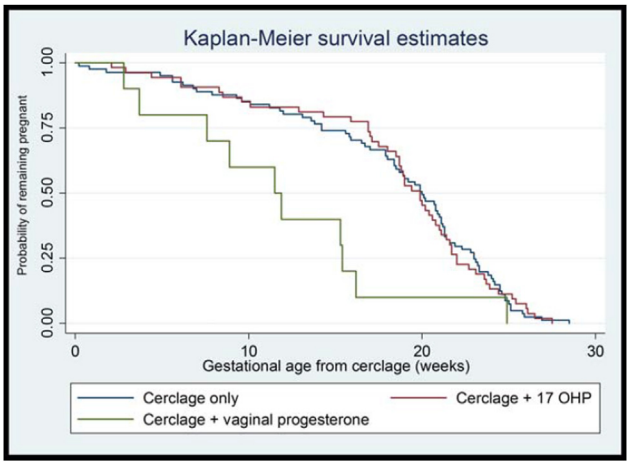
OBJECTIVE: Preterm birth (PTB) is the leading cause of neonatal morbidity and mortality. Some patients have clear indications for cerclage (C), intramuscular progesterone (17-OHP), or vaginal progesterone (Vag P). However, in patients with an unclear clinical picture, providers may combine interventions. The objective of this study is to evaluate outcomes in women with C compared to women with C and adjunctive progesterone (P).

STUDY DESIGN: A retrospective cohort study was performed from 10/2011 - 6/2014. Women with C placement during the study period were identified through a query of the computerized surgery database. Exclusion criteria included multiple gestations, patients simultaneously on 17-OHP and Vag P, and patients lost to follow-up. The primary outcome was prevention of PTB <35 weeks. Statistical analysis including parametric and non-parametric tests were employed as indicated. Logistic regression was performed to calculate odds ratios and 95% confidence intervals and to adjust for confounders (including indication for C or P). Kaplan-Meier (KM) estimates were created for each subgroup from time of C placement to delivery with statistical significance determined using log rank test p-value of <0.05.

RESULTS: Of 144 women meeting inclusion criteria, 81 had C only, 53 had C + 17-OHP, and 10 had C + Vag P. Compared to C only, women with either type of P delivered at similar gestational ages (GA): 34.9 ± 5.89 vs. 33.8 ± 6.09 weeks, respectively; p = 0.27. There was no significant difference in GA at delivery between those with C only versus cerclage + 17-OHP: 34.9 ± 5.9 vs 34.4± 6.03 weeks, respectively; p=0.63. However, women with C + Vag P delivered earlier than women with C only: 30.59 ± 5.58 vs. 34.84 ± 5.91 weeks, respectively; p = 0.044. Women with C + Vag P had an adjusted OR for delivery < 35 weeks compared with C only of 5.09 (95% CI: 1.12 - 23.09). The KM plot demonstrates that women with C + Vag P are significantly more likely to deliver sooner than the other groups (Figure 1). Neonatal outcomes were not improved by C + any P (data not shown).

CONCLUSION: The study found that the use of C only or combined with any P did not prevent PTB <35 weeks or adverse neonatal outcomes. Women receiving C and Vag P are significantly more likely to deliver earlier possibly indicating a higher risk group that could benefit from further studies.



219 Trial of labor versus primary cesarean delivery in women with extreme obesity

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OBJECTIVE: It is unclear whether a trial of labor (TOL) is safe for women with extreme obesity intending vaginal delivery. The objective of this study is to assess maternal and neonatal outcomes among women with extreme obesity who undergo a primary CD versus a TOL.

STUDY DESIGN: This is a retrospective cohort study of all deliveries ≥36 weeks' gestation in the State of California between 2007-2011. Data were extracted from maternal discharge data linked to infant birth certificate records. Included were all women with a body mass index (BMI) ≥50. Excluded were multiple gestations and women undergoing a trial of labor (TOL) after CD or a repeat CD. The primary outcome was severe maternal mortality or death (SMMD). Our secondary outcome was a composite of neonatal morbidity or death.

RESULTS: Of the 1,115,876 women who underwent either a TOL or a primary CD, our cohort comprised 2,693 women (0.24%) with a BMI ≥ 50. In our cohort, 71% (1918) underwent a TOL and 29% (775) a primary CD. The overall CD rate was 39%, of which 15% underwent a TOL. Rates of maternal and neonatal morbidities are presented in Table. Compared to primary CD, women undergoing TOL had a reduced risk of SMMD (0.6% vs 1.4%, RR 0.40, 95% CI 0.28-0.81). Women undergoing CD after a TOL were at increased risk of SMMD compared to women undergoing vaginal delivery (1.7% vs 0.4%, RR 4.7, 95% CI 1.5-15.4), whereas the risks of SMMD were not significantly different between women undergoing CD after TOL vs. primary CD (1.7% vs 1.4%, RR 1.22, 95% CI 0.43-3.50). NICU admission was significantly reduced among women with a TOL but there were no differences in the overall rate of neonatal morbidity compared to women with a primary CD. A successful TOL was associated positively with parity and negatively with maternal age and hypertensive disorders.

CONCLUSION: Among women with extreme obesity, a TOL and primary CD have similar associated morbidities Primary CD does not appear to reduce these morbidities.

Table 1: Maternal and neonatal outcomes

	Trial of Labor N=1918	Primary Cesarean Delivery N=775	RR (95%CI)	P value
Maternal death	0	0	n/a	n/a
Severe maternal morbidity*	11 (0.57)	11 (1.42)	0.40 (0.18-0.93)	0.02
Blood transfusion	15 (0.78)	10 (1.29)	0.61 (0.27-1.34)	0.21
Pulmonary embolism	0 (0.00)	2 (0.26)	0.14 (0.01-1.30)	0.08
Mechanical ventilation	1 (0.05)	2 (0.66)	0.20 (0.02-2.22)	0.20
Sepsis	3 (0.16)	0 (0.00)	1.62 (0.18-14.5)	0.56
Neonatal death	1 (0.05)	2 (0.26)	0.02 (0.02-2.22)	0.21
Neonatal morbidity	17 (0.89)	12 (1.55)	0.57 (0.28-1.19)	0.13
NICU admission	13 (0.68)	12 (1.55)	0.44 (0.20-0.96)	0.03
Birth Injury	1 (0.05)	0 (0.00)	0.81 (0.07-8.91)	0.53
Ventilation	5 (0.26)	0 (0.00)	2.42 (0.29-10.1)	0.33
Seizure	0 (0.00)	1 (0.13)	0.20 (0.01-2.22)	0.28

All numbers are N (%) or mean ± standard deviation

*Severe Maternal Morbidity was examined using the methods described by Kuklina[1] et al and Callaghan[2] and defined by ICD-9 or birth certificate codes if the length of stay for the delivery hospitalization was >90th percentile for the route of delivery and if any of the following occurred: postpartum hemorrhage, maternal sepsis, deep vein thrombosis, pulmonary embolism, uterine rupture, respiratory failure, heart failure, puerperal cerebral vascular accident, severe anesthetic complication, maternal shock, disseminated intravascular coagulation, or renal failure. SMM also was de signated as occurring regardless of length of stay if ICD-9 or birth certificate codes indicated any of the following: hysterectomy, ventilation, unplanned return to operating room, transfer to the intensive care unit, or maternal death.

1. Kuklina EV, Meikle SF, Jamieson DJ, Whiteman MK, Barfield WD, Hillis SD, et al. Severe obstetric morbidity in the United States: 1998-2005. Obstetrics and Gynecology 2009;113:293-9.
2. Callaghan WM, MacKay AP, Berg CJ. Identification of severe maternal morbidity during delivery hospitalizations, United States, 1991-2003. American J of Obstetrics and Gynecology 2008;199:133.e1-.e8.

220 Primary Cesarean Delivery in Obese Women

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OBJECTIVE: Data are limited regarding contributors for the increase in cesarean delivery (CD) in obese women. We investigated the indications for primary CD by body mass index kg/m^2 (BMI) category.

STUDY DESIGN: In the Consortium of Safe Labor study (2002-2008), we calculated indications for primary CD including multiple gestation, malpresentation, elective, macrosomia, placenta previa or vasa previa, fetal indication, human immunodeficiency virus (HIV) or active herpes simplex virus (HSV), uterine scar, nonreassuring fetal heart tracing (NRFHT), chorioamnionitis, placental abruption, hypertensive disease (HTN), failure to progress or cephalopelvic disproportion (FTP or CPD), failed induction, and failed operative delivery. We