

due date, but at the same time to point out the normalcy of going beyond 40 weeks. There are various reasonable, psychosocial reasons a provider may decide to induce a woman at her request (e.g. partner leaving on a long military deployment, or patient lives far away and has a history of precipitous labor). However, the potential benefits of this decision should be carefully weighed against the potential for harm.

Just as providers feel pressure from women to induce labor, women often report feeling similar pressure from providers. For example, a recent study revealed that nearly one-third of the women who participated in the Listening to Mothers III national survey<sup>38</sup> were told by their care providers that their baby might be getting “quite large.” Women with a suspected large baby were more likely to be induced, and were more likely to ask for and have a planned, pre-labor cesarean.<sup>291</sup> Yet only 19% of those with a suspected large baby went on to deliver a baby over 4000g. The conclusion drawn from the data is that suspected macrosomia is not an indication for induction, and only in rare cases (greater than 5000 grams, or greater than 4500 grams for women with diabetes) is cesarean recommended to prevent potential birth trauma.<sup>3,188</sup>

Other reasons providers may be more commonly inclined to suggest induction of labor include provider convenience and financial incentives (see Part I, “Payment/Reimbursement Models that Conflict with High-Value, High-Quality Maternity Care”). In summary, if induction of labor is not medically indicated, suggestion by the provider to do so is in direct conflict with the provision of high-quality, high-value maternity care.

### 3. Utilize Operative Vaginal Delivery for Eligible Cases

When performed by a well-trained, experienced physician, and on a fetus not believed to be macrosomic, judicious use of operative vaginal delivery offers a safe alternative to cesarean birth for the management of second stage abnormalities such as fetal intolerance or dystocia due to maternal exhaustion.<sup>3</sup> Caution should be exercised with mid-pelvic procedures or those where rotation of the occiput transverse or occiput posterior fetus is necessary, as this requires a high level of skill and experience to safely perform. Such procedures are less likely to be successful than low or outlet procedures, which may safely prevent a cesarean birth in most eligible cases. In fact, less than 3% of attempted operative vaginal deliveries proceed to a cesarean.<sup>292</sup>

Unfortunately, training in operative vaginal delivery in many residency programs is decreasing, especially training in the use of forceps.<sup>293</sup> For operative vaginal delivery to be a safe alternative to cesarean, residency programs must encourage and incorporate training, and the skill must be maintained throughout an attending physician’s tenure.

### 4. Identify Malposition and Implement Appropriate Interventions

Refer to Appendix G for detailed instructions and recommendations for malposition.

#### Identification

Identification of malposition during labor, particularly by the early part of the second stage, is an important aspect of preventing cesarean. There are various ways to identify the OP or OT fetus. Ultrasound is the most accurate approach. Studies in second stage have reported digital examination error rates of 26% to 39% compared to the “gold standard” of abdominal ultrasound.<sup>251,294,295</sup>

**Table 28.** Commonly Cited Reasons for Induction of Labor that Do Not Meet Criteria as “Medical Indications”<sup>290</sup>

| Commonly Cited Reasons for Induction of Labor that Do Not Meet Criteria as “Medical Indications” |
|--|
| Suspected macrosomia*  |
| History of fast labors   |
| Advanced cervical dilation   |
| Previous maternal pelvic floor injury (e.g. previous 4th degree laceration)                      |
| Partner leaving town   |
| Family in town   |
| Maternal exhaustion  |
| Lives far away   |

\*Suspected macrosomia is commonly cited as medical indication for induction of labor. Given that fetal estimates of weight late in gestation are imprecise, suspected macrosomia is not a medical indication for induction of labor. Cases where cesarean delivery is offered in order to avoid birth trauma should be limited to an ultrasound estimation of fetal weight of 5,000 grams, or 4,500 grams for diabetic women.

## Prevention

### *Avoid routine early amniotomy*

Amniotomy prior to 5 cm eliminates the cushion of the fore waters which allow for fetal repositioning, and may result in more non-reassuring FHR patterns.<sup>296</sup>

### *Employ preventive measures for women with epidural anesthesia*

While there is no definitive evidence establishing a causal relationship, a preponderance of evidence suggests that mothers with epidurals are up to four times as likely to have an OP fetus than women without epidurals.<sup>180,181</sup> Caregivers should change the patient's position at least every 20 minutes to maximize fetal accommodation to a more favorable position.<sup>157</sup>

## Promote rotation

### *Intrapartum Maternal/Fetal Positioning*

Promote rotation to the more favorable OA position through maternal /fetal positioning during the intrapartum period. If it is unclear whether the fetus is OP or OT during a prolonged second stage, maternal position changes every five to six contractions may facilitate rotation to OA.<sup>157</sup> Supportive care techniques from nurses to help expand and change the shape of the pelvis, such as the pelvic press and lunges, may be useful in this regard.

### *Consider Pushing Positions*

For the persistently OP fetus, the doula, nurse, and provider should consider the most effective positions for pushing and the “drive angle” of the occiput relative to the maternal bony pelvis.<sup>157</sup> Forward-leaning, non-dorsal pushing positions are recommended for persistent malposition. These include various squatting positions (e.g. with a squat bar or with support from the woman's partner or doula), and forward-leaning positions while sitting (e.g. on the toilet), kneeling, or standing.<sup>157</sup> For the OP fetus, when the most common modern-day pushing position is employed (the lithotomy position with “chin-to-chest”), the anterior sinciput is obstructed, gravity is not utilized, and significantly longer pushing times often result. If or when lithotomy position is used, exaggerated lithotomy (also known as the back-lying squat, or the McRobert's position used for shoulder dystocia), with the woman's head flat on the bed, and buttocks slightly lifted, can expand the fore pelvis sufficiently that the anterior sinciput of the OP fetus can more easily swing under the symphysis pubis.<sup>157,297</sup>

### *Support the Maternal Psyche and Body*

Physical and psychological support measures are critical for the woman who is fatigued and doubts her ability to give birth vaginally. If the fetus demonstrates health, a sip of liquid with some glucose (e.g. juice, Gatorade) or a light carbohydrate snack might give her a burst of energy to continue to run the “final lap.”<sup>298</sup>

### *Manual rotation*

Manual rotation attempts are advocated in early to mid-second stage of labor.<sup>157,299,300</sup> Digital/manual rotation of the fetus from the OP position to the OA position is associated with significantly lower rates of cesarean birth<sup>180,301,302</sup> and other complications associated with persistent OP position e.g. severe perineal lacerations, hemorrhage, and chorioamnionitis.<sup>249</sup> A recent retrospective cohort study of over 700 women who underwent manual rotation from the OP or OT position demonstrated a high rate of success for this procedure: 74% delivered vaginally in the OA position.<sup>301</sup> Instrumental rotation is a safe alternative to manual rotation for appropriate candidates when performed by a skilled, experienced physician.<sup>250,303,304</sup>

### *Patience, patience, patience*

The “tincture of time” approach is likely the best strategy when incremental descent is observed in the second stage, if the fetus and mother remain resilient.<sup>108</sup> Longer pushing durations may be necessary in the circumstance of malposition.<sup>3</sup> Evidence of progress (or lack thereof) is best ascertained when the same clinician monitors fetal descent throughout the second stage.<sup>303,305</sup>

**Table 29.** Identification, Prevention, and Treatment of the Malpositioned Fetus <sup>108,157,180,250,251,294-305</sup>

| Identification, Prevention, and Treatment of the Malpositioned Fetus |   |
|--|---|
| What   | How   |
| Early identification   | Manually, or by ultrasound (gold standard) if manual appraisal is uncertain   |
| Prevention   | Avoid early amniotomy   |
|  | For women with epidural, assist in changing position every 5-6 contractions, or about every 20 minutes  |
| Promote rotation   | Maternal position changes every 5-6 contractions or about every 20 minutes  |
|  | Consider the most effective pushing positions, such as various squatting positions and forward-leaning positions while sitting (e.g. on the toilet), while squatting with squat bar, or while standing. In lithotomy position, the woman's head should remain flat on the bed with buttocks slightly lifted (opposite of the "curl around the baby" approach) |
| Support maternal psyche and body                                     | Family and professional support and encouragement is critical at this time  |
|  | Offer sips of carbohydrate liquid or light carbohydrate snack   |
| Attempt to rotate the baby   | Early to mid-second stage of labor; manually or by instrument if indicated  |
| Tincture of time   | Be patient! In instances of malposition, longer pushing durations for the healthy fetus are often necessary   |

## 5. Consider Alternative Coverage Programs (Laborist Models and Collaborative Practice Models)

### Physicians and Midwives as Hospitalist Providers (Laborists)

Though OB hospitalists or laborists were originally engaged to care for a population of unassigned patients, and to be a safety net for emergencies, other beneficial effects have emerged. Recent studies that focused on the relationship between cesarean rate and laborist coverage have shown a statistically significant reduction in cesarean births with "around-the-clock care."<sup>254,306,307</sup> The definition of around-the-clock care differs from facility to facility, with models ranging from physicians available only as safety-net providers in case of significant events, on one end of the spectrum, to true laborists attending to and delivering all patients. The recent analysis by Iriye

and colleagues<sup>307</sup> showed that it was not simply a matter of having around-the-clock coverage alone, but of having an independent group (a laborist "staff model") whose only function is to care for inpatients, without outside responsibilities, that makes a difference in the number of cesareans. It is unclear whether this is due to being on-site and ready to respond, or due to the removal of economic and/or time-based incentives to perform a cesarean. Whatever the precise dynamics, laborist models have clear, unique advantages, including "retention of core knowledge, high intrapartum competence,"<sup>308</sup> and quick response times.

Marin General Hospital, a California community hospital that implemented an innovative, collaborative midwife-physician laborist model, reported its significant comparison of cesarean birth rates in two recent studies.<sup>254,255</sup> One study evaluated over 9,000 singleton live births through a retrospective comparison of a tradi-

tional private practice model and a midwife-physician laborist model. The NTSV cesarean rate for the traditional model was 29.8%, compared to 15.9% for the collaborative laborist model.<sup>255</sup> The second study involved the evaluation of a prospective cohort of privately insured women between 2005 and 2014, and compared the NTSV cesarean and VBAC rates before and after a change from a private practice model to a collaborative midwife-physician laborist model. The primary cesarean rate fell from 31.7% to 25.0%, with a 7% drop in the very first year after implementation of the new model.<sup>254</sup>

### Collaborative Practice between Physicians and Midwives

Collaborative practice between midwives and physicians is the inter-professional provision of care toward a common goal that utilizes and respects the separate expertise of both provider types.<sup>309,310</sup> Collaborative practice between physicians and midwives