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**Pregnancy and Anaesthesia: what every mum should know**

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*Does having an anaesthetic while pregnant pose risks to mum and baby?*

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Your pregnancy test has come back positive and the countdown to baby’s birth has begun. There’s nervousness, excitement, joy and a range of expectations. Most mums-to-be dream of a healthy, challenge-free pregnancy and labour. But, life seldom charts a smooth course and mums may require surgery while pregnant - for reasons unrelated to the pregnancy - or at birth. What should mums know about the risks of surgery and anaesthesia while pregnant?

Anaesthetist, Dr Daniel Shmukler, has vast experience in anaesthetising pregnant mums. His rule of thumb - “Put off any surgical procedures that aren’t necessary until pregnancy is over - especially in the first trimester when we want to avoid all disruption to the embryonic development taking place. If there’s a procedure we really can’t postpone - like an appendicitis - then we have to weigh up the risks.”

Shmukler will be one of many doctors attending the April 2018 South African Society of Anaesthesiologists National Congress, exploring the latest local and international research in anaesthesia, and its application to all patients – including pregnant women and foetuses.

**Anaesthetists’ integral role keeping mum and baby safe during surgery**

In a European[[1]](#footnote-1) [review](https://www.ncbi.nlm.nih.gov/pubmed/29313912) of complications in obstetric anaesthesia, published early 2018, it was noted that obstetric anaesthesia is an often-litigious area of medical practice as many of the interventions undertaken by anaesthetists are performed in emergencies, frequently out of working hours. Mum’s pregnancy-related physiological and anatomical changes affect the frequency with which obstetric complications occur. Add the increasing levels of obesity in pregnant women, and complications become more likely during obstetric anaesthesia.

“Patients take for granted the behind-the-scenes planning we do pre-surgery,” explains Shmukler. “We compute many elements to formulate the right anaesthesia *recipe* for mom. Keeping mom’s vital signs normal means baby is, by default, looked after too.”

Father to three young sons, Shmukler is passionate about helping mums to bring healthy babies into the world. “Even when we’re rushing to theatre in an emergency situation we still have five minutes to say *Hello*, *I’m your anaesthetist, this is what we’re going to do and you need not worry*. In the event of a Caesarean section (C-section) we play a crucial role in creating a relaxed environment for mum. We calm any nerves, play mum’s choice of music in theatre and keeping mum abreast of our progress, explain all we do and check into see how she feels. We want mum to enjoy the process of delivering baby, especially in an emergency C-section,” says Shmukler

**What does an anaesthetist need to know about mum, pre-surgery?**

“We want a full comprehensive medical history,” says Shmukler. “Most things are easily manageable but we need to know if she has high blood pressure, diabetes or complex issues like cardiac problems, which might affect which drugs administer or how mum tolerates the anaesthetic. We meet the majority of patients on the day of surgery. But, in the case of complex or overweight patients, we would ideally like time to prepare for any potential surgery, from 34-weeks of pregnancy on.”

Specialist obstetrician and gynaecologist Dr Natalie Odell adds: “I always explain any surgical procedure to my patients and then hand over to my anaesthetist colleague to handle anaesthesia-related informed consent and major counselling – they play a crucial role in a surgical delivery.” Clearly collaboration between the surgeon, anaesthetist, gynaecologist, paediatrician and the patient are key to good medical outcomes. Electronic Health Records like those provided though Discovery HealthID can give excellent insight into a patient’s medical history for doctors like Odell and Shmukler to use in mitigating medical risks.

**What types of anaesthesia are offered to pregnant women?**

Anaesthesia is common in vaginal deliveries and integral to all C-section births.

* **Epidural anaesthesia and natural labour**

“Local anaesthesia is first injected to numb the skin of the lower back. “The epidural itself is a small tube inserted into the epidural space. This space lies next to the spinal cord and allows us to block the pain signals being sent to the brain,” says Dr Shmukler. It takes 10 to 20 minutes for the epidural – the most common pain relief for natural birth - to take full effect, but this can be sped up when combined with a spinal injection so pain relief is achieved within five minutes. Patients remain awake, might feel the pressure of contractions but not the pain, and can push and even walk around. Possible side-effects of epidural anaesthesia include transient low blood pressure, heart rate slowing, and changes in body temperature. “It is not possible to do epidurals in certain cases. These include the mom being on blood thinning drugs, an infection in the epidural area or a severely deformed spine. Epidural anaesthesia is safe and has minimal and usually short-lived effects on the baby. The age-old myth that labour epidurals will cause chronic back pain in a normal pregnant patient is not true,” he adds.

* **Spinal Anaesthesia and C-Section delivery**

Where it’s clear that vaginal delivery is dangerous (due to factors such as an abnormally implanted placenta, previous caesarean sections, extremely big babies and congenital anomalies in baby), an elective C-section is planned for week 39 of pregnancy. “We try to avoid mum going into spontaneous labour, and necessitating an emergency C-section, where operative risks tend to be higher,” says Dr Shmukler. “A spinal block is performed for a C-section. This is similar to a lumbar puncture, but instead we are injecting drugs in rather than taking any fluid out.”

On the other hand, emergency C-section is performed when the attending doctor assesses that labour or pregnancy could endanger the health of mum or baby for reasons including a compromised umbilical cord and baby in distress, labour that’s prolonged, cervix failing to dilate, abnormal bleeding and so on. Dr Shmukler adds: “Many mums see being sent for an emergency C-section as a failure. I reassure them that they are there for a good reason if we’ve made the decision to bring them to theatre.”

Some women tell Shmukler, ‘I hate needles, just knock me out’. He explains: “C-sections should ideally be performed under spinal anaesthesia or spinal block. Besides offering the advantages of being awake, being able to communicate with doctors and to bond with the baby immediately after birth, this is the safest mode of surgical anaesthesia for a pregnant woman. Mum gets a fast-acting injection into her spinal fluid that will numb her from the breasts down – what we call a *dense* block.” He closely monitors the mother’s blood pressure and heart rate as the spinal block commonly causes a drop in the blood pressure. “I am very active about pre-empting changes as low blood pressure for mom means the same for baby,” he adds.

* **General (Full) Anaesthesia**

Physiological changes that pregnant women undergo make general anaesthesia risky:

* The airway becomes swollen (oedematous) during pregnancy. This can make it difficult to gain a view of the vocal cords to pass a tracheal tube.
* Breast size increases during pregnancy and this too can obstruct a tracheal tube handle during insertion into the mouth. Risks of a failed intubation rate in an obstetric patient are considerably higher than that of the general population: 1:300 versus 1:1000–2000[[2]](#footnote-2).
* Cardiovascular changes make administering drugs more complex - mums also show increased sensitivity to anaesthesia so their requirements for medication decrease or change.
* Anaesthetists consider women who have passed 16 weeks of pregnancy to always be a so-called ‘full stomach’ patient - as food clears far more slowly from the stomach during pregnancy. Anaesthetic drugs increase the chance of vomiting up food - which can cause aspiration of gastric contents, a patient to choke and severe lung complications. Spinal anaesthesia limits this risk.
* There is also a low risk of bleeding around the spinal cord after a spinal injection - around 1 in 150 000 to 200 000 mums experience this. Blood thinning drugs increase this risk to between about 1 in 10000 up to 1 in 50000.

**What are the effects of anaesthesia on baby?**

Anaesthesia drugs used on pregnant women are the same as those generally used. “We base our drug dosages on mom’s weight - somewhere between pre-pregnancy and current weight,” says Shmukler. “Pregnancy weight change doesn’t always reflect mum’s true weight. Around 3kg is attributed to baby, 0.5kg to the placenta, 1kg to amniotic fluid and there will be some normal weight gain.”

It’s unavoidable that all drugs pass through the placenta and reach baby - not in the same quantities or concentrations given to mom, as the baby depends on mom to metabolise the drugs first.

General anaesthesia is given through a drip and so passes immediately into the mum’s and therefore baby’s circulation. “The drugs used in this sort of situation can make baby lethargic and the attending paediatrician might administer antagonist drugs to reverse the effect of the medication on the baby. This can take place quite soon after delivery,” explains Shmukler.

A spinal block takes time to pass from mum’s spinal fluid into her bloodstream and then to baby. “This is another reason why we say spinal is safer than general anaesthesia for mum,” adds Shmukler. “Spinal anaesthesia is extremely unlikely to affect baby, as long as we look after mom.”

Sedative drugs administered for C-section delivery may make the baby sedated. “And, mum might also have been given pain relief medication while in labour. We warn the paediatrician, as baby might come out a little sleepy as a result,” he adds.

**What are the risks of anaesthesia for mum and baby?**

“Anaesthetic risks to mum and baby are low,” explains Dr Shmukler. Risks of minor and short-lived nerve injury as a result of epidural or spinal anaesthesia injections are also relatively low at 1 in 4000 moms. Nerve injury linked to pregnancy or to labour is more common, at 1 in 100 women[[3]](#footnote-3).

Accidental puncturing of the dura – the membrane around the spinal cord occurs in around 1:100 epidurals sited during labour, and the majority of mums develop a post-dural puncture headache.

**How does mum’s health and fitness affect her pregnancy and baby?**

Pregnancy-related airway swelling is far worse in overweight and obese mums making intubation during general anaesthesia risker. Excess weight in mum will also make it harder to administer an epidural or spinal anaesthesia. “In the case of morbidly obese patients it can be difficult to get a spinal injection in,” says Shmukler. “We need gynaecologists to warn us if patients are around 140- to 150kg as these patients will be harder to anaesthetise, have higher risks in surgery and often have multiple co-morbid conditions such as high blood pressure, diabetes, heart issues and more. All this makes the surgery and anaesthetic potentially more complex and early preparation and planning is key.”

Dr Shmukler is passionate about programmes that encourage health and fitness through pregnancy. For example, moms registered on [Vitality Baby](https://www.discovery.co.za/vitality-baby/landing.do) earn double fitness points for selected fitness activities. These include parkruns, using partner gyms and training with a fitness device. They also earn double Vitality points for HealthyFood purchases during pregnancy and until baby is six months old. Vitality Baby moms also access Discovery Vitality’s partnership with [Disney](https://www.discovery.co.za/corporate/health-vitality-baby-disney-competition-2018), set up to get expectant parents of little children thinking about inspiring ideas for healthy living.

“The incidence of obesity in pregnancy is increasing worldwide,” adds Discovery Health’s Chief Medical Officer, Dr Maurice Goodman. “A large proportion of women gain more weight than is recommended during pregnancy. In addition to the inherent risks associated with pregnancy, obesity carries its own risks for anaesthesia and surgery. And, excessive weight gain in pregnancy is associated with complications such as diabetes, high blood pressure, caesarean section, and large babies.”

Moderate-intensity exercise appears to be an important part of weight-control strategies in pregnancy. Published evidence[[4]](#footnote-4) indicates that diet or exercise, or both, reduce the risk of excess pregnancy weight gain and that healthier, fitter women have shorter labour and better natural delivery.

Dr Odell adds: “Patients who have a healthy, active pregnancy tend to have less post-natal depression and cope a lot better generally, post-delivery. Overweight in pregnancy is associated with more chronic complications like gestational diabetes and hypertension, prolonged labour due to bigger babies at delivery and more birth trauma. We see a higher rate of C-sections, still birth and miscarriages in these mums - especially in obese patients. Post-delivery, overweight is associated with a higher rate of sepsis, pulmonary embolism (clots in the lung), deep-vein thrombosis and infections. The more overweight mum is, the higher her rate of complications.”

“Fitter women also tend to have stronger pelvic muscles and so are able to push better, during labour. The evidence even shows that baby’s neurological development is better in a heathier mum. Anecdotal evidence and studies show that healthier mums also recover faster after natural and C-section births,” adds Dr Goodman.

**Advice for pregnant women in a nutshell?**

Pregnant women should delay any surgical procedure that’s not vital to allow for baby’s undisturbed and maximal development and maturation. And, where surgery is necessary, whether during pregnancy or at delivery, good communication and collaboration with the anaesthetist goes a long way towards a healthy outcome for mum and baby.

**<for more information>**

To find out more about this year’s SAS congress, visit the [SASA website](http://www.sasaweb.com/).

**How do I activate Discovery Vitality Baby?**

Activate Vitality Baby and get the best care and rewards during the first 1 000 days - from pregnancy until your child turns two. This includes a gift pack filled with useful information and exciting gifts, a R100 Toys R Us gift card and 10% off selected baby essentials at Toys R Us stores. You can also get up to 25% cash back on nappies and other baby essentials with the HealthyCare benefit. Plus, engage in exclusive Disney-inspired content and stand the chance to win Disney Baby hampers for your little one. [Find out more](https://www.discovery.co.za/vitality/rewards-partners)

1. https://www.ncbi.nlm.nih.gov/pubmed/29313912 [↑](#footnote-ref-1)
2. <https://www.ncbi.nlm.nih.gov/pubmed/29313912> [↑](#footnote-ref-2)
3. <https://www.ncbi.nlm.nih.gov/pubmed/29313912> [↑](#footnote-ref-3)
4. https://www.ncbi.nlm.nih.gov/pubmed/26068707 [↑](#footnote-ref-4)