

Giving Birth Based on Best Evidence

## What is the Evidence for Induction or C-section for a Big Baby?



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### What is a big baby?

The medical term for big baby is **macrosomia**, which literally means “big body.” Some experts consider a baby to be big when it weighs more than 4,000 grams (8 pounds 13 ounces) at birth, and others say a baby is big if it weighs more than 4,500 grams (9 pounds, 15 ounces). A baby is also called “large for gestational age” if its weight is greater than the 90th percentile at birth ([Rouse et al. 1996](#)).

### How common are big babies?

Big babies are born to about 1 out of 10 women in the U.S. Overall, 8.7% of all babies born at 39 weeks or later weigh between 8 lbs 13 oz and 9 lbs 15 oz, and 1.7% are born weighing 9 lbs 15 oz or more ([U.S. Vital Statistics](#)). You can see the percentages listed separately below for women who are diabetic and not diabetic.



Here is Kelly's little chunk! He was born 13 days past his due date and was 9 pounds 7 oz long. After her normal healthy birth, Kelly was told by the nurse that she should have “warned them” that the baby was big because it was “dangerous” to give birth to a big baby with her small frame.

### Percentage of women who have big babies in the United States

Actual Weight at Birth	*Not diabetic (≥39 wks)	*Gestational diabetes (≥39 wks)	**Type I or Type II diabetes (≥39 wks)
Less than 8 lbs 13 oz	90.3%	87.3%	76.8%
Between 8 lbs 13 oz and 9 lb 15 oz	8.2%	11.1%	17.1%
9 lbs 15 oz or more	1.5%	2.6%	6.1%

© [www.evidencebasedbirth.com](http://www.evidencebasedbirth.com) \*Data from the 2010 U.S. National Vital Statistics. \*\*Data from a large trial (Collaborative Group on Preterm Birth Prevention (1993) that may have included women with both gestational diabetes and Type I and Type II diabetes.

Among women with gestational diabetes, researchers have found a dose-response relationship between blood sugar at diagnosis ([the glucola test](#)) and the baby’s weight. This means that the higher your blood sugar, the more likely you are to have a baby who is large for gestational age ([Metzger et al. 2008](#)). However, women who receive treatment for gestational diabetes cut their chances of having a big baby in half ([Landon, Spong et al. 2009](#)).

### What is routine care for suspected big babies in the U.S.?

Although big babies are only born to 1 out of 10 women, the 2013 [Listening to Mothers Survey](#) found that 2 out of 3 American women had an ultrasound at the end of pregnancy to determine the

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baby's size, and 1 out of 3 were told that their babies were too big. In the end, the average birth weight of these suspected "big babies" was only 7 lbs 13 oz (Declercq, Sakala et al. 2013).

Of the women who were told that their baby was getting big, 2 out of 3 said their care provider discussed inducing labor because of the suspected big baby, and 1 out of 3 said their care provider talked about planning a C-section because of the big baby.

Most of the women whose care providers talked about induction for big baby ended up being induced (67%), and the rest tried to self-induce labor (37%). Nearly 1 in 5 women said they were not offered a choice when it came to induction—in other words, they were told that they must be induced for their suspected big baby.

When care providers brought up planning a C-section for a suspected big baby, 1 in 3 women ended up having a planned C-section. Two out of five women said that the discussion was framed as if there were no other options—that they must have a C-section for their suspected big baby.

In the end, care provider concerns about a suspected big baby were the 4<sup>th</sup> most common reason for an induction (16% of all inductions), and the 5<sup>th</sup> most common reason for a C-section (9% of all C-sections). More than half of all moms (57%) believed that an induction is medically necessary if a care provider suspects a big baby. So in the U.S., **most women have an ultrasound at the end of pregnancy to estimate the baby's size, and if the baby appears large, their care provider will usually recommend either an induction or an elective C-section. Is this approach evidence-based?**

This approach is based on 4 major assumptions:

1. Big babies are at higher risk for problems.
2. We can accurately tell if a baby will be big.
3. Induction keeps the baby from getting any bigger, which lowers the risk of C-section.
4. Elective C-sections for big baby are beneficial and don't have any major risks.

**What is the evidence for these assumptions? Are they true? Let's take a closer look at each one.**

**Assumption #1: Big babies are at higher risk for problems.**

**Reality #1: Big babies are at higher risk for temporarily getting their shoulders stuck, but difficulty giving birth to shoulders is unpredictable and permanent injuries are rare. A care provider's suspicion of a big baby is more harmful than an actual big baby itself.**

One of the main problems with big babies is shoulder dystocia ("dis toh shah") which means difficulty birthing the baby's shoulders. In articles that were written about shoulder dystocia in the 1960's-1980's, researchers frequently referred to shoulder dystocia as the "obstetrician's greatest fear."

Although big babies are at higher risk for shoulder dystocia, most cases of shoulder dystocia happen in smaller babies (Morrison et al. 1992). This is because there are many more small and normal size babies being born than big babies. Unfortunately, researchers have found that it is impossible to predict who will have shoulder dystocia and who will not (Foster et al. 2011).

In non-diabetic women, shoulder dystocia happens 0.65% of the time in babies that weigh less than 8 lbs 13 oz (6.5 cases out of 1,000 births), 6.7% of the time in babies that weigh between 8 lbs 13 oz and 9 lbs 15 oz (60 out of 1,000), and 14.5% of the time in babies that weigh 9 lbs 15 oz or



With Katie's first child, she ended up with a C-section because she was told her baby could not fit through her pelvis (7 lb 13 oz). She went on to birth her next daughter (9 lb) and next son (10 lb 2 oz), pictured here, vaginally.



Starting at 10 weeks, Camahta was told she would need a C-section because she was "fat" and the baby was going to be "huge." At 41 weeks, the doctor estimated the baby was close to 10 pounds. Camahta's son was born via a much-needed C-section 2 days later due to cord entanglement. He weighed 5 pounds 14 ounces.

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greater (145 out of 1,000) (Rouse et al. 1996).

Rates of shoulder dystocia are much higher in Type I and Type II diabetes (2.2% of babies that weigh less than 8 lbs 15 oz, 13.9% of babies that weigh between 8 lb 15 oz and 9 lb 13 oz, and 52.5% of babies that weigh more than 9 lb 13 oz), and among women with gestational diabetes (Rouse et al. 1996).

I was not able to find exact numbers for the percentage of women with gestational diabetes who have shoulder dystocia, as the rates change depending on each woman's blood sugars.

However, we have strong evidence that treatment for gestational diabetes drastically cuts the chance of having a big baby and shoulder dystocia (To read more, click [here](#)).



Katlin's daughter was born vaginally (9 lb 8 oz) after she refused an induction. She had a shoulder dystocia, which the doctor was able to manage. Afterwards, a nurse said she was shocked that Katlin was "allowed" to birth vaginally.

Although most cases of shoulder dystocia can be managed by a care provider, **it can sometimes result in a nerve injury in the baby called brachial plexus injury**. A baby does not have to have shoulder dystocia in order to experience a brachial plexus injury. One-third of brachial plexus injuries happen when there wasn't any shoulder dystocia. In fact, some cases of brachial plexus injury happen after elective Cesarean surgery (Rouse et al. 1996).

Some infants who have brachial plexus injury (7 out of 100) will end up with permanent nerve damage to the arm and shoulder. The remaining infants who have an injury will get better—sometimes on their own, and sometimes after therapy or surgery (Rouse et al. 1996).

#### Rates of Shoulder Dystocia and Brachial Plexus Injury in Non-Diabetic Women

Actual Weight at Birth	Rate of shoulder dystocia in non-diabetic women	If there is a shoulder dystocia, the rate of brachial plexus injury	If there is a brachial plexus injury, the rate of permanent disability	Overall rate of permanent nerve disability among all babies in this weight range
Less than 8 lbs 13 oz	0.65%	9%	6.7%	0.004% (1 in 25,000)
Between 8 lbs 13 oz and 9 lb 15 oz	6.7%	18%	6.7%	0.08% (1 in 1,237)
9 lbs 15 oz or more	14.5%	26%	6.7%	0.25% (1 in 400)

© [www.evidencebasedbirth.com](http://www.evidencebasedbirth.com), data from Rouse et al., 1996. Curious how to do the math? (example using the 2<sup>nd</sup> row):  $6.7\% \times 18\% \times 6.7\%$  or  $.067 \times 0.18 \times .067 = .00080802$  (.08%) or 1 in 1,237

Although shoulder dystocia can be scary when it happens, there are ways care providers can help prevent and manage a shoulder dystocia. For more information, read [this article on shoulder dystocia](#) by Midwife Thinking.

**Could my baby die if it experiences shoulder dystocia?** Deaths from shoulder dystocia are possible but extremely rare. In 1996, researchers looked at all the studies so far that had reported the rate of death due to shoulder dystocia. In 15 studies, there were 1,100 cases of shoulder dystocia and no deaths (a death rate of 0%). In 2 other studies, the rates of infant death were 1% (1 baby out of 101 "died at delivery," possibly due to the dystocia) and 2.5% (1 infant died out of 40 cases of shoulder dystocia) (Rouse et al. 1996).

#### Can big babies cause any other problems?

It is possible that women who give birth to big babies are more likely to have severe **perineal tears** (3<sup>rd</sup> or 4<sup>th</sup> degree). However, research studies have found conflicting results. For example, one large study found no difference in 3<sup>rd</sup> and 4<sup>th</sup> degree perineal tears between women who had big babies and those who had normal size babies (Weissmann-Brenner et al. 2012). In contrast, another study of hospital births in California during 1995-1999 found a higher rate of 4<sup>th</sup> degree tears in big babies who were born vaginally (Stotland et al. 2004). However, 4<sup>th</sup> degree tear rates in this particular study were very high, even among normal weight babies (1.5%), and the authors did not describe how many women had episiotomies, which is a leading cause of 4<sup>th</sup> degree tears.

Overall, the risk of a severe tear (3<sup>rd</sup> or 4<sup>th</sup> degree) is low in most women (anywhere from 0.2% to 0.6%), whether or not you have a big baby (Weissmann-Brenner et al. 2012). Although having a big baby may be a risk factor for severe tears, severe tears are uncommon to begin with, and a big baby is nowhere near as big a risk factor as other things like vacuum and forceps delivery. To put it

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into perspective, having a big baby may increase the risk of a severe tear by 3 times (so if your baseline risk was 0.2%, it would increase to 0.6%), but a vacuum delivery increases the risk by 11 times (from 0.2% to 2.2%), and the use of forceps increases the risk by 39 times (from 0.2% to 7.8%) (Sheiner et al. 2005).



Laura's 3rd baby, born at home, weighed 10 lb 6 oz— a full 2-3 pounds larger than her first two babies! Despite his being so large and having a nuchal hand, Laura did not need any stitches.

Women who give birth to big babies may be at higher risk for **postpartum bleeding (hemorrhage)**. In one large study, researchers found that women who gave birth to babies who weigh more than 9 lbs 15 oz are more likely to have postpartum hemorrhage (1.7%) compared to women who had normal size babies (0.3%) (Weissmann-Brenner et al. 2012). However, it is not clear whether this higher rate of postpartum hemorrhage is due to the big baby itself or the inductions and C-sections that care providers often recommend for a big baby (Fuchs et al. 2013)—as both these procedures can increase the risk of postpartum hemorrhage (Magann et al. 2005).

Some women have said their doctors recommend C-sections for big babies because there is a higher risk of **stillbirth**. However, I was not able to find any research evidence to support this claim—**no evidence suggests a higher risk of stillbirth in big babies of non-diabetic women**. The risk of stillbirth has historically been higher in women with Type I or Type II diabetes. However, in recent years the stillbirth rate for women with Type I or Type II diabetes has drastically declined, due to improvements in how we manage diabetes during pregnancy (Gabbe et al. 2012). As far as gestational diabetes goes, the largest study ever done on gestational diabetes found no **link between gestational diabetes and stillbirth** (Metzger et al. 2008).



Amy, a well-controlled Type I diabetic, had her 3rd son (9 lbs 11 oz) after a lightning fast 25 minute labor.

Perhaps most importantly, when a big baby is suspected, women are more likely to experience a **harmful change** in how their care providers see and manage labor and delivery. This leads to a **higher C-section rate and a higher rate of women inaccurately being told that labor is taking too long or the baby does not “fit.”**

In fact, research has consistently shown that **the care provider’s perception that a baby is big is more harmful than an actual big baby by itself**. In a very important study, researchers what happened to women who were suspected of having a big baby (>8 lbs 13 oz) to what happened to women who were not suspected of having a big baby—but who ended up having one (Sadeh-Mestechkin et al. 2008). The end results were astonishing. Women who were suspected of having a big baby (and actually ended up having one) had a triple in the induction rate; more than triple the C-section rate, and a quadrupling of the maternal complication rate, compared to women who were not suspected of having a big baby but who had one anyways.

**Which is more dangerous: A big baby or a care provider’s suspicion of a big baby?**

	Women were NOT suspected of having a big baby (and actually had one)	Women were suspected of having a big baby (and actually had one)
Induction rate	14%	42%
Cesarean section rate	17%	57%
Maternal complication rate	4%	17%

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Complications were most often due to C-sections and included bleeding (hemorrhage), wound infection, wound separation, fever, and need for antibiotics. There were no differences in shoulder dystocia between the 2 groups. In other words, when a care provider “suspected” a big baby (as compared to not knowing the baby was going to be big), this tripled the C-section rates and made mothers more likely to experience complications, without improving the health of babies (Sadeh-

Mestechkin et al. 2008).

Other researchers have found that when a first-time mom is **incorrectly suspected of having a big baby, that care providers have less patience with labor and are more likely to recommend a C-section** for stalled labor. In this study, researchers followed 340 first-time moms who were all induced at term. They compared the ultrasound estimate of the baby's weight with the actual birth weight. When the ultrasound falsely said the baby was going to weigh more than 15% higher than it ended up weighing, physicians were more than twice as likely to diagnose "stalled labor" and perform a C-section for that reason (35%) than if there was no overestimation of weight (13%) (Blackwell et al. 2009b).



Pilar's baby was born at 41 weeks at home, weighing 10 lbs. Her labor was 12 hours (including 4 hours of pushing). She did not have any ultrasounds during her pregnancy and so they did not suspect a big baby.

Overall, a total of 8 different studies—spanning the years 1992 to 2012—have all shown that it is the suspicion of a big baby—not big babies themselves—that leads to higher induction rates, higher C-section rates, and higher rates of stalled labor (Levine et al. 1992; Weeks et al. 1995; Parry et al. 2000; Weiner et al. 2002; Sadeh-Mestechkin et al. 2008; Blackwell et al. 2009; AW et al. 2010; Little et al. 2012).

So although big babies are at higher risk for some problems, an even bigger problem for some women is the care provider's perception that there is a big baby. **This perception—whether it is true or false—changes the way the care provider behaves, which increases the chance of bad outcomes.** For most women, an ultrasound at the end of pregnancy to estimate the baby's size increases the chance of harm to her, and does not improve the health of the baby. As the title of one research study says, "Big baby?? Better not tell!"

**Assumption #2: We can tell whether a baby will be big at birth.**

**Reality #2: Care providers and ultrasound are equally poor at predicting whether a baby will be big at birth.**

Time and time again, researchers have found that it is very difficult to predict a baby's size before it is born. Although 2 out of 3 U.S. women receive an ultrasound at the end of pregnancy (Declercq et al. 2013) to "estimate the baby's size," ultrasound results are **very unreliable**.

In 2005, researchers looked at all of the studies that had ever been done on ultrasound and estimating the baby's weight at the end of pregnancy. They found 14 studies that looked at ultrasound and its ability to predict that a baby would weigh more than 8 lbs 13 oz. Ultrasound was only accurate 17% to 79% of the time, with most studies showing that the accuracy ("post-test probability") was less than 50%. This means that for every 10 babies that ultrasound predicts will weigh more than 8 pounds, 13 ounces— 5 babies will weigh more than that and the other 5 will weigh less (Chauhan et al. 2005).



Ashley was pressured into an induction. Doctors suspected an 11 lb baby, but she ended up weighing only 7 lbs 1 oz.

Ultrasound is even worse at trying to predict babies who will be born weighing 9 pounds 15 ounces or greater. In 5 studies that were done, the accuracy of ultrasounds to predict extra-large babies was only 20-30%. This means that for every 10 babies the ultrasound identified as weighing more than 9 pounds 15 ounces, only 2 to 3 babies actually weighed that much, while the other 7 to 8 babies weighed less (Chauhan et al. 2005).

The researchers found 4 studies that looked at the ability of ultrasound to predict big babies in women with diabetes. The accuracy of these ultrasounds was 61-63%, which means that for every 10 babies of diabetic women who are thought to weigh more than 8 lbs 13 oz, 6 will weigh that much and 4 will weigh less. The ultrasound test probably performs better in diabetic women simply because diabetic women are more likely to have big babies. In other words, it's easier to predict a big baby in someone who is much more likely to have a big baby to begin with.

Care providers are equally inaccurate when it comes to estimating the size of the baby. When a care

provider estimates that a baby is going to weigh more than 8 lb 13 oz, the overall accuracy is only 40-53%. This means that out of all the babies that are thought to weigh more than 8 lbs 13 oz, half will weigh more than 8 lbs 13 oz and half will weigh less. The care provider's accuracy goes up if the woman has diabetes or is post-term, again, because the chance of having a big baby is higher among these women.

**Assumption #3: Induction allows the baby to be born at a smaller weight, which helps avoid shoulder dystocia and reduces the risk of C-section.**

**Reality #3: Although suspected big babies who are induced are born about 3.5 ounces lighter, induction for suspected big baby does not lower the risk of shoulder dystocia, and it may increase the risk of C-section.**

Researchers have consistently found that induction for suspected big babies does not improve the health of moms or babies. In a 2009 Cochrane review, researchers ([Irion and Boulvain 2009](#)) combined 3 studies in which 372 women with suspected big babies were randomly assigned to either 1) induction or 2) waiting for normal labor. When researchers compared the induction group to the normal labor group, they found no differences in C-section rates or shoulder dystocia rates. The researchers did not look at neonatal ICU admissions, Apgar scores, death rates, perineal tears, mothers' satisfaction with care, or any long-term outcomes.



Julie was told through her entire pregnancy that she was having a big baby. She was induced after an ultrasound at 40 weeks 3 days because he was "big" and ended up with a C-section after a cascade of interventions and more threats about my baby being "too big." He was 7lbs 10oz and 19.5 inches long, and spent the first three days of his life in an incubator because he wasn't ready to be born.

Because [Gonen \(1997\)](#) was the largest study included in the Cochrane review, let's take a closer look at it. In this study, women were included if they were at least 38 weeks, had a suspected big baby (8 lbs 13 oz to 9 lbs 15 oz), did not have gestational diabetes, and had not had a previous C-section. Less than half the women were first-time moms. Women were randomly assigned (like flipping a coin) to either immediate induction with oxytocin (sometimes with cervical ripening) or waiting for normal labor.

The results? Women in the normal labor group went into labor about 5 days later than women who were immediately induced. Although women in the normal labor group tended to have slightly bigger babies (on average 3.5 ounces or 99 grams heavier), there was no difference in shoulder dystocia or C-section rates. All 11 cases of shoulder dystocia were easily managed without any nerve damage or trauma. Two infants in the normal labor group had mild brachial plexus injury—but neither of these 2 infants had shoulder dystocia, and both injuries were only temporary.

Finally, researchers found that the ultrasound overestimated the baby's weight 70% of the time and under-estimated the baby's weight 28% of the time.

In summary, the researchers found that: 1) ultrasound estimation of weight was inaccurate, 2) shoulder dystocia and nerve injury were unpredictable, and 3) induction for big baby did not decrease the C-section rate or the risk of shoulder dystocia.

Although the randomized, controlled trials on induction for big baby found that induction did not hurt or help moms or babies, the overall number of women enrolled in those studies was small (less than 400 women). So it is helpful for us to look at observational studies, in which researchers followed large numbers of women with suspected big babies to see what happened.

In 2002, researchers combined the results of 9 observational studies that compared women who were induced for big baby and women who went into normal labor on their own ([Sanchez-Ramos et al. 2002](#)). **Women who went into normal labor had a lower C-section rate (8% vs. 17%), a higher spontaneous vaginal birth rate (83% vs. 73%), and the same shoulder dystocia rate when they were compared to women who were induced.** In other words, induction for suspected big baby increased the C-section rate and did not lower the shoulder dystocia rate.

There may be a couple of reasons why the observational studies found a higher C-section rate with induction, when the randomized, controlled trials did not. First of all, the number of women was much larger in the observational studies, which makes it easier to tell a difference in C-section rates. Second, women in the observational studies who were induced may have had other medical

problems that made them more likely to end up with C-sections. Third, there were more first-time moms in the observational studies—and these moms would be more likely to end up a C-section if they are induced.

**Assumption #4: Elective C-sections for big baby has benefits that outweigh the potential harms.**

**Reality #4: Among women who are not diabetic, it would take nearly 3,700 unnecessary C-sections to prevent one baby from having a permanent nerve injury due to shoulder dystocia. If care providers recommend an elective C-section for extra big babies (>9 lbs 15 oz), for every 3 cases of permanent nerve injury that they would prevent, there would be 1 extra maternal death.**

Although some care providers will recommend an induction for a big baby, many skip this step and go straight to recommending an elective Cesarean. However, **no studies have ever shown that a policy of elective Cesareans for big babies improves the health of moms and babies.** On the contrary, researchers have estimated that this type of approach is extremely expensive and that it would take thousands of unnecessary C-sections to prevent one case of permanent nerve injury.



Jillian's 1st baby experienced a brief shoulder dystocia and so she was talked into a C-section with her second baby because the doctors were afraid of another shoulder dystocia. Her 3rd baby (pictured here) was induced 1 week early because they thought she was 11 lbs. Jillian ended up having a successful VBAC with a 7 lbs 12 oz baby— and no shoulder dystocia.

In 1996, a **very important study** published in the Journal of the American Medical Association found that a policy of elective C-sections for all big babies was not cost-effective and that there were more potential harms than potential benefits (Rouse et al. 1996).

In this study, the researchers calculated the potential effects of 3 different types of policies:

1. No routine ultrasounds to estimate the baby's size
2. Routine ultrasounds and elective C-section for babies weighing 8 lbs 13 oz or more
3. Routine ultrasounds and elective C-section for babies weighing 9 lbs 15 oz or more.

The researchers looked at the results separately for diabetic and non-diabetic women.

The results? Among non-diabetic women, a policy of elective C-sections for all suspected big babies over 8 lbs, 13 oz puts a large number of women and babies at risk of expensive and unnecessary surgeries. In order to prevent 1 permanent nerve injury, 2,345 women would have unnecessary C-sections at a cost of \$4.9 million dollars per injury prevented (costs were estimated using year 1995 dollars).

With a policy of elective C-sections for all suspected big babies over 9 lbs 15 oz, even more women would have unnecessary surgery. In order to prevent 1 permanent nerve injury, 3,695 women would need to undergo unnecessary C-sections at a cost of \$8.7 million per injury prevented.

The authors estimated that **for every 3.2 permanent nerve injuries prevented, there would be 1 maternal death due to the increased risk of death associated with C-sections.** Other possible harms associated with the elective C-section policy include higher rates of serious maternal infections, blood clot disorders, bleeding (hemorrhage) that requires blood transfusions, and newborn breathing problems.

Among diabetic women, the results were different—mostly because ultrasound is slightly more reliable at predicting big babies in women who are diabetic, and because shoulder dystocia is more common in these women as well. If diabetic women were offered an elective C-section for every baby that is suspected of weighing more than 8 pounds 13 ounces, it would take 489 unnecessary surgeries to prevent one case of



After an ultrasound "confirmed" her baby was

permanent nerve damage. This would cost \$930,000 per injury avoided. If diabetic women had an elective C-section when their babies were suspected of being 9 pounds 15 ounces or greater, it would take 443 unnecessary surgeries to prevent one case of permanent nerve injury, at a cost of \$880,000 per injury avoided.

large, Heidi was told she must schedule a C-section for her second baby (she wanted a vaginal birth after Cesarean). She gave birth vaginally after pushing for 1 hour and 15 minutes.

In summary, evidence does not support elective C-sections for all suspected big babies, especially among non-diabetic women. There have been no randomized, controlled trials testing this intervention. It is likely that for most non-diabetic women, the potential harms of an elective C-section for a big baby outweigh the potential benefits.

In fact, **non-diabetic women may be given inaccurate information if their care providers present elective C-section as a completely “safe” or “safer” option than vaginal birth for a suspected big baby**, when in fact Cesarean surgery carries much potential harm for the mom, infant, and children born in future pregnancies. To read more about the potential benefits and harms of C-section versus vaginal birth, you may want to read:

- ▶ “Why Cesareans are a BIG DEAL to you, your wife, and your daughter” from [VBACFacts.com](#)
- ▶ “C-sections: Best Evidence” from [ChildbirthConnection.org](#)

**What is the bottom line? In summary, for non-diabetic moms:**

- ▶ Ultrasounds and care providers are equally inaccurate at predicting whether or not a baby will be big. If an ultrasound or a care provider predicts a big baby, they will be wrong half the time.
- ▶ If a care provider thinks that you are going to have a big baby, this thought is more harmful than the actual big baby itself
  - ▶ The suspicion of a big baby leads many care providers to manage a woman’s care in a way that triples her risk of C-section and quadruples the risk of complications.
  - ▶ Because of this “suspicion problem,” ultrasounds to estimate a baby’s weight probably do more harm than good in most women.
- ▶ Induction for big baby does not lower the risk of shoulder dystocia and may increase the risk of C-section, especially in first-time moms
- ▶ A policy of elective C-sections for big babies likely does more harm than good for most women
  - ▶ It would take nearly 3,700 elective C-sections to prevent one permanent case of nerve injury in babies who are suspected of weighing more than 9 pounds 15 ounces
  - ▶ For every 3 permanent nerve injuries that are prevented, there will be 1 maternal death due to the elective C-sections



Jill says, “My first baby was 8 days late, and was 11lbs & 23.5”. My second baby was also 8 days late, and was 9lbs3oz and 21.5”. Both were natural, unmedicated hospital births.”

**For diabetic moms and moms with gestational diabetes:**

- ▶ Ultrasounds are slightly more accurate at predicting a big baby, but only because these moms are at higher risk of having a big baby to begin with
- ▶ Elective C-sections may be more cost-effective in women who have Type I or Type II diabetes
- ▶ Treatment for gestational diabetes drastically lowers the chance of having a big baby and shoulder dystocia
- ▶ For information specifically on induction with gestational diabetes, read this article:

**Did you like this article? Then you may like to read...**

[Gestational diabetes and the glucoala test](#) (Click [here](#))

[Does gestational diabetes always mean a big baby and an induction?](#) (Click [here](#))

[What is the evidence for erythromycin eye ointment in newborns?](#) (Click [here](#))

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*Thank you to my 2 regular physician reviewers and to Amy Romano, MSN, CNM, Co-author of [Optimal Care in Childbirth: The Case for a Physiologic Approach](#), for their feedback on this blog post. Thank you also to my readers for contributing photos of their big (and not so big), beautiful babies! I didn't have room to include all the photos, but check back soon for a Facebook album with everyone's photos and stories.*

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### 33 Comments



**Ginger Bisharat**

June 5, 2013

My first child was 37 weeks (only two weeks ahead of his due date, but they retrospectively adjusted it once they were able to evaluate him in person) and came in at 7lbs 15.6 oz – just shy of 8 pounds. His brother was 41+ weeks and just shy of 10 pounds at 9lbs 15.4 oz.

Both births were completely natural, out-of-hospital, and virtually uneventful. My midwife never suggested that my babies might be "too big." Granted, I am 5'11" and about 160lbs, but I think her expectations are just more in line with reality than what a lot of medical professionals seem to believe.

Just had to share since apparently we were further off the charts than I thought!



**Noriko Utsuzawa**

June 6, 2013

Thanks for a great research. It was surprising to see such a big difference (more than 3lbs) between the doc's estimate and actual birth weight.



**Shona**

*June 6, 2013*

My doctors told me my little guy was going to be about 11 to 11.5 pound and we decided to do a C-section he was born 1 day before his due date and was 12lbs 3 ozs, I had a quick recovery and a flawless pregnancy.



**Kristyn**

*June 6, 2013*

My story is a little different. With my first, they told me she was small and I had tons of NST's to go to. They said she was about 6lbs and they were concerned about her growth... My munchkin came out at 8lbs and was perfectly healthy.



**Wendy Staas**

*June 6, 2013*

Thank you so much for this research. It is too often that my doula-momma's are being told they are having big babies. . . it breaks my heart. I know they do not need to be induced, but they find it tough to challenge the system. This evidence would be great for them to take to their doctors. Your doing such great work!! Blessings!!



**karla**

*June 7, 2013*

Do u hve any info on estimated "small" babies? Im 28 wks and doctors say hes small in ths 38th percentile. Measuring 5 days later then EDD. They r also telling me that he might be premature. Due to low ms pap a in blood.



**Captain Obvious**

*June 7, 2013*

"Your body won't produce a baby that is too big for you to deliver"

\$33,351,934 reasons why a doctor might consider offering an elective cesarean. These are only one year's OBG Management Medical Verdict worthy cases. There are more that are just not published, this is not just a rare event parents and babies have do worry about.

- 1) WHEN SHOULDER DYSTOCIA WAS ENCOUNTERED  
VERDICT A \$5.5 million Iowa verdict was returned.
- 2) ERB'S PALSY AFTER SHOULDER DYSTOCIA  
VERDICT A \$1.34 million New Jersey verdict was returned.
- 3) FORCEPS DELIVERY INJURES MOTHER'S PELVIC FLOOR  
VERDICT A \$1,716,469 Illinois verdict was returned, which included \$484,000 to the patient's husband for loss of consortium.
- 4) LARGE BABY WITH CERVICAL SPINE INJURY  
VERDICT A confidential Texas settlement was reached.
- 5) DID OB'S ERRORS CAUSE THIS CHILD'S INJURIES?  
VERDICT A \$1,314,600 Iowa verdict was returned.
- 6) 12 LB, 7 OZ BABY, BRACHIAL PLEXUS INJURY

VERDICT A \$1,174,365 Ohio verdict was returned.

7) EXCESSIVE TRACTION BLAMED FOR NERVE INJURY  
VERDICT An Illinois defense verdict was returned.

8) BRACHIAL PLEXUS INJURY AFTER SHOULDER DYSTOCIA  
VERDICT A \$72,500 Texas settlement was reached.

9) ZAVANELLI MANEUVER; BRACHIAL PLEXUS INJURY  
VERDICT A Georgia defense verdict was returned.

10) Pelvic injury from the McRoberts maneuver?  
VERDICT A \$5.5 million New York verdict was returned.

11) 1. Severe birth asphyxia: cerebral palsy and seizures  
Verdict: The insurance company ultimately paid \$10.15 million.

12) 4. Shoulder dystocia, uterine tachysystole complicate vaginal delivery  
VERDICT A \$3.55 million Idaho verdict was returned.

13) CHILD'S ARM PARALYZED DESPITE MOTHER'S EXPRESSED CONCERN  
VERDICT A \$1.6 million Ohio verdict was returned against the ObGyn group.

14) MIDWIFE "PULLED TOO HARD"; CHILD INJURED  
VERDICT A \$950,000 North Carolina verdict was returned.

4 Ps necessary for successful vaginal birth  
Passageway: pelvises can be gynecoid, android, platypelloid, anthropoid. Pelvises can have narrow arches, sharp ischial spines, flat sacrum. Obesity can obstruct the birth canal with fat.

Passenger: size of baby. Head circumference. Abdominal circumference. HC/AC ratio especially with diabetics. If AC much greater than shoulder dystocia risk increases. Compound head presentations.

Position: OP babies are more difficult to deliver. More rare are face and brow.

Power:

?Previous birth experience: how bad did you tear, history of big baby, history of dystocia. Etc



**Rebecca**

*June 9, 2013*

Hi Captain Obvious,  
I don't know where you took that quote from at the top of your comment, because I certainly did not say that in my article. You are right that brachial plexus injury (although very rare) is often used as a reason for a lawsuit. Having a close family member who defends doctors and nurses from brachial plexus injury lawsuits, I am very aware of this problem, but I chose not to focus on this for several reasons:  
1) This blog is called evidence-based birth. I believe that women should have free and easy access to fact-based information that they can discuss with their care providers. I do not intend to focus on the liability reasons why a woman should choose certain courses of action, because these particular liability reasons may be beneficial to her care provider, but they are not always evidence-based or helpful to women. Instead, I choose to write about EVIDENCE-BASED PRACTICE. That is the gold standard of medical care. Liability-based practice does exist, but that would be a different topic for an entirely different blog. I understand that in today's day and age it is a reality that some (many?) care providers may be making recommendations to protect primarily themselves. But if that is the case, then ethically, this should be disclosed during the consent process. But can you imagine care providers doing this? "I recommend (or you 'must have') an elective C-section solely to protect

myself in the event of a lawsuit. Technically, though, you will most likely be one of the nearly 3,900 women who has an unnecessary C-section to prevent 1 injury, and this elective surgery puts you at higher risk for a whole series of complications. But still, you must have an elective C-section for this suspected big baby.”

2) Cesareans do not eliminate the risk of brachial plexus injury. In fact, 1 out of 3 cases of brachial plexus injury occur during Cesarean surgery. It is interesting that obstetricians set up elective C-sections as a way to prevent all brachial plexus injuries when these injuries can still happen despite the surgery, and the potential for other harmful injuries can occur instead (such as major wound dehiscence or the need for emergency hysterectomy.) The truth is, each course of action presents a series of potential benefits and harms, and each mom has the right to accurate information so that she can make the final decision that is right for her. Birth is unpredictable, and things can go wrong in vaginal and Cesarean births.

3) These lawsuits that you pulled up are not considered research evidence. In fact, lawsuits do not even fall into any of the categories of levels of evidence (as written by the authors at JAMA <http://jamaevidence.com/resource/520>). Since I focus on evidence-based medicine, I choose not to use random lawsuit reports (which are not systematic sources of evidence) as evidence for blog articles.

4) If anyone would like to read more about what is wrong with our liability system and some suggestions for change, here is a good report. Again, talking about liability reasons for maternity care decision-making is really outside the scope of this blog, since I choose to write about evidence-based medicine.

<http://transform.childbirthconnection.org/reports/liability/>

Finally, please remember to review and abide by the comments policy. Making broad sweeping “factual” claims such as “brachial plexus injury is NOT a rare event” and then backing it up with message boards or lists of lawsuits does not meet the comments policy. Future comments from you that do not meet the comments policy will be deleted. Since you have violated this policy before, this will be your final warning.



**Captain Obvious**

*June 8, 2013*

” If diabetic women were offered an elective C-section for every baby that is suspected of weighing more than 8 pounds 13 ounces, it would take 489 unnecessary surgeries to prevent one case of permanent nerve damage. This would cost \$930,000 per injury avoided. If diabetic women had an elective C-section when their babies were suspected of being 9 pounds 15 ounces or greater, it would take 443 unnecessary surgeries to prevent one case of permanent nerve injury, at a cost of \$880,000 per injury avoided.”

But as you can see from several lawsuits per year, that one legal case of birth injury cost much much more than all those needed cesareans to prevent that one case of brachial plexus injury.



**Captain Obvious**

*June 9, 2013*

Thank you for allowing my “legal” reality comment to stand. I mean, one must consider what medical malpractice coverage will consider evidence based medicine in court. If one lawsuit will be allowed to goto court and have a plaintiff decision for \$10 million, you can bet this will influence medical decisions and even parental decisions. It is a fact of life regardless of the evidence. It is what happens every day. These rare events you speak of are not that rare. These are 14 cases in one year in one journal. By no means are these the only cases out there. Much of your article is good. I enjoy reading it. Regarding episiotomy and obstetrical anal sphintor injuries (OASIS).

## Episiotomy

Study done in the Netherlands with 2861 women...

The effect of a mediolateral epis during operative vaginal delivery on the risk of developing obstetrical anal sphincter injuries (OASIS), Vogel et al. Am J of Ob & GYN, May 2012, 404.e1-404e5  
Found a 6-fold decrease odds for developing OASIS when mediolateral episiotomy was performed in OVD. In MLE+ group was 3.5%, in MLE- group was 15.6%.

Pelvic Floor Disorders After Vaginal Birth. Effect of episiotomy, perineal laceration, and operative birth. Obstetrics and Gynecology. Vol. 119, No. 2, Part 1, February 2012. Pages 223-238.  
“Forceps deliveries and perineal lacerations, but not episiotomies, we’re associated with pelvic floor disorders 5-10 years after a first delivery.”

Episiotomy Parameters Linked to Risk for Injury During Birth  
Emma Hitt, PhD

March 8, 2012 — Increased depth and length of episiotomy, as well as increased distance from the midline to incision point, are associated with decreased risk for obstetric anal sphincter injuries (OASIS), according to a new study.

Mona Stedenfeldt, a PhD candidate at the University of Tromsø in Norway, and colleagues reported their findings in an article published online March 6 in the British Journal of Obstetrics and Gynaecology.

According to the researchers, OASIS are the most common causes of anal incontinence in women. Episiotomy is carried out in roughly 12% to 15% of deliveries and helps minimize the risk for these types of injuries.

According to the researchers, “[e]pisiotomy technique is a modifiable procedure, and it is therefore important to make note of the parameters referred to in this study.” They conclude, “Taking these into consideration and accommodating them into practice can potentially lead to a reduction in OASIS.”

BJOG. Published online March 6, 2012. Abstract



### Rebecca

June 11, 2013

Again, this post is about evidence-based medicine. The cost-effective analysis was done considering the insurance/payor costs and costs of maternal/fetal complications, but it did not include lawsuits. It would be interesting to see a cost-effectiveness analysis that includes this, but ideally it would be best if we saw liability reforms such as those I already linked to. But again, the purpose of this blog is to talk about what is best for women— not about what is best for the legal interests of physicians. Also, I am surprised to see several of you defending liberal use of episiotomy, when by far the bulk of the research over the past years has shown that it does more harm than good.



### Michelle E

June 10, 2013

My baby was 11 pounds, 11 ounces. No meds. No interventions. Had her at a birth center, in a nice tub. I had some internal tearing, but nothing that a few stitches couldn't fix. I know many that had worse with smaller babies. I did not have GD, I was not forced to have an ultrasound to 'see how big she was.'

My mom was 12 pounds at birth.. we just have big babies, and we made it through!



**Tara**

*June 10, 2013*

Thank you so much for sharing this! My first baby was 9 lbs 13, second was 8 lbs 1, and my OB with this third one is already pressuring me about having a big baby this time around. I'm only 27 weeks, but she is insisting on another ultrasound to check his size. I'm anticipating that she will want to go the c-section route, so it is nice to have this as a reference.



**Cristen**

*June 11, 2013*

Rebecca, thank you for providing this information to women so that we can make more informed decisions! I don't know how many women I've heard express regret and grief that they agreed to interventions in a healthy pregnancy based on a provider's suspicion of "big baby" that turned out to be unfounded. I'd also say that as a mother, my #1 concern is my safety and my baby's safety—not anyone else's liability. Interestingly, I wonder if we practiced more evidence-based care, if some of that liability might be mitigated? Seems logical to me. Likewise with supporting women in their own decisions. I'd certainly be much less likely to sue anyone if the decision had been my own and not forced upon me or based on inaccurate, outdated information from a healthcare professional.



**Jennifer "Momma Trauma"**

*June 11, 2013*

Rebecca,

Thank you for this well laid out and researched article. I love that I can send moms to your page knowing they can safely find an article on a situation, print it out and pass it along to their doctor when the time comes. Even with disapproving sides all around, articles such as these get us thinking about our care and that maybe we shouldn't follow folks blindly and instead do our own research so that WE can make our own informed decisions regarding our healthcare. I'll tell ya a story:

Our son was born with a shoulder dystocia, for which the doctor broke his collarbone in order to get him out of me. No more than 1/2 hour had passed when my delivering OB/GYN came to my room to kindly let me know that any future babies I had would "have" to be via cesarean delivery because my pelvis was just too small for my "big baby." I grew "birthin' hips" early-on after puberty. At first, I laughed her off. Oh yes, I broke my baby. But then, I learned that his dystocia was medically-induced by the cascade of interventions. It was a healthy pregnancy. A few hours after arriving in labor, I was given Pitocin and told to lay on my back with fetal monitors attached. I had an IV drip of water, which the nurses also slipped medication in without my knowledge. This caused my body to birth our son before it was entirely ready, so he was stuck. And instead of using maneuvers such as the Gaskins maneuver and flipping me on all fours, they first wanted to push him back in to deliver via c-section. But ultimately, broke his collarbone for removal.

Medically induced. When we had our second, the office pushed me for c-section dates at EVERY prenatal because she was clocking in at a whopping 8 lbs via ultrasound (She was only 7 lbs and some change). Finally, I asked the head OB when I had him for an appointment what went wrong for that first birth, why didn't they flip me over? He said he was the only doctor (out of at least 10!) in his practice who even KNEW about that maneuver. He was rather shocked I knew about it myself. I finally got the confirmation I needed when I was in labor with our second child and the doctor

blurled to the nurses that I had a previously “medically-induced” shoulder dystocia. All over “big babies.” Our second was birthed naturally because I had done my research and hired a doula.

Momma’s: Take note! Do your research, stand up for yourselves. This is YOUR life and future and that of your child’s. NOT that of your doctor’s.



**Mama**

*June 11, 2013*

Dear Rebecca,  
Thanks so much for writing your eloquent, well researched, accurate article.

I recently gave birth in the water, at home to 10 lbs 4 oz beautiful baby born in his due date.

Please disregard these ‘haters’ above! I am too busy to analyze their ignorance, but obviously they have lots of time on their hands.



**Mandi**

*June 11, 2013*

Thank you for this thorough review!!! This information is well presented and will be extremely useful for so many. This work is a wonderful (and much needed) resource for women and families to have as they seek to make informed decisions about their care.

Thank you for your continued commitment to put evidence-based care practices into language that everyone can understand.



**Lucinda**

*June 11, 2013*

Rebecca,

Thank you for your work and research informing moms of evidence based care. I really enjoyed the debates in the comments and how you stood up for yourself and your research. Well done! I have ideas of who one of the partys are from other blogs and you handled yourself in a very professional and respectful manner. Keep up the good work!



**Jeanette McCulloch**

*June 11, 2013*

Thanks as always for this important source of evidence-based information for families. This critical source of unbiased, accurate information is so appreciated!



**Wendy Gordon, CPM, LM, MPH**

*June 11, 2013*

Rebecca, thanks for an incredibly thorough review of the evidence on this issue. As with most issues, the research is rarely crystal clear because different research designs and protocols can yield different results. One can almost always find at least one study that concludes on one side of the issue, and another study with

conclusions on the other side. Sometimes you even get researchers who draw conclusions in opposition to what their own data says. It is up to the reader to be able to distinguish the finer points of methodology and pull out what can reasonably be concluded from the overall body of literature. That involves actually reading entire studies (not just the abstracts, or some media sound bites about it) and critically analyzing them, which not many people have the skill or time to do. I really appreciate what you offer on this blog; thanks for advocating for mothers and babies with evidence!



**candice**

*June 11, 2013*

You know I had exactly the same problem as this except they thought my baby was going to be too small. Certain doctors wanted me to have a c-section or induction because they were worried that my baby wouldn't survive labour. I had to fight so hard to avoid intervention and in the end settled for a stretch and sweep to bring on labour. Thank goodness it all went well and baby was born naturally with no drugs in 5 hours. But they predicted that her weight would be 2.4kg or 2.3 kg (not sure what this in pounds). but she ended up being 2.89kg (6pound 5ounces) absolutely fine and healthy. I had over 8 ultrasounds to determine her weight and they were soo wrong! Do you know if there are any articles similar to this one, but on small babies?? I definitely agree that the ultrasounds did nothing but make me worry more. And everything, absolutely everything else was showing that the baby was healthy. In the end I was lucky that I was well enough informed to fight against intervention!



**Rose Russell**

*June 12, 2013*

Im so happy that this is available. Thank you for this. After having 3 big babies, 9p 13ou, 10p 6ou and 10p 9ou, with never having so much as a single tear or any intervention whats so ever and no labour going over 10 hours. I know first hand it is possible to birth without fearing the size of your baby.

I am personally so proud and happy with my big bubs and my ability to birth them so easily. So why shouldnt any body else be.

This is a great resource for expectant mums that are played with the "big baby" card.



**Claire**

*June 12, 2013*

Hi, thank you for this post! I am a midwifery student and currently have two clients with histories of shoulder dystocia. One woman's child had no negative sequelae and the other woman's child had a brachial plexus nerve injury that was largely (but not completely) resolved through physical therapy. In trying to learn how to counsel these women on the risks and benefits of c-section, induction, or a non-interventive approach for their current pregnancies, I have not found helpful information specifically about women with a history of shoulder dystocia. I have seen estimates of recurrence risk for a second shoulder dysotica (18%?), but not those that take estimated birthweight into account or previous negative neonatal outcomes. Could you suggest which resources I might turn to in order to assess these women's and their soon-to-be newborn's risks? Would my client who had a child with brachial plexus injury be at higher risk for a second child with brachial plexus injury, and what would that risk be? Would it be higher than a woman who had a history of shoulder

dystocia but no brachial plexus injury?

Thanks very much in advance for any insight you have to share!

Claire



**Rebecca**

*June 13, 2013*

\*\*\*Admin note\*\*\*

I have had serious issues with a commenter who left 7 comments on this blog post. This commenter was not here to engage in meaningful discussion, but instead was trying to dominate the comments section to meet her own agenda, and becoming more hostile in her tone. After allowing these 7 comments to be posted, I asked her to please engage elsewhere.

After this request, the commenter continued to harass me with multiple, frequent and often disparaging and disrespectful messages, which I chose not to publish.

I cannot allow someone who repeatedly violates the comments policy to post comments here. Thus I have made the decision to remove all of this commenter's prior comments, as well the future comments of another commenter who violated the comments policy more than once in the past. All future comments from these 2 people will be automatically marked as spam.

To remind everyone of the Evidence Based Birth comments policy:

"I welcome the opinions, questions, and feedback of anyone and everyone. I must, however, have some guidelines in order to keep the discussion civil and productive. I strive to maintain a high quality of discourse and factual information here; if a discussion or a particular commenter continually swerves away from that, I respectfully ask that you engage elsewhere. This includes personal attacks, profanity, unsubstantiated/false claims, and opinion stated as fact with the intent of swaying the discussion.

The tone of comments must remain pleasant and civil in order to be published— a negative, disparaging, or accusing tone will not merit publication. As in my university classroom, I will give a warning, and I then reserve the right to prevent comments from being published on my site."



**Becky**

*June 15, 2013*

Do you have a comment on why the latest Cochrane review seems to give a slightly different picture? No benefits found, but the studies were too small, but there also isn't an increased cesarean rate.

<http://summaries.cochrane.org/CD000938/induction-of-labour-for-suspected-fetal-macrosomia>



**Rebecca**

*June 16, 2013*

Yes! I covered this in the article above, in the induction section. Look for the paragraph about why the randomized, controlled trials did not find an increase in Cesareans but observational studies did



**Becky**

June 17, 2013

Yeah, I read a bit more carefully after I posted this, and felt a bit dumb.

I think suspicions of macrosomia put doctors in a difficult place — macrosomia is associated with increased rates of adverse outcomes, but there simply nothing a doctor can do about it, for the reasons you describe here.

I did think the Melamed et. al study was interesting, since it found that not only a false diagnosis of macrosomia had negative consequences, but also that a missed diagnosis of macrosomia does as well: "Failure to detect macrosomia was associated with higher rates of perineal trauma, 5-minute Apgar scores less than 7, and neonatal trauma, mostly related to the higher rate of surgical vaginal deliveries."

This seems to suggest that if more accurate weight prediction were achieved, that there might be some benefits to intervention for macrosomia. We're definitely not there, now.



**Becky**

June 15, 2013

Also, I've seen in the stillbirth and macrosomia risk repeatedly in the literature, but perhaps they don't control for GD? For instance, this is the most recent example:

<http://www.nature.com/jp/journal/v32/n11/abs/jp201260a.html>

This notes a link

<http://onlinelibrary.wiley.com/doi/10.1002/ajmg.a.35578/abstract;jsessionid=48C2332476388865D72AC37DBC367D8B.d02t01?deniedAccessCustomisedMessage=&userIsAuthenticated=false>

As does this: [http://www.ajog.org/article/S0002-9378\(07\)02270-3/abstract](http://www.ajog.org/article/S0002-9378(07)02270-3/abstract)

This Medscape article also notes an increased risk of stillbirth and says it is irrespective of diabetes, and provides some references: <http://emedicine.medscape.com/article/262679-overview#a0199>



**Rebecca**

June 16, 2013

I have some thoughts on these articles, whichi can share in a little bit!



**Becky**

June 17, 2013

Thank you, I would like to hear your thoughts. These studies didn't seem consistent with your claim that there was no evidence that macrosomia was linked to higher stillbirth risk, and I'd frequently seen this claim, so it made me wonder. I can see ways to explain this link, though — such as macrosomia is linked with later gestational age/post dates pregnancies and so is a higher risk of stillbirth.



**Rebecca**

June 23, 2013

Hi Becky, I finally had time to sit down and read the articles that you sent me the links to. Yes, you are correct—the main problem with the claim that “big babies have higher rates of stillbirth” is that most researchers do not take diabetes or other factors into account. This problem is called “confounding. Confounding means that a condition by

itself isn't a cause of stillbirth, but something else that is related to that condition is. For example, researchers have consistently failed to account for Type I or Type II diabetes, which is a known risk factor for stillbirth, and women who are diabetic are more likely to have big babies.

In the first link you sent me (Ray and Urquia, 2012), they looked at more than 767,000 births in Canada using birth certificate records. Unfortunately, birth certificates are notorious for having inaccurate information, particularly about diabetes and gestational diabetes. So it would be impossible to say that there is a direct causal link between big babies and stillbirth from that data set.

In the second link, the researchers looked at 2,600 stillbirths in Wisconsin that happened since 1993. There were more big babies in those 2,600 stillbirths than they would have expected. However, many of these big baby cases were stillbirths before 25 weeks (babies weighed >97th percentile for the expected weight) which wouldn't apply to most full-term women who are told they have a "big baby." Also, if you look at the cause of stillbirth in the big babies you will see that most babies weren't "overgrown," but instead they had some kind of anomaly or fatal condition that led to an accumulation of fluid (like hydrops) or tissue (like tumors or enlarged organs), which made their size bigger. In other words, it wasn't the general problem of being a "big baby" that led to the death, but almost all of these infants had some other underlying problem (example: genetic defect) that caused their weight to be higher. This study is a great example of why you can't just look at a big data set of birth certificate data and say "big babies have higher rates of stillbirth" because you can't figure out if there were any other problems that caused the deaths (like maternal diabetes or hydrops). In other words, it wasn't the bigness that led to the stillbirth, but the fatal condition (a confounder) that caused the bigness. Does this make sense?

In link 3, we have the same problem as link #1. In this study (Mulik 2003), they used birth certificate data to look at 5.9 million U.S. births. Yes, rates of stillbirth were higher in babies that weighed more than 4,500 grams (although the overall risk of stillbirth was very, very low for all infants), but there was no way for the researchers to accurately measure things like maternal diabetes and other underlying problems that could have caused this link. One big limitation of this study is they did not know the mother's body mass index either pre-pregnancy or during pregnancy. Another issue is that they didn't know how the care providers managed the births of these big babies. It could be that some care providers were suspicious of a big baby beforehand, which could have led to an early elective induction or Cesarean, or higher rates of instrumental delivery which may have led to higher (or lower) rates of health problems in these babies... who knows? With this kind of data set, you have large numbers, but very little detail (and very little reliable information) about what was actually going on in these moms and babies.

The Medscape article claimed that big babies are at higher risk for stillbirth, and the main reference that they used (Mondestin 2002) to support their claim were birth certificate data (again!) which I have already talked about... we cannot come to this conclusion using birth certificate data. Birth certificate data do not accurately tell us which mothers are diabetic and which are not, and they don't give us other important details. We cannot say "big babies = higher rates of stillbirth" without looking at diabetes, obesity, genetic issues, etc. Because it may be that it is really "maternal diabetes was more common in big babies but diabetic issues- not general bigness- was the cause of death."

In the other link that the Medscape article referenced (Mulik et al), there were actually no deaths at all in the big baby groups.

I have yet to find a study that says that big babies by themselves (not genetic issues and not diabetes or other risk factors) are the cause of higher rates of stillbirth. Every study that I have seen has had this huge flaw- they haven't looked at confounders like diabetes. Which is why I stated in this blog article that there is no evidence showing that big babies by themselves are at higher risk for stillbirth. I double-checked with several research experts in the area before I published, and they

confirmed this– that so far there is no evidence to support that statement.

Thanks for sending me these links, I appreciate it!

Sincerely,  
Rebecca



**Rebecca**

*June 11, 2013*

\*\*\*ADMIN NOTE\*\*\*

Dear Expat,

It is quite clear that you obviously have an agenda and you are not here to engage in meaningful discussion– your mind is already made up. I cannot allow you to continue to dominate the discussion here. I am going to respectfully ask you to go engage elsewhere now.

Sincerely,  
Rebecca



**Rebecca**

*June 11, 2013*

Dear expat, it may be easy for you to go “cherry pick” statistics that support your claims, but it is obvious that you have not read these studies yourself to determine whether this information you are presenting is valid.

The authors in the JAMA study based their “conservative” estimate of an excess mortality of 13.5 deaths per 100,000 C-sections on many studies, including one that looked at planned Cesarean delivery for women with herpes lesions.

The bulk of the research evidence out there shows that more women appear to die as a result of C-sections (due to surgical complications and other life-threatening complications), but the excess number probably cannot be precisely calculated from the studies out there. However, there is not a “zero difference” in mortality as you claimed. <http://transform.childbirthconnection.org/wp-content/uploads/2013/02/Cesarean-Report.pdf> Read page 15.

“Your numbers differ from mine by a factor of ten. That isn’t so easy to explain away.” You did a random search and found 2 studies (1 of which you only have a link to a news article about) to support your number. I took mine from a peer-reviewed systematic review article published in JAMA by a world-renowned obstetrician and researcher. That’s the best explanation that I can think of off the top of my head as to why our numbers differed.