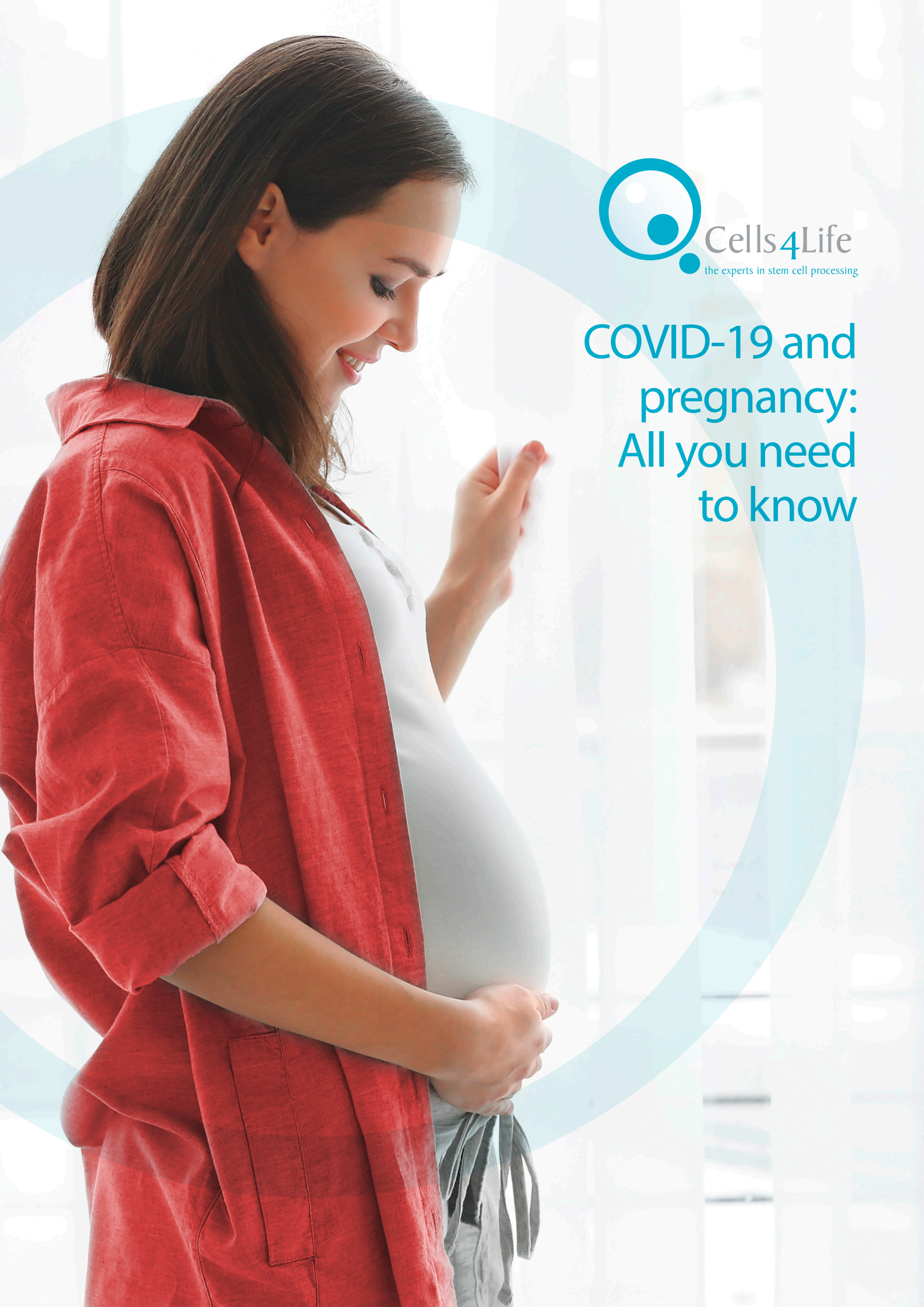




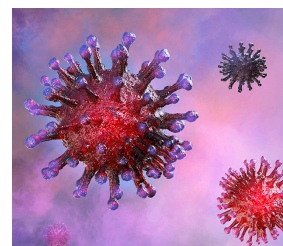
COVID-19 and pregnancy: All you need to know



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Pregnancy and coronavirus



If you are currently pregnant, you may be unsure about how coronavirus (COVID-19) could affect you, your baby and labour. This booklet aims to provide an overview of COVID-19 and the impact it could have on your pregnancy, alongside information regarding clinical trials using stem cells to treat the virus.

Due to their powerful regenerative properties and healing abilities, stem cells have been increasingly used to treat the coronavirus in recent months. Stem cells from umbilical cord blood, cord tissue and even placenta have successfully been used to treat critically ill COVID-19 patients.



About us

Cells4Life is the UK's largest cord blood bank, providing parents with the opportunity to store their baby's stem cells. Stem cells from umbilical cord blood are already routinely used to treat over 80 conditions, including many immune disorders and blood cancers.

In recent months, these stem cells have been used in various clinical trials in the treatment of COVID-19 cases. Stem cells from umbilical cord tissue have also been used to treat patients suffering from the virus. Initial results from these trials have been promising so far.

At Cells4Life, we have designed everything from our systems and processes to the range of services that we offer, to give your child access to these powerful stem cells and to the best treatment opportunities available.

In 2017, Cells4Life launched TotiCyté, an exclusive and revolutionary cord blood processing technology developed in-house. TotiCyté preserves 3x more stem cells at the point of treatment than our industry standard service.

The number of stem cells is crucial, as it determines not just the size of person a sample can treat, but also the number of therapies they could have from their cord blood. The more the better.

In 2020, Cells4Life also launched an exclusive placenta banking service – the first of its kind in the UK. We are the only stem cell bank to offer this service in Britain. Cells from the placenta are also being used in clinical trials for treating COVID-19.

Your baby's stem cells could be so important; why risk throwing them away?

Pregnancy and your risk

There is currently no evidence to suggest that pregnant women are more likely to contract COVID-19 than the general population.

However, pregnant women are included in the list of people at moderate risk as a precaution. During pregnancy the body alters the immune system and response to viral infections in general, which can occasionally cause more severe symptoms.

This can lead to a higher risk of health complications for both mother and baby if the mother contracts an illness such as flu. Whilst this may be the same for COVID-19, there is currently no evidence that

pregnant women are more likely to be severely ill and require admission to intensive care than non-pregnant adults.

If you have any symptoms of coronavirus or any other concerns, it's vital that you tell your midwife or maternity team as soon as possible.



Can pregnant mothers pass on COVID-19 to their baby?

To date, there has been limited evidence to demonstrate the spread of COVID-19 from mother to baby. However, three potential types of transmission have been identified.

Intrauterine transmission, also known as viral transmission, is passed from mother to baby and can occur at any time during pregnancy. COVID-19 may travel to the baby through the placenta if the virus is in the mother's blood during acute infection.

Vertical transmission may occur through the placenta or direct contact from mother to baby. A recent small-scale study demonstrated that vertical transmission from mother to baby may be possible. Researchers studied 31 women with COVID-19 who delivered babies in March and April. They found signs of the virus in one sample of umbilical cord blood and one of the placenta. However, it's important to note that the two newborns who tested positive for the coronavirus at birth have not become ill from it. Dr Claudio Fenizia, leader of the study, said "it's too early" to make any firm conclusions and stated that pregnant women should not worry.

Intrapartum transmission may occur if a new-born is exposed to the mother or someone in close physical contact with both mother and baby who has had coronavirus in the time period of two weeks before delivery and two days after giving birth. This is because the virus may become incubated within the baby's environment at this time.

According to the Royal College of Obstetrics and Gynaecology, it is considered unlikely that, if you contract COVID-19, it would cause problems to your baby's development. It is important to emphasise that in all reported cases of new-born babies developing coronavirus soon after birth, the babies were well.

Further investigation surrounding the matter is necessary and is currently underway.



COVID-19 effects on pregnant women

As mentioned previously, whilst pregnant women are not necessarily more susceptible to coronavirus, pregnancy related changes to their immune system can be associated with more severe symptoms.

Common symptoms for most pregnant women will be similar to that of non-pregnant adults, including mild or moderate cold/flu-like symptoms such as a cough, fever, shortness of breath, headache, and other relevant symptoms.

In more severe cases of COVID-19, symptoms may include pneumonia and marked hypoxia. The symptoms of severe infection are no different in pregnant women and early diagnosis and prompt supportive treatment is key.

COVID-19 effects on the baby

There is currently no data to suggest an increased risk of miscarriage in relation to COVID-19. Previous studies investigating early pregnancy with with SARS-CoV and MERS-CoV have not revealed a significant relationship between viral infection and increased risk of miscarriage.

A study of 71 babies delivered to women with COVID-19 in their third trimester reported that neonatal infection was diagnosed in just 4 cases (5.6%) within 48 hours of delivery.

What to do if you're pregnant during COVID-19?

You should always follow government advice regarding social distancing. If you are in your third you should be particularly attentive to social distancing and minimise contact with others.



If you are well, it is important that you continue to attend all of your appointments and scans to ensure the health of you and your baby.

The Royal College of Obstetrics and Gynaecology and the World Health Organisation continue to advise to regularly wash your hands and avoid contact with people who are unwell.

Labour and birth during coronavirus

There may be some changes to your birth plan compared to what usually happens. Hospitals and birth clinics are taking extra measures to ensure the safety of you and your baby.

COVID-19 and stem cells

The coronavirus has impacted every aspect of our lives and has made many parents particularly aware of protecting the long-term health of their children. Already used to treat over 80 conditions and banked by over 4 million families worldwide, umbilical cord blood stem cells are now being researched and used in coronavirus treatments.

Due to their powerful anti-inflammatory and healing properties, stem cells from umbilical cord blood and tissue as well as the placenta are being applied in the treatment of patients infected with COVID-19.

These stem cells are suggested by researchers to “calm the inflammatory storm” that occurs in the human body when it contracts COVID-19, during which the body becomes over-activated by infection. This can result in severe damage to the lungs and consequent respiratory problems. Initial research has shown that stem cells can control this “storm”, repair damaged cells and promote faster recovery.

There are currently 15 ongoing clinical trials using stem cells from cord blood, cord tissues and placenta, with many hospitals worldwide also trialling it as a treatment for the virus. Initial data suggests that these stem cells are a safe and effective therapy for alleviating the symptoms of coronavirus.



What are the studies?

Umbilical cord blood

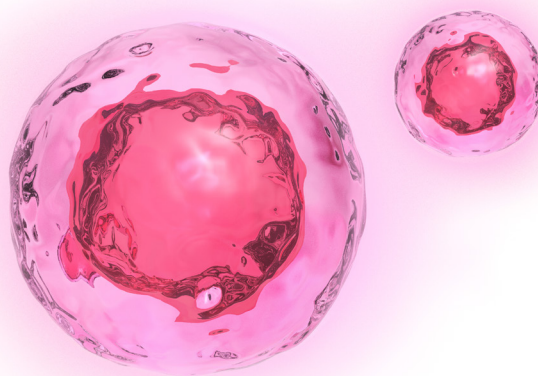
7 patients with COVID-19 were administered with umbilical cord stem cells via injection. Symptoms of all patients were significantly alleviated within just two days of the treatment, showing no adverse effects. Three of these patients were discharged 10 days after the stem cell treatment.

Umbilical cord tissue

In May, the FDA approved a stem cell research trial for patients with severe cases of COVID-19, which includes 60 patients and uses stem cells from umbilical cord tissue. The study will look at whether umbilical cord tissue may be a safe and effective treatment for patients hospitalised with severe cases of COVID-19.

Placental Cells

Cells from the placenta have been used to treat a small cohort of six critically ill COVID-19 patients. Following one week of placental cell treatment, initial results showed that patients survived, four of whom have shown improvement in respiratory parameters whilst three of the patients are currently in the advanced stages of weaning from ventilators.



What makes these stem cells so special?

In recent years, scientific research has shown that mesenchymal stem cells from the umbilical cord have properties that may make them very useful for infections:

- exert strong anti-inflammatory and immune regulatory functions
- the unique ability to travel to damaged tissues
- promote the regeneration and repair of damaged tissues
- and reduce tissue damage.

These stem cells can differentiate into a variety of cell types. Indeed, this is why these cells are considered fundamental for regenerative therapies and tissue engineering and why they are already used to treat over 80 conditions.



Is it still possible to bank stem cells during COVID-19 and how will it work?

It is still possible to bank your baby's stem cells during the pandemic. We want to reassure you that our services remain fully operational during this time.

Whilst many hospitals have limited the number of people permitted to attend deliveries, which has affected some phlebotomists being able to procure cord blood/cord tissue, we have been working hard to ensure that you don't miss out on this once-in-a-lifetime opportunity.

As the only one of its kind in the UK, we have set up agreements with hospitals all over the country so that we can provide our unique placenta service. Our placenta banking service simply requires that your placenta is placed in a biobag and delivered back to our lab, so you don't need a phlebotomist to access regenerative cells from your baby's placenta. These cell types have even been shown to help ameliorate the symptoms of COVID-19 itself.

By choosing to save your baby's stem cells, you can ensure that your child has access to as many of the latest regenerative therapies as they become available.

Visit cells4life.com to find out more.

Cells4Life.com

For all general enquiries please contact our customer support team on:

01444 873950

Alternatively you can email us: enquiry@cells4life.com

Cells4Life

Units 2-3 Oak House
Woodlands Office Park
Albert Drive
Burgess Hill
RH15 9TN
United Kingdom



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Supporting scientific documentation can be found at:
cells4life.com/references

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