

Title:

Comparing Labor Progression and Outcomes in Term Gestations: Are Elective Inductions Worth the Risk?

Abstract:

Despite good evidence to support the risks associated with having a cesarean delivery, the rate continues to climb. The rate of cesarean delivery rate in the United States was approximately 33% in 2009 and is indeed nearly 30% of all deliveries at Unity Point Health Methodist. This study sought to examine the effectiveness of implementing a **new Bishop Score policy** in attempt to decrease the rate of cesarean deliveries in our hospital.

We examined all elective inductions in term gestations over a specific period of time with interest in the delivery outcomes of those inductions and implemented a new policy for elective inductions. All providers who performed deliveries at our hospital were notified of plans to change the then current policy. We examined all cases of elective inductions from June – November 2012 and January – June 2013.

After applying all inclusion and exclusion criteria, the rate of elective inductions increased (68.2%), the overall rate of cesarean deliveries among elective inductions decreased (9.1%) as well as the overall cesarean section rate (10.8%), (*p-value* 0.7361). The length-of-stay, length-of-labor and admission-to-pitocin administration were all decreased among the elective inductees with favorable bishop scores, but perhaps the most significant of all findings in this study was cost savings, with a total savings of nearly \$114,000.

These findings support the new Bishop Score policy and possibly represent a pivotal point in the downward trend of cesarean deliveries.

Introduction:

The rate of elective inductions and cesarean deliveries has reached an all-time high in the United States. In 1965, the cesarean rate was nearly 4.5%, 19% in 1998 and is nearly 35% today^{3,7}. In 1990, the rate of elective inductions was about 9.5% and reached 24% by 2012. Today, one-third of all deliveries occur via cesarean section. Decreasing the risk of a cesarean delivery can reduce morbidity and mortality in the postpartum period, reduce complications in subsequent pregnancies and reduce complications that are inherent to having an abdominal surgery. There is good evidence to support the fact that a risk factor for having a cesarean delivery is elective induction of labor. Elective inductions that occur in women a low Bishop Score, especially in primigravidas, the risk of cesarean delivery is even higher. Knowing that cesarean delivery itself carries with it higher rates of gastrointestinal complications (like postoperative ileus and adhesions), endometritis, urinary tract infections, DVT, wound infections/dehiscence and hospital re-admission⁵, we examined at factors that could decrease the incidence of elective IOL in our hospital and implemented a policy examining the effect of Bishop Score differences on the rate of cesarean.

Methods:

We sought to examine the labor outcomes of electively induced women before and after implementation of a new Bishop Score policy. The likelihood of spontaneous vaginal delivery is very high for multiparous women with a Bishop Score of > 6 and nulliparous women with a

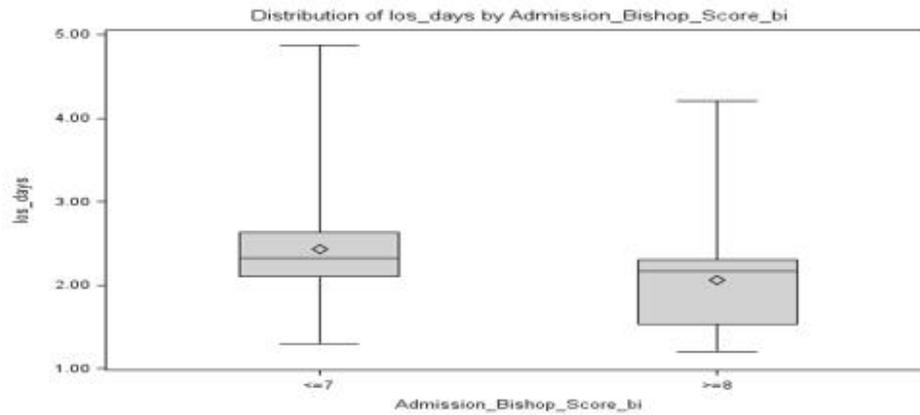
Bishop Score of >8 .⁷ After examining the previous policy that was in place at our hospital, which prohibited elective inductions of labor before 41 weeks of gestation, we notified all providers who performed deliveries at our hospital of plans to change the policy, effective January 2013. By chart review, we examined all cases of elective inductions in 2012 and 2013. Inclusion criteria was defined as: elective inductions in low-risk women with fetuses in vertex orientation with non-anomalous singleton gestations between 39 0/7 weeks and 40 6/7 weeks. We excluded: multiple gestations, medical inductions, scheduled cesarean sections and any cesarean sections performed under emergent conditions. Our new policy was then implemented in January 2013, which prohibits elective inductions in multiparous women with a Bishop Score of < 6 (N = 119 in this study) and nulliparous women with a Bishop Score of < 8 (N = 46 in this study). For this study, we examined and included cases meeting inclusion criteria 6 months before (May – November 2012) and 6 months after (January – June 2013) the implementation of the new Bishop Score policy.

Results:

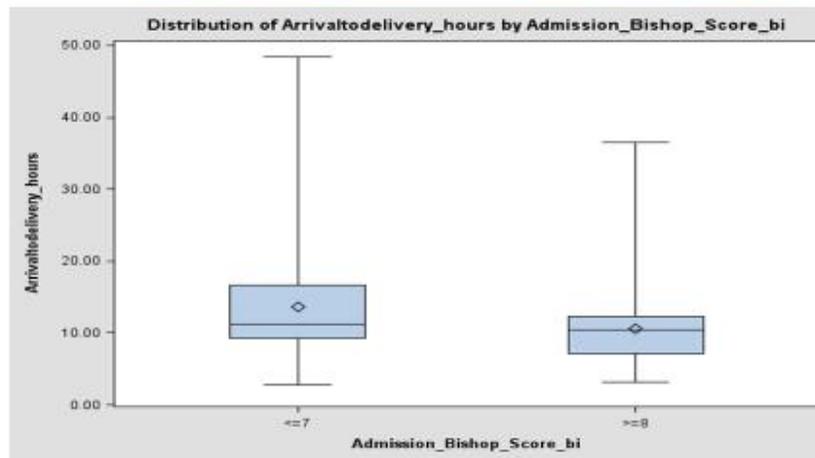
Overall, the rate of elective inductions increased from approximately 48% to 68.2%, but the rate of cesarean delivery among these elective inductions decreased (10.7% to 9.1%, *p-value* 0.7361). Although this was not statistically significant, there is indeed clinical significance, for we know that the induction of labor in primigravidas with an unfavorable cervix, the risk of a cesarean delivery is dramatically increased⁴. The overall cesarean rate decreased, but was not statistically significant (15.9% to 10.8%), as the overall cesarean rate for 2012 remained nearly the same for 2013. For those electively induced with Bishop Score < 8 , the cesarean rate was 11%. For those electively induced with Bishop Score > 8 , the cesarean rate was to 6.8%.

Admission-to-delivery time was longer for women who underwent non-medically indicated induction by approximately 3-4 hours. However, delivery-to-discharge time was no different between the two induction groups (medical and elective). Overall, the length-of-stay, time of admission-to-delivery and administration of pitocin-to-pushing was less in the group with Bishop Scores > 8 :

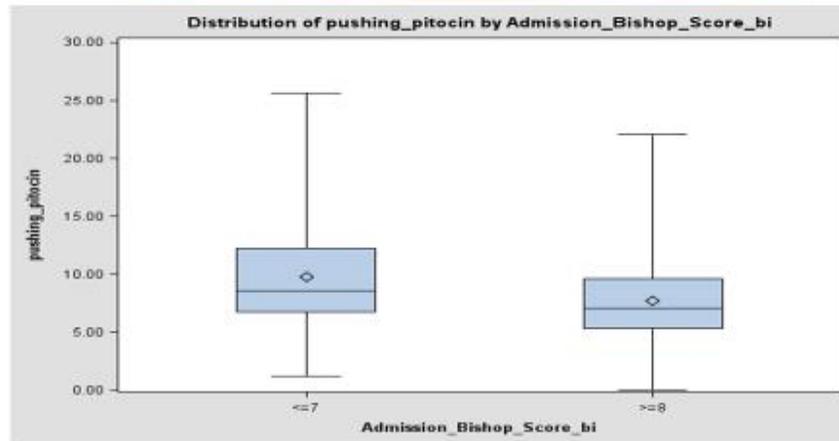
Length of Stay



Admission/Arrival to Delivery



Pitocin to Pushing



The cost savings were roughly **\$114,000** (for N = 119, Bishop Score < 7). Total hours saved were approximately **1054 hours, or 44 days** (for N = 119, Bishop Score < 7).

Conclusion:

There are some minor limitations to this study. For instance, the sample size was very small. Perhaps future endeavors may include a larger study population that will showcase the dramatic effects of the Bishop Score's ability to decrease cesarean delivery rates among elective inductions. In addition, the large cost savings and total hours saved, as evidenced by this study, may become even more apparent. Lastly, we may see more statistical significance emerge with a higher powered study and in turn, the clinical significance of reducing cesarean deliveries will be highlighted even more. Future research may involve examining the rates of maternal and neonatal morbidity and mortality in the postpartum period.

Overall, we have shown that the risk of cesarean delivery is decreased after an elective induction in women with a high Bishop Score on admission. That risk is even more dramatically reduced in nulliparous women with a high Bishop Score on admission, decreasing perinatal morbidity and mortality.

Finally, it is important for providers to remain cognizant of and adhere to evidence based guidelines for management of labor and indications for cesarean sections. While the most

common reasons for proceeding to cesarean delivery in the United States include elective repeat cesarean delivery, dystocia or failure to progress, malpresentation and fetal heart rate tracings that suggest fetal distress⁵, many of these indications are modifiable. By remaining aware of the possibility of modification, we can perhaps prevent a cesarean delivery, decreasing overall cost, length of hospital stay and hours worked.

References:

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