

**CONCLUSION:** This contemporary data supports that TOLAC success is associated with specific medical, obstetric, and demographic factors. These findings support the use of TOLAC success prediction algorithms in provider counseling and patient decision making in balancing risks and benefits of undergoing TOLAC versus scheduled repeat cesarean delivery.

### 189 Midtrimester cervicovaginal microbiota: identification of a potential biomarker for puerperal infection at term

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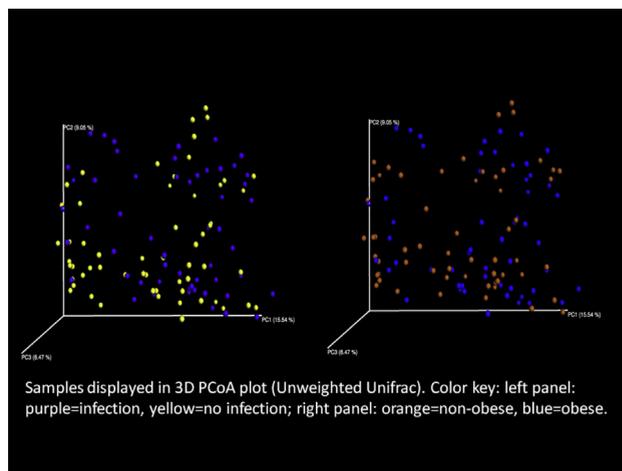
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**OBJECTIVE:** Obesity is a risk factor for polymicrobial puerperal infections. It is unknown whether obesity-related microbial differences explain this fact. We evaluated midtrimester cervicovaginal microbiota in women stratified by maternal body mass index (BMI) and presence or absence of puerperal infection.

**STUDY DESIGN:** Cervicovaginal swabs were collected at 21-25 weeks' gestation and stored at -80°C. In a blinded fashion, 120 samples were identified from black women with normal vaginal flora (Gram stain Nugent score 0-3) who ultimately delivered singletons at term. Samples were stratified by obesity and puerperal infection (chorioamnionitis or endometritis) into four groups (30 per group). Samples were thawed, DNA extracted, PCR with primers targeting the 16S rDNA V4 region were used to prepare an amplicon library which was sequenced and analyzed using QIIME. Taxonomy was assigned using RDP Classifier (threshold 0.8) against the modified Greengenes database. Microbiota differences were assessed using permutation-based analysis over all three beta-diversity measures: Bray-Curtis, weighted UniFrac, and unweighted UniFrac. Kruskal-Wallis was used for taxa level analysis.

**RESULTS:** After quality control and exclusion of four outliers with Gardnerella, Mycoplasma, or Prevotella as the predominant taxon, 113 samples (predominantly composed of Lactobacillus species, as expected) were analyzed. There was no significant clustering by obesity ( $p > .10$ ) or by puerperal infection ( $p > .25$ ) (Figure). Though no individual taxa were different in obese compared to non-obese women, there was approximately 75% less Proteobacteria phylum (Orders Caulobacteriales and Burkholderiales) observed in women who had puerperal infections (false discovery rate corrected  $p = .02$ ).

**CONCLUSION:** Obesity is not associated with the cervicovaginal microbiota. However, women who develop puerperal infections at term have less abundance of two orders of Proteobacteria in their cervicovaginal microbiota in the second trimester. This finding may represent a potential method to identify women at increased risk of puerperal infection.



### 190 The association of BMI and wound infection after cesarean delivery

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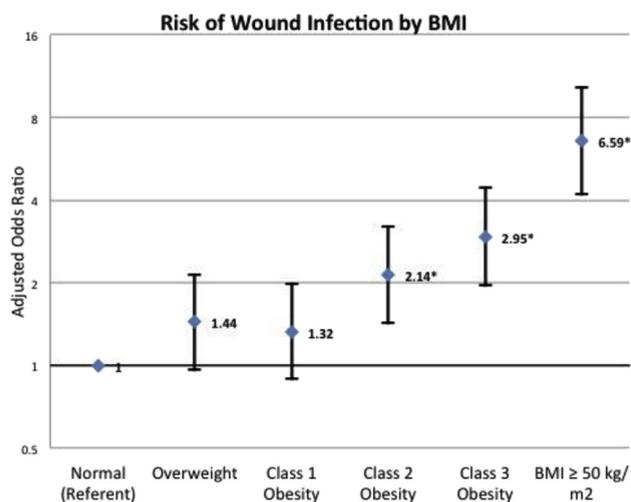
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**OBJECTIVE:** Limited scientific data exist to support the commonly held belief that obese women have higher rates of post-cesarean wound infection. We sought to evaluate the association between body mass index (BMI) and post-cesarean wound infection.

**STUDY DESIGN:** Secondary analysis of a prospective multi-center study. Data on women with a singleton gestation who underwent cesarean were abstracted by trained, certified research personnel. BMI at delivery was stratified by category and obesity class: normal (18.5-24.9 kg/m<sup>2</sup>), overweight (25-29.9 kg/m<sup>2</sup>), Class 1 (30-34.9 kg/m<sup>2</sup>), Class 2 (35-39.9 kg/m<sup>2</sup>) and Class 3 (40-49.9 kg/m<sup>2</sup>), and BMI  $\geq 50$  kg/m<sup>2</sup>. The primary outcome was wound infection: erythema of the incision with purulent drainage requiring wound care. The secondary outcome was endometritis. Multivariable logistic regression was performed to control for potential confounders.

**RESULTS:** 51,407 women were included from 13 centers. Age, ethnicity, payer status, medical co-morbidities (e.g., preexisting diabetes mellitus, chronic hypertension), smoking, intrapartum antibiotic use, duration of membrane rupture, and chorioamnionitis varied by BMI ( $p < 0.001$ ). The most clinically important differences were in rates of medical co-morbidities, ranging from 11% in the normal group to 32% in the BMI  $\geq 50$  kg/m<sup>2</sup> group, and African American ethnicity, ranging from 26% to 57%, respectively. Rates of wound infection by BMI were 0.8% (normal), 1.0% (overweight), 0.9% (Class 1), 1.4% (Class 2), 2.1% (Class 3), and 4.9% (BMI  $\geq 50$  kg/m<sup>2</sup>) ( $p < 0.001$ ). After adjusting for potential confounders, rates of wound infection were significantly higher in women with greater than Class 1 obesity (Figure). 36.5% of wound infections (population attributable fraction) could be prevented if overweight/obese women had a normal BMI. Rates of endometritis did not differ.

**CONCLUSION:** The risk of post-cesarean wound infection is positively correlated with BMI, and is highest when BMI  $\geq 50$  kg/m<sup>2</sup>. Interventions to reduce the rate of post-cesarean infection in obese women are needed.



**191 Reduction and sustainability of surgical site infections (SSI) after cesarean delivery (CD): seven years of experience**

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**OBJECTIVE:** To determine if implementing infection control policies and an innovative evidence-based bundle checklist would reduce and sustain SSI rate following CD.

**STUDY DESIGN:** A retrospective cohort study under four phases was conducted from 1/2008 to 12/2014. The hospital infection control (IC) policies and a pre-surgical checklist (electric clipper for hair removal, chlorohexidine for skin preparation, antibiotics time and types: Cefazolin + Azithromycin, traction of cord to remove placenta, closure of deep subcutaneous layer >2 cm, and skin closure with suture) were bundled and implemented. 3,334 patients had CD between 1/2008 and 12/2014. Patients were divided into 4 phases: Phase A (1/1/2008-1/31/2010):1250 patients without intervention, Phase B (2/1/2010-7/31/2011): 682 patients intervened with strict IC policies, Phase C (8/1/2011-12/31/2012):591 patients with IC policies and SSI bundle checklist, Phase D (1/1/2013-12/31/2014):811 patients were monitored the sustainability of CD SSI. Patients without following strict protocols due to emergency CD were excluded. CD SSI reduction rates were calculated. Chi square test, Fisher's Exact test, and standard Z test were used for statistical analyses.

**RESULTS:** CD SSI rates were 6.2% (77/1250; Phase A), 3.7% (25/682; Phase B), 1.7% (10/591; Phase C), and 0.1% (1/811; Phase D) respectively. By implementing the IC policies, CD SSI reduction rate was 40.3% (Phase B vs. Phase A), 72.6% reduction after IC policies with bundle checklist (Phase C vs. Phase A), and 98.4% reduction (Phase D vs. Phase A). All statistics were significant.

**CONCLUSION:** Our innovative evidence-based bundle checklist with IC policies at different phases during past 7 years effectively reduces the incidence of SSI rate following Cesarean deliveries. The reduction rate can be up to 98.4% overall and sustain down to approaching zero. We conclude the strategic plans through hospital IC policies as well as innovative bundle checklist can reduce CD SSI rate down to approaching zero. A future prospectively randomized clinical trial is warranted.

**192 Clinical risk factors for post-cesarean surgical site infection despite pre-incision azithromycin-based extended spectrum antibiotic prophylaxis**

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**OBJECTIVE:** To identify maternal clinical risk factors for post-cesarean surgical site infection (SSI) following pre-incision azithromycin-based extended spectrum antibiotic prophylaxis.

**STUDY DESIGN:** This is a secondary analysis of an RCT that tested the effect of extended spectrum antibiotic prophylaxis with azithromycin on SSI following non-elective cesarean. Subjects were > 24 weeks and delivered by cesarean section following a minimum of 4 hours of labor or ruptured membranes (ROM). All subjects received standard cephalosporin (or clindamycin) prophylaxis and were randomized to additionally receive azithromycin (500mg in 250ml of saline) or placebo (250cc of saline). Maternal clinical characteristics were chart abstracted. The primary outcome was SSI, defined as a composite of endometritis, superficial or deep wound infection, and pelvic abscess. Univariate analysis of maternal clinical factors identified those associated with SSI. Multivariable analysis by logistic regression and backward elimination (p>.05) was used to determine significant risk factors in a final model.

**RESULTS:** 2013 subjects were enrolled and 1019 randomized to azithromycin. Overall, 177 (8.8%) had SSI. Black race/ethnicity; BMI >30; ROM duration > 6 hours; surgery duration > 50 minutes; IUPC use; vertical skin incision, and induced labor, were associated with SSI. Increasing maternal age, private insurance, and azithromycin were protective. In the adjusted model, Black race/ethnicity, and ROM and surgery duration remained significant risk factors for SSI.

**CONCLUSION:** Despite pre-incision antibiotic prophylaxis, SSI remains a significant complication of non-elective cesarean in women with specific risk factors. Interventions to further reduce SSI risk should address these factors, such as re-dosing cephalosporin for surgery > 50 minutes or alternative dose strengths with prolonged ROM. Treatments other than antibiotics should also be sought.