BALANCING PREGNANCY WITH PRE-EXISTING DIABETES

HEALTHY MOM, HEALTHY BABY

CHERYL ALKON
Balancing Pregnancy with Pre-Existing Diabetes
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Healthy Mom, Healthy Baby

Cheryl Alkon
To Dave and Ethan, my wonderful family, who make everything worthwhile.

To Shanie and Bert, my beloved Mom and Dad, who made everything possible.
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Foreword

“Why do I need to control my blood sugars before I become pregnant?” “What will this high blood sugar do to my baby now that I am pregnant?” “Why do I need to see my eye doctor during pregnancy?” “What can I eat now that I am pregnant?” Cheryl Alkon and her network of women with diabetes offer their stories and advice to help answer these and more questions from a wide variety of perspectives.

This thoughtful and comprehensive book takes you step by step from planning your pregnancy, to that moment when you see the two lines on your home pregnancy test, to meal planning when you have morning sickness, to understanding the recommended obstetric testing, to the fine points of controlling your blood glucose levels during the long haul of pregnancy, labor, and delivery and while you are breast-feeding. Infertility and miscarriage can occur even if you do everything you possibly can, and this book helps you understand why.

The experiences and viewpoints of many women are shared throughout this book. Together, they offer valuable personal and collective knowledge about how to optimize diabetes control and improve outcomes for all women and their babies. They have been there; you may be in the same place as they were at each step but may not yet have found someone with whom to share your perspectives or questions. You may not agree with all of the choices that these women made regarding their diabetes self-management before, during, and after pregnancy, but many approaches and insights are offered, and readers can reflect on these and discuss them with their own health care providers.
Most important is that even if you are highly motivated to control your diabetes for your baby, your diabetes control will never be perfect. You will feel guilt, fear, or sadness about something during your pregnancy. You are not alone, and this book is a great way to connect with other women who have done this before with success. Even if things go well for you in achieving pregnancy and caring for yourself and your baby during pregnancy and after, you may love to hear other patients’ stories about their experiences.

This book is the first practical peer reference for women with pre-conception diabetes to be published.

Florence Brown, MD
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You Can Definitely Do This—and Do It Well

So you want to have a kid, but you already have a nagging, never-ending, highly demanding thing in your life: your diabetes. Like a child, diabetes requires constant maintenance and vigilance to make sure everything’s running as smoothly as possible. Unlike a child, though, diabetes never really takes a nap or hangs out with the babysitter to give you a moment’s peace.

But don’t let that stop you.

Search medical journals or go online and Google “diabetes and pregnancy,” and what you’ll find will likely freak you out. Uncontrolled blood sugars can lead to complications. Early inductions. Premature lungs. Big babies. Small babies. Birth defects.

Your research might make you think it’s a miracle that anyone with diabetes ever had a healthy pregnancy. Is every pregnancy with diabetes problematic? Are the kids of all these moms with diabetes doomed to a lifetime of horrible problems due to bathing in a sweet soup while in utero?

The answer to these questions is no. In talking to dozens of women about all aspects of pregnancy with type 1 and type 2 diabetes, and ultimately managing my own healthy type 1 pregnancy, I’ve learned (and lived) the insider story from those who delivered healthy babies before me. Some women experienced complications, but they’ve shared how they handled those challenges and how any woman with diabetes can adapt to deal with them if they occur.

“There are a lot of women with type 1 diabetes who have been told at some point in their lives that they couldn’t have children,” said Ian
YOU CAN DEFINITELY DO THIS—AND DO IT WELL

Grable, MD, MPH, director of the Center for Maternal and Fetal Health at NorthShore University HealthSystem in the Chicago (Illinois) area. “Many women who have been diabetic a long time were told this by general medicine doctors or family practitioners. In this day and age, while being followed by a maternal/fetal medicine specialist, an obstetrician, and an endocrinologist with an expertise in pregnancy, pregnancy can be safe. A healthy pregnancy, with delivery at or near term, is possible.”

I'm here to share with you what I have learned along the way and to help you manage the sweetness within yourself.
Acknowledgments

Reading is a solitary pursuit, but creating a book sure isn’t. While the writing itself took place in my silent house, the information offered through countless e-mails, phone calls, and faxes from many other people provided a chatty chorus of insight and made this work stronger and more comprehensive.

Blogging has been an integral component of this book, and online communities have supplied most of the voices that fill it. Thank you to everyone who has read, commented on, or linked to my blog, “Managing the Sweetness Within.” Writing and maintaining my blog about my efforts to get and stay pregnant with type 1 diabetes helped me develop a voice for this book, and blog feedback helped convince people that this kind of guide was sorely needed and would be welcomed. Thank you to the more than 100 women who found me, through my blog and other online diabetes resources, and wanted to answer questions about their experiences with diabetes, conception, pregnancy, infertility, pregnancy loss, and parenthood. Space doesn’t allow me to write out all your names, but I am thanking each of you individually in my head.

Many thanks go to Kim Kavin, Laurie Edwards, and Janice Hopkins Tanne, who read early versions of my book proposal and gave priceless advice about how to make it stronger and more marketable. Again, major props to Kim, who proofread every word of the final draft with a fantastic eye for detail. Thank you to Melissa Ford, who sent me her terrific list of potential agents when I was ready to find one of my own. The agent I signed with, Molly Lyons of Joelle Delbourgo Associates, saw this project for what it was and was an
ardent champion without wanting to change its scope or focus significantly. Noreen Henson at Demos Medical Publishing was an enthusiastic editor who also understood what this project was about and continually advocated for it. Molly Morrison and her team at Newgen North America helped polish my prose to make everything crystal clear.

Many doctors and other health professionals lent their expertise to give this book a solid foundation in medicine. My thanks and gratitude go to Ian Grable, Emmy Suhl, Deborah Schlossman, Lonnie Morris, Judith Maloni, Gary Scheiner, John Walsh, Sheri Colberg, Jacqueline Shahar, Michael See, Carol Levy, Stefanie Antunes, Michael J. Haller, Lois Jovanovic, Margaret Franciscus, H.-Michael Dosch, Katy Backes Kozhimannil, and Nanette Santoro.

I couldn’t have had my son without Mary Beth Bahren, Flo Brown, and Tamara Takoudes; likewise, I couldn’t have written this book without them. A huge thank you goes to this fabulous trio of women, who reviewed the book chapter by chapter, answered countless questions, and championed this project every step of the way.

My excellent family and friends have supported this project for many years, from conception to publication. They have cheered me on, from when I first thought about doing a book like this, to writing the proposal, to finding an agent, to commenting on every Facebook update I posted about completed chapters and author photo choices. Thanks too to those who offered to buy my book—even though some of them were neither pregnant nor living with diabetes. Much love and gratitude go to my family, Charlotte and Bert Alkon; Joe, Rebecca, and Jake Alkon; Cynthia Duncan; Susan and Justin Duncan; and Ruth, Brian, Andrew, and Joshua Weiner, and to my posse of diabetic pals, particularly those who contributed to this book, including Abby Nagel, Sasha Boak-Kelly, and Rachel Richer.

For additional fantastic friend support, thanks to Katie Kendall, Alicia Salmoni, Wendy Ross, Michelle Badash, Kara Rice, Karla Armenoff, Tina Giambro, Michelle Wilen, and also to the rest of the Girl Scout crew, the Mah Jong mavens, my New Mom friends, Chaverimers, the New York/Brandeis/Columbia crowd, and my Tri buddies. You all rock.

And finally, none of this would have been possible, or even worth writing about, were it not for my handy and handsome husband, David
ACKNOWLEDGMENTS

Duncan, and our fantastic son, Ethan. They have provided the material for this book, the motivation to continue, and love and support through the late nights, the early mornings, the long months, and the (sometimes) short tempers. It is because of them that this book exists.
The Early Days
Recommendations for Trying to Conceive: If You Can, You’ve Gotta Plan

As a woman with long-term type 1 diabetes, I know this disease intimately. Reading this with type 1? Hi—you are my people. Type 1 is very-much-insulin-dependent, ain't-going-away-with-weight-loss-or-after-the-kid-is-born diabetes. Type 1, despite what much of the mass media or well-meaning but clueless people will tell you, is a separate condition from the far more common type 2 diabetes or gestational diabetes. Type 2 and gestational diabetes get a lot more attention when the generic term “diabetes” is thrown around, but type 1s have many specific experiences and elements that just don’t apply to those other folks. At the same time, to stay within the tight recommended blood sugar ranges before conception and during pregnancy, most if not all type 2 women are told to start taking insulin regularly, to watch (or continue to watch) their food intake strictly, and to juggle exercise with taking insulin. During pregnancy, type 1s and type 2s are dealing with many of the same issues of up-and-down blood sugars, the need to match insulin doses to carbohydrate intake, low blood sugars that require immediate treatment, and so on. Gestationals, on the other hand, don’t even learn about diabetes until they’re halfway through their pregnancies. This book focuses solely on those of us with pre-existing, rather than gestational, diabetes. We’re in it for the long haul.

A quick refresher: type 1 diabetes is an autoimmune disease that occurs when the body doesn’t produce insulin; type 2 diabetes occurs when the body becomes insulin resistant. Insulin is a hormone that helps your body get the most out of food, making sure nutrients get to where they need to go. When a nondiabetic eats, say, a slice of bread,
the pancreas, an organ in the abdomen, automatically secretes precisely the right amount of insulin to convert the bread’s vitamins and minerals into nutrition.

The body with diabetes isn’t so efficient. Some people don’t make any insulin at all (hello, type 1); others have to make do with a compromised amount of insulin, either all the time (welcome, type 2) or only during pregnancy (howdy, gestational). There are also a number of people who don’t fall into these categories, who call themselves a mix between type 1 and type 2 (latent autoimmune diabetes in adults—a mouthful, but hi).

If you’re type 1, you get insulin into your body through injections or an insulin pump. If you’re type 2, you may have treated your diabetes by taking pills that help your body maximize the amount of insulin it produces to manage your blood sugars. Or you may have injected or infused insulin through a pump. Either way, women with diabetes experience a unique adventure when it comes to planning, managing, and ultimately completing a successful pregnancy. It’s a marathon, not a sprint. A pregnant woman with diabetes must pay extensive attention to an odd blend of details about insulin, blood sugars, diet, exercise, fetal development, prenatal tests, countless doctor’s appointments, and more, until her child finally arrives.

Whew! Tired yet?

Finding the Right Doctors

Let’s say you’re reading this book and you’re not pregnant (if you are, skip ahead to Chapter 2). You live with diabetes. If you’re type 1, you inject insulin or rock the insulin pump. If you’re type 2, you might do those things or maybe you pop some oral meds or simply try to keep it all together by eating right and exercising (and you know that’s not so simple). Either you’re a carb counter or you try to follow an exchange diet of carbs, proteins, and fats. Your fingers are punctured with pinpricks to determine your blood sugar levels. You want to get pregnant and have a healthy baby.

Your first decision should be to find and meet with an endocrinologist a few months before you want to become pregnant, to talk specifically about pre-pregnancy diabetes management. As a woman with diabetes, you’re probably already seeing an endo regularly. Ideally, this person is up to date on the latest research about diabetes.
and pregnancy; knows all about insulin pumps, continuous glucose monitors (CGMs), the latest insulins, and other drugs; and is familiar with emerging technologies and new medications for diabetes management.

If you’re not seeing an endo (because you don’t like doctors or you don’t make time or you live somewhere where endos aren’t plentiful) or you’re being seen by an internist who isn’t intimate with pregnancy with your diabetes type, you should do whatever you can to find a good diabetes doc or an internist or a certified physician’s assistant who really knows diabetes inside and out. This person will work with you so that you can have a healthy life before pregnancy and a healthy pregnancy. Trust me on this: pregnancy is not the time to go it alone. You will likely have to see this person many times while you’re trying to conceive. A good endocrinologist—or the best equivalent you can find in your area—can help you fine-tune your diabetes management every step of the way.

It’s great if your endo works closely with a high-risk obstetrician/gynecologist (OB/GYN), a maternal/fetal medicine specialist, or a perinatologist who is also up to date on pregnancy with diabetes and knows the importance of tight blood sugar management. Yes, as women with diabetes, we’re considered high risk. Don’t let that scare you, though. Plenty of us have healthy kids and stay healthy ourselves. And it’s not just the diabetes that makes some of us high risk. Women aged 35 and older, and those carrying multiples at any age, are also considered high risk. There's plenty of company in the high-risk category, and, again, many of us go on to have healthy babies.

If you’re working with a regular obstetrician, who may not be closely familiar with pre-existing diabetes, educate yourself as much as possible about the condition and its effects on pregnancy. Some docs may think “all women with diabetes are the same” and have outdated notions about what people with diabetes can eat, or they might say something like “Diabetic moms always have cesarean deliveries.” (Hello—totally not true.) Having your endocrinologist as an ally can help you to determine what’s crucial for the health of your kid-to-be and yourself as the future mom with diabetes and to recognize old-school thinking. With tight blood sugar control, your chances of complications are the same as those of any pregnant woman without diabetes.
Questions to Ask When Meeting With a Potential Doctor Pre-Pregnancy

- Have you done this before? How many other pregnant women with type 1 or type 2 have you seen through their entire pregnancy?

- What’s your style? How often do you see pregnant type 1 or type 2 patients? What if I have questions between my appointments—do you answer them by e-mail or phone? Do you expect me to fax or e-mail you logs of blood sugars, insulin, and food intake? How often? How soon can I expect a response from you?

- How will you work with me during this pregnancy? (As a patient, consider what kind of doctor personality helps you best. Maintaining tight control can be tough. If you and your doctor don’t mesh well, it could be a long nine months.)

- What other health care professionals, such as a nutritionist, a high-risk OB/GYN, a certified diabetes educator (CDE), an eye doctor who specializes in retinopathy, or a nephrologist for kidney issues, do you typically work with for your patients with diabetes?

Plan Before Conceiving

Tight blood sugar control is what it’s all about. It is the foundation of a healthy pregnancy with diabetes. In brief, the closer your blood sugars are to a nondiabetic’s, the lower your chances are of having a baby with health problems. These problems include birth defects and macrosomia—your baby being too big and fat, which can cause problems during delivery and may later lead to a type 2 diabetes diagnosis.

The key thing about tight control is that you have to be in command of your blood sugars during the earliest days and weeks of your pregnancy. This is the crucial period when your baby is developing major body parts and when many women don’t even know that they’re pregnant. It’s much healthier for you and your baby if you maintain tight control over your numbers as if you were pregnant, until you can test a few weeks later and know for sure. The baby’s brain, spinal cord, heart, and other organs are all forming early on, and tight numbers early on will help ensure that
those body parts develop as they should. Later, that same tight control might help lower your chances of a miscarriage or stillbirth. But for now, keeping the sugars in line means your baby’s body will form as it is supposed to, even if you don't know for sure that you conceived this month.

Okay, so control is important. What are we talking about?

- Maintain tight blood sugars (60–150 mg/dL) before and during pregnancy.
- Make sure your hemoglobin A1c number (the average of your blood sugar readings for the past two to three months) is below a certain target (typically, 5.0–6.9 percent).

Here’s how it all breaks down:

<table>
<thead>
<tr>
<th>Recommended Blood Sugars (mg/dL)¹</th>
<th>Before meal</th>
<th>1 hour after meal</th>
<th>Before bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>When trying to conceive</td>
<td>70–110</td>
<td>&lt;150</td>
<td>100–140</td>
</tr>
<tr>
<td>During pregnancy</td>
<td>60–99</td>
<td>&lt;120–140</td>
<td>100–140</td>
</tr>
</tbody>
</table>

*Source:* see Notes (page 241).

Of course, your doctor might have other thoughts, but these are the general numbers to target.

The following table explains what your A1c numbers mean:

<table>
<thead>
<tr>
<th>A1c (%)</th>
<th>Estimated average glucose numbers (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>68</td>
</tr>
<tr>
<td>4.5</td>
<td>82</td>
</tr>
<tr>
<td>5.0</td>
<td>97</td>
</tr>
<tr>
<td>5.5</td>
<td>111</td>
</tr>
<tr>
<td>6.0</td>
<td>126</td>
</tr>
<tr>
<td>6.5</td>
<td>140</td>
</tr>
<tr>
<td>7.0</td>
<td>154</td>
</tr>
<tr>
<td>7.5</td>
<td>169</td>
</tr>
<tr>
<td>8.0</td>
<td>183</td>
</tr>
<tr>
<td>8.5</td>
<td>197</td>
</tr>
<tr>
<td>9.0</td>
<td>212</td>
</tr>
</tbody>
</table>

Bringing Your A1c Levels Down

Once you’ve talked to your docs about wanting to get pregnant, you’ll have to walk the walk. No, I don’t mean having unprotected sex yet, though you’ll get there. I mean bringing your A1cs within the recommended range. The American Diabetes Association and many docs will tell you to get your A1c under 7 percent, which corresponds to an average blood sugar level of around 154 mg/dL or lower. Danish research published in the professional journal *Diabetes Care* in June 2009 found that the risks of a bad pregnancy outcome, such as a baby being born with a serious birth defect or an infant dying soon after birth, were no higher than for the general nondiabetic population if women with diabetes had A1cs of 6.9 percent or lower.3 (Women with A1cs of 10 percent or above were up to four times as likely to have babies with birth defects.) Some endos who specialize in pregnancy might suggest you get your A1c under 6 percent, which is an average glucose reading of 126 mg/dL or lower. Nondiabetic A1cs, for comparison, are 4 to 6 percent, which is 68 to 126 mg/dL.

How do you bring those numbers down, living with a condition that’s defined by high blood sugars? This was my biggest concern as a longtime diabetic who’d seen blood sugars range between 40 and 400 mg/dL in a single day. The answer is ongoing, regular blood sugar tests, up to 12 to 15 times a day. This means testing before meals, one hour and two hours after each meal, before bed, before and during exercise, during the night, and anytime you feel you might be having a low or just want to see where things are at.

“The blood sugar level targets for pregnancy seem unachievable when considering becoming pregnant, but it’s totally doable,” said Meredith Carroll, 39, type 1, from the Boston, Massachusetts, area and the mother of two kids aged 4 and 6. “As you increase the number of blood sugar tests per day, A1cs seem to come down on their own because you’re on top of it. I saw excellent results in terms of my A1cs almost immediately, so it wasn’t hard to maintain the changes.”

Can your numbers ever be too low? Brief episodes of hypoglycemia (low blood sugars) do not hurt the baby within. However, in addition to the unpleasant feeling of frequently being low and the importance of waiting to drive until your blood sugar is in a normal range, fetal growth might be restricted if your average blood sugars
are around 86 mg/dL, or with an A1c of 4.6 percent or lower. According to research published in the *American Journal of Obstetrics and Gynecology* in 1990 that looked only at gestational diabetics (i.e., those who developed diabetes only during pregnancy), women whose average blood sugars were 86 mg/dL or lower had a higher risk of delivering babies who were small for their gestational age. Talk to your doctor if you find your A1cs are at or approaching this level.

**Strategies for Maintaining Blood Sugars**

Once you get into the habit of checking your blood sugar so often, it’s likely to become second nature, even if you’re checking at times that are new to you or when you’d rather be doing something else, like sleeping through the night. “Test, test, and test,” said Carol Speight, 39, from Fleet, Hampshire, United Kingdom, whose daughter is 5. “You catch the inevitable highs and lows during pregnancy quicker and avoid possible problems. I tested at least twice a night during the whole of my pregnancy.” Testing in the middle of the night can help you catch blood sugars so low that your liver kicks in and causes what’s called a rebound high or the Somogyi effect. This high occurs when blood sugars go really low (which, if you’re sleeping, you might not notice) and the body releases hormones that help raise the sugars quickly so that your brain can still function. Such highs are often tough to bring down, so avoiding them by treating lows in the middle of the night can help keep everything in line. This may mean setting your alarm clock for 3 a.m., but check what your doctor wants you to do before you start interrupting a good night’s sleep every single night. Then again, think of it as practice for newborn feeding schedules.

To test your sugars, you’ll need a blood glucose meter, test strips, a lancet, and, if you like, a spring-loaded device that will lance your finger at the push of a button. (I call mine my “finger-pricker”; your name for the device may be different.) I bring my meter everywhere with me: it’s on the bedside table during the night, in my purse throughout the day, and on the elliptical trainer in the water bottle holder when I hit the gym. I use only one meter because I like to check my average readings and because I’d lose the extras. You may prefer to keep several meters in different places, at work and at home, or wherever. Meters are typically inexpensive; look for freebies at your doctor’s office or...
promotions when companies introduce new models. If you can’t find free ones, insurance often covers the cost. However, it’s the test strip costs that bleed people with diabetes (or their insurance companies) dry. If having more than one meter helps you test more often, more power to you; just make sure you’re well stocked up on the accompanying strips.

With all this close monitoring and subsequent correcting, you’re bound to have more low blood sugar reactions (also known as hypoglycemia or insulin reactions). These let you know they’re occurring because you can feel sluggish, jittery, hungry, cranky, sweaty, drained, or just not yourself. It’s like an unwanted visit from the Hypo Seven Dwarves. Living so close to the normal range means your sugars don’t have far to fall before you’re having lows. Carrying a fast-acting simple sugar in your meter can help you treat these reactions as soon as you notice them. I carry LifeSavers because they fit into my glucose meter and are easy and relatively inexpensive to replace. You may prefer to drink juice or carry glucose tablets or have your own method of battling lows. The trick with treating these reactions, particularly if they’re quite low, is fighting the urge to eat the entire refrigerator. The standard treatment for a low is to eat only 15 grams of fast-acting carb (which is five to six LifeSavers, four to six ounces of fruit juice, or three to four glucose tablets), wait out the low for 15 minutes, and see whether you’re back in normal range. If you’re not, chow another 15 grams of carb and wait another 15.

As someone who once ate four packs of LifeSavers to bring up my sugars and who used to eat Reese’s Peanut Butter Cups to treat lows (because I couldn’t eat them the rest of the time), let me tell you that the 15–15 rule, as it’s called, is annoying and can feel like an eternity when you’re suffering through the eggshell-knees, sweat-filled, heart-racing feeling of a low. However, it usually works and has prevented me from spiraling up from a 60 mg/dL blood sugar to 240 mg/dL within an hour. Treating by the rule generally brings my blood sugar up to around 90 mg/dL if I’m patient and just wait it out. Muddling around with peanut butter cups or, another favorite, globs of peanut butter straight from the jar complicates things because the high fat content blunts the absorption of the simple carb into your bloodstream, so it takes longer for your blood sugar to rise. It can also cause you to go high hours later, making for an unpleasant few hours of correcting highs and responding to lows, back and forth.
RECOMMENDATIONS FOR TRYING TO CONCEIVE

Technology Talk

Of course, testing all the time won’t help your blood sugars stay in range unless you’re also correcting for any high numbers with an extra hit of insulin. The amount you take is determined by your correction factor, or how many points your blood sugar will drop when you take one unit of insulin to bring down a high number. To get this insulin in you, you use an insulin pump or you take multiple daily insulin injections. For type 1 women, taking insulin is probably old hat by now. For those with type 2, being told you have to start on insulin might be no big deal, or it might freak you out.

Injecting Insulin

As mentioned earlier, most women with type 2 diabetes start taking insulin so that they can stay within the recommended pre-pregnancy and pregnancy range. Jennifer Grizzle, now 44, had taken pills to treat her type 2 for four years before she decided to try to get pregnant. Her doctor counseled her to take insulin as soon as she started trying to conceive.

“As a child and even as an adult, I have had a shaky relationship with needles,” she said. “I don’t like to see a needle coming towards me. I was sweating bullets with that first shot.”

A nurse tried to reassure Grizzle by showing her how small the needle was and helped her pinch a fold of her thigh as she quickly pushed the needle into her skin.

“I had tears in my eyes, but I quickly realized it didn’t hurt,” Grizzle recalled. “Okay, I can do this,” she thought. She began taking four shots a day, and with each one she’d repeat to herself, “You’re doing this for a perfect baby.” Her daughters, born healthy, are now 12 and 14.

If you think you could never become a human pincushion, you’re not alone and you’re not the first woman with diabetes to feel this way. It does get easier, often sooner than you might anticipate. Here are some tips on taking insulin for the first time:

• Pick an injection spot that works for you. If you can’t or don’t want to reach around to poke yourself in the ass, don’t. Any fleshy part of the body will do, but typically the arms, thighs, hips, butt, or belly are recommended. You do need to
rotate your sites, and you want to stay away from body parts that might not have a lot of subcutaneous fat, such as your calves or forearms. You may curse it the rest of the time, but when you are giving yourself shots, fat is your friend. And if you want to use an arm, stand in a doorway or sit on a chair with a tall back; propping your arm against the door frame or the chair back will mimic the action of pinching a fold of flesh on that upper-arm area—without needing a third hand.

- There are nerve endings everywhere underneath your skin, and one area might be particularly sensitive while another feels okay. Resting the edge of the needle lightly against your skin before you inject can help you find a spot that hurts less than another area.
- Pinch a pad of fat. This will help you avoid injecting into any muscle underneath the fat below your skin.
- I was taught to inject a needle quickly, like throwing a dart. I've never done that: it freaks me out too much. Instead, I slowly push the needle against my skin at a 90-degree angle until it breaks the surface and goes in smoothly. Sort of like an Olympic diver.
- There are automatic injectors that will do the dirty work for you, but in my opinion it's just as easy to learn to give yourself a shot manually. Parenthood will be full of explosive diaper blowouts and cleaning vomit off your shoulder and the hallway rug. What's one more unpleasantness to deal with? At least when you give yourself a shot, you can control when and how it happens. Being yakked on? Not so much.

**Insulin Pumps**

Insulin pumps are common these days, and if you're not already using one, going on one will, in my opinion, make it much easier to manage your pregnancy and your diabetes. I've been on a pump for nearly a decade and I'm biased, so don't just listen to me.

“Five years ago, I went on an insulin pump knowing in the back of my mind that someday I would want to have kids and would need to have my sugars in as close to perfect control as possible,” said Randi Schwartz Carr, 31, type 1, of Iowa. Her daughter is now 2½. Randi was
able to lower her A1c dramatically while on the pump, from a high of 11.9 percent the day she started the pump to 7.6 percent a month later, and she says she’s been able to maintain A1cs in the upper 5 percent to lower 6 percent range, with a lot of work. While the pump is not magic, it is a tool that you can use, along with a lot of blood sugar testing, carbohydrate counting, stress management, and exercise, to get your A1c numbers within range. The advantages of being on a pump are that you can take smaller amounts of insulin than you can with a syringe and that you aren’t poking yourself more than once just to deliver insulin. Some people believe that the basal infusion of insulin (a small amount of insulin going into the body all day long) mimics a working pancreas more closely than does a shot of long-acting insulin such as NPH. Varying the basal rate throughout the day allows you to fine-tune your insulin levels, which is tougher to do with multiple injections.

Going on an insulin pump is a major decision, and some women have compared it to being diagnosed with diabetes all over again. Pump trainers will work with you to ensure you understand exactly how the pump works. They’ll also help you learn how to deal with problems such as clogs or malfunctioning infusion sets (the part that sits on your skin and lets the insulin enter your body subcutaneously). These problems can cause diabetic ketoacidosis, which occurs when the body does not have enough insulin to convert food into nutrients and acids build up in the blood. Trainers teach new pumpers about the necessity of testing blood sugar regularly and correcting high or low blood sugars immediately. There are also the emotional aspects of going on a pump and feeling connected to a piece of machinery all the time, and the practical consideration of where to place the pump during sleep or sex or even just when you are wearing a tight dress. Several resources that discuss choosing an insulin pump and using it effectively are available; see the Resources section at the end of this book for a list of books and websites.

Multiple Daily Injections

Some women remain on multiple daily injections instead of pumping for a number of reasons, including financial constraints, insurance coverage, plastic allergies, and a dislike of being attached to an insulin pump. Lisa, 29, type 1, from Canada, is currently trying to conceive. She takes
a minimum of 5 injections each day, and may take up to 10 shots if she needs to correct a high number between meals or at bedtime. “I am just now approaching my target A1c of less than 7, after being 7.8 four months ago,” she said. Financially, it makes more sense for her to choose multiple daily injections instead of an insulin pump, even though her blood sugars are higher than where she wants them to be, she said. “I have always been higher than the recommended values, so although many people out there do a better job, I’m happy I’m moving in the right direction.”

Although there are different types of insulin available (fast acting versus longer acting) and complementary medications such as Symlin can help prevent postmeal blood sugar spikes, your doctor may hesitate to let you continue taking a newer medication like Symlin or Lantus (a long-acting insulin) because it hasn’t been specifically or extensively studied in a pregnant population. (But see the Notes section for two small studies that found Lantus to be well tolerated during pregnancy.) Instead, your doc may suggest that you switch to NPH, an insulin that’s been available for longer, or that you forgo starting or staying on Symlin altogether. Talk to your doctor about which insulins and other medications are recommended during pregnancy, and if you are told to switch to something you’re not used to, keep an eye out for any unexplained fluctuations in your blood sugars or other changes.

**Continuous Glucose Monitors**

CGMs have been available for some time, but U.S. insurance companies are only slowly coming around to covering them in the same way as insulin pumps, test strips, and other medical supplies. CGMs give you ongoing data from a sensor inserted under the skin to measure blood sugar readings minute by minute. They can show you trends, such as whether your blood sugar is increasing, decreasing, or holding steady. The CGM system isn’t foolproof; you still need to calibrate it by doing a few fingersticks each day with a traditional glucose meter and entering the data into the CGM. However, at any given time, a CGM can provide an approximation of where your blood sugar is and where it is headed in a way that multiple daily fingersticks just can’t match.

“I decided to use a CGM to help me work towards a lower A1c, and that was absolutely in pursuit of a healthy pregnancy,” said Kerri Morrone Sparling, 30, type 1, of Rhode Island. She is 30 weeks pregnant. “Since my numbers have always been tough to control, I wanted all the
technological help I could get. Seeing the constant feedback from my CGM has helped me respond to trends and stay on top of my diabetes.”

When you are pregnant, the CGM can really help with keeping numbers in line. “I asked my perinatologist at the beginning of my pregnancy if I could get the CGM, but it did not arrive until my second trimester,” said Sara Bancroft, 27, type 1, of Liverpool, New York, whose son is 1 and was born healthy. “Up until that point, my A1c was steady in the upper 5s, but after using the CGM, I was able to achieve my lowest A1c in 21 years of living with diabetes: 4.5! I think the key was being able to catch high numbers on the way up, before they became a problem. I called it ‘actively correcting’ my blood sugars in real time. It was also very helpful in the postpartum period to be able to find a basal that worked for me. I look forward to using my CGM for the full 40 weeks in future pregnancies! I truly attribute my son’s health to being able to have such tight control over my blood sugars during pregnancy.”

There are a few considerations, though. Like starting on an insulin pump, wearing a CGM means you have another medical device hanging on your waistband (unless you choose a model that is packaged with an insulin pump). Sometimes the numbers are inaccurate, and it’s yet another machine that is subject to wear and tear—for which you’ll be responsible. And, if your insurance company won’t cover the costs, life with the monitor can be pricey if you’re paying out of pocket for the main device or the sensors (the part that is inserted into the skin and transmits readings to the main device).

However, for pre-pregnancy and pregnancy blood sugar control, the CGM can be very helpful. It can be “a terrific tool that can help rein in hard-to-manage numbers,” said Sparling. “It’s not a miraculous machine that makes diabetes easy, but it does give me an edge.”

What to Eat When You’re Planning to Get Pregnant

You can probably guess that eating right will help ensure that your baby gets all the nutrition it needs in utero, but starting to eat well (or maintaining your already healthy habits) before pregnancy is also key. Taking a prenatal vitamin will ensure you’re getting everything you need nutritionally and will give you enough folic acid to help protect against birth defects such as spina bifida. Food is covered in more detail in Chapter 3, but the quick specifics are here.
Counting carbohydrates helps you know how what you’re eating will affect your blood sugars. The carbohydrate content of foods typically is measured in grams (and are also called carbs or carb, for short). A slice of white bread is 15 grams of carbohydrates, a glass of skim milk is 12 grams, and a 2.17-ounce bag of Skittles tropical flavor candies is 56 grams. Depending on your insulin-to-carb ratio, you can tailor the dose of insulin you take for a meal to how many carbs are in the meal. If your ratio were 1 unit of insulin to 10 grams of carbs, you’d take 1.5 units for the slice of bread, 1.2 units for the milk, and 5.6 units for the bag of candy.

Carbohydrate counting can also help you if you’re not using insulin to treat your diabetes. Or you may be told to follow a food exchange system, where you’re supposed to eat a certain number of servings of carbohydrates, proteins, and fats a day and are counseled on serving size and food choices. Talking with a nutritionist who is knowledgeable about diabetes and pregnancy can be helpful if these are new concepts for you.

Counting carbs is easy if you eat packaged foods; in the United States, the nutritional information is right on the side of the wrapper or box. But packaged food isn’t the healthiest way to eat, and when you’re eating for two, docs will tell you to eat nutrient-packed food so that your growing baby will get what it needs to thrive. (Sorry, Skittles.) And for women with diabetes, pregnancy shouldn’t be the I-can-eat-anything-‘cause-I’m-pregnant free-for-all carnival many nondiabetic women engage in. Sure, you’re eating for two, but you need only an extra 300 calories of food a day (and typically those extra calories are required only in the second and third trimesters). Eating well before you’re pregnant will help you stay on track while you’re pregnant. Maintaining normal blood sugar levels is your top concern. Eating too much ensures extra weight that’ll be that much harder to drop after the baby arrives—totally not your goal.

How do you carb count when the carb numbers aren’t readily available? Many pocket-sized carbohydrate guides and several online databases will tell you the carb count of just about every food there is (see Resources). Many restaurants put nutritional information about their items online. If you’re at a sandwich shop and you want to know how many carbs are in the bulkie roll, ask the behind-the-counter person whether you can take a look at the bread package.

People have different dietary strategies for maintaining blood sugars before and during pregnancy. Personally, I found it easier to eat the
same breakfast and lunch nearly every day because I knew how my blood sugars would react. For breakfast, I'd eat pre-measured instant oatmeal, Splenda, and a dollop of peanut butter, with some grapes or raspberries thrown into the mix, plus I’d drink a glass of skim milk. The entire thing was healthy, delicious, and approximately 50 grams of carb. I could take the same amount of insulin each day and see predictable results one hour and two hours after the meal. Lunch was a grilled chicken sandwich with Swiss cheese, with a dab of herb mayo, onions, and cucumbers on whole-grain bread. It was relatively high in carbs, but again I knew what to take for it, which kept my sugars within range most of the day. Dinner was the wild card, but checking sugars after meals and through the night helped keep me on track. Eating this way for several months resulted in the best blood sugars and A1cs of my diabetic life, well within the target range for pregnancy with diabetes. And while I occasionally strayed from my breakfasts and lunch choices because, c’mon, that’s a long time to eat exactly the same thing, I really enjoyed those two meals a lot. As a result, it rarely felt like I was depriving myself when I ate my glorious oatmeal, peanut butter, and grape concoction for breakfast instead of something else.

**The Financial Realities of Pregnancy and Diabetes**

Between the doctor’s visits, the extra blood tests, the additional insulin, and maybe the expense of starting an insulin pump and/or a CGM, maintaining tight diabetes control while prepping for pregnancy and being pregnant is pretty darn spendy. And that’s not even including all the gear, clothes, and furniture the baby will use once he or she is finally here. Although hand-me-down onesies or secondhand toys from yard sales and Craigslist can defray costs somewhat, there’s no getting around the fact that supplies, appointments, and other things like parking and gas to get to those doc visits all add up.

If you’re not independently wealthy from winning that multimillion-dollar lottery, planning ahead and saving can go a long way when you want your dollars to stretch. Putting aside money—under your mattress, in a regular savings account at your favorite bank, or in a health savings account through your (or your husband’s or domestic partner’s) job—can help you beef up your finances before your baby arrives. A health savings account allows you to take a portion of your (or your partner’s) pretax salary and set it aside for medical expenses.
Usually, there are annual limits and the money must be used before the end of the calendar year. But, honestly, with diabetes there’s always some appointment or supplies to fund. Just keep an eye on the paperwork necessary to get the money released directly to you from the health savings account so that you can pay the appropriate bill.

Health insurance in the United States can be an expensive, complex, and confusing topic, particularly if you (or your husband or partner) don’t work for a company that automatically covers you simply for being an employee. For women with diabetes, having ongoing health insurance through an employer or a partner’s employer is much easier (and potentially less expensive) than going without it and later trying to qualify for an individual policy after a gap in coverage. If you don’t have health insurance before you get pregnant, look into the costs and the effort of buying an individual or family policy, and what it would take to qualify for group coverage through a school, alumni, professional, or trade association. While it’s possible to get pregnant and maintain diabetes control without health insurance in the United States, it is an expensive (and potentially bankruptcy-triggering) proposition.

“We had spent time building up our savings, since the idea was that I would not go back to work and there was always the possibility of bed rest,” said Anna Tang Norton, 34, type 1, of East Windsor, New Jersey. Her son is 19 months old. She and her husband had coverage for each other on their own insurance plans. “We had always used two insurances, both mine and my husband's, for years, as I found it was beneficial to have both for coverage on a new pump (I paid nothing for my last pump), prescriptions, pump supplies, and so on. It was wonderful when I gave birth; again, we paid for nothing—no ultrasounds, no doctor's visits, no additional testing, nothing at the hospital at birth. I'm glad we had coverage on both since I caught a glimpse of my hospital bill. Not including care for my son, it totaled over $80,000. This included four days in the hospital and all the expenses related to my c-section.”

Scrutinize your existing health insurance policy so that you know exactly what is covered and what is expected to be an out-of-pocket expense. It’s never a pleasure to get a shockingly high bill and to learn, long after the appointment, that it isn’t covered by your insurance because of a rule you didn’t know about beforehand. However, if you
are pretty sure something should be covered and you receive a crazy high bill anyway, knowledge of your policy will give you more to work with when you call your insurance company to question the amount. And keep on top of annual changes that might affect your maternity, specialist, prescription, or durable medical equipment coverage, which often applies to insulin pumps and CGMs.

“I am very fortunate in the fact that finances were not a huge stress for me during my pregnancy,” said Lindsay Gopin, 28, type 1, of Chicago, Illinois. Her daughter is 1 year old. “However, I did have to fight and advocate to get more test strips covered and get my continuous glucose sensor covered. I had to be very patient and persistent and eventually I was able to get what I needed.”

Depending on where you live if you’re outside the United States, you may still pay a considerable amount of money out of pocket if you want things that your plan doesn’t cover. “I live in Canada and still find it expensive and eating up my savings,” said Lisa. “My insurance doesn’t cover testing supplies, pumps, newer types of insulin such as Lantus and Levemir, and only pays a portion of other insulins and other prescriptions.”

**Despite Everything: What to Do About Getting Pregnant With High Blood Sugars**

What happens if you get pregnant before your A1c is where your doctor says it should be? Kassie, the author of the diabetes blog “noncompliant,” knows that experience. She said her A1c was several points higher than the recommended range:

My second pregnancy was unplanned. While I was taking steps to rein in my diabetes management, I wasn't there yet. It is so important to have your diabetes in great shape before you conceive. Women with diabetes should know that a normal or near-normal A1c reduces your baby’s risk of birth defects to that of the nondiabetic population. When you conceive a baby with an out-of-range A1c, the risks loom disproportionately large and it’s stressful. The first word out of my mouth when that second line appeared on the pregnancy test: “Shit.” My endo's response, conveyed by a nurse: “Will you consider terminating?”
A planned pregnancy helps mitigate the worry that comes with conceiving with a high A1c. However, let me also say this: If you do get pregnant without being under 7 percent, and you wish to continue the pregnancy, understand that a high A1c doesn’t guarantee problems, it just raises the risk.

Your response to any health care professional who berates you should be “Let’s talk about how to do the best we can from here on out.” Once my endo knew I was proceeding with the pregnancy, he and the CDE in his office were 100 percent on board with getting down to some serious diabetes work.

**Risk Factors**

If you have high blood sugars during pregnancy the chances of having a child with birth defects or other problems can be as high as 30 percent. This is 15 times the risk in the nondiabetic population. The general risk of birth defects with well-controlled sugars—the same as a nondiabetic’s—is 2 percent. Another way to look at the risk of birth defects when sugars are uncontrolled is that even when your sugars are high, there is a 70 percent chance that your baby will not have any birth defects or other health problems. Of course, no one wants to put an unborn, wanted baby at risk for anything, so 3 chances out of 10 is still considerable. But, as Kassie says, if you are committed to continuing the pregnancy despite your less-than-optimal sugars at conception, talk seriously with your doctor about what you need to do to get your sugars within range throughout the rest of your pregnancy.

What actual risks are we talking about? The list includes defects of the spinal cord and the skeletal, urinary, reproductive, and digestive systems, heart problems, excess amniotic fluid, and the baby’s size and weight.

The American Diabetes Association lists the chances of having a child with diabetes on the basis of genetic factors listed in the table on the next page.

Genetic disorders can occur in an otherwise healthy pregnancy with tight control. These include cystic fibrosis, sickle-cell disease, and Tay-Sachs. Genetic testing before you try to conceive will determine whether you are at risk for such conditions. If you are, you will be offered counseling to decide what to do with this information.
Your endo will also want to test to ensure that your body is able to handle the demands of pregnancy. Diabetes can affect your eyes, heart, kidneys, nerves, and as pregnancy can influence or worsen any potential problems you are already facing. Because of this, you may be asked to discontinue certain medications (an angiotensin-converting enzyme inhibitor for prevention of kidney issues, for example, or a statin for cholesterol control) because they aren’t good for the developing baby, even though they are probably keeping your own health problems at bay. You may be asked to see additional specialists, such as an eye doctor to determine how your retinas look and whether you may need laser treatment before or during pregnancy to ensure your eye health is top-notch. Talk to your doc about what might affect you specifically, given your health history. Typical pre-pregnancy tests include screenings for your kidneys, eyes, blood pressure, thyroid hormone and cholesterol/triglyceride levels, peripheral neuropathy (nerve damage), depression, stress, and anxiety.

Finally, a good endo should also tell you that tight diabetes management is measured in your long-term blood sugar control. High blood sugars will happen—we have diabetes and, frankly, that’s what the condition is all about—but the occasional high shouldn’t cause lasting damage to your kid. With constant blood sugar testing, careful insulin corrections to bring sugars down, and measured amounts of
handy, fast-acting sugar to bring you out of lows, your A1cs are likely to get where you want them to be.

Having a healthy pregnancy with diabetes is a lot of work, but consider it a solid foundation for the next stretch of the road. Whether your journey to seeing the double lines of a positive pregnancy test is simple or challenging, get ready for the next step of the way: your first trimester.