Group B streptococcus (GBS) infection

Group B streptococcus (GBS) is one of the many bacteria that normally live in our bodies. GBS is not harmful to you, but if you are carrying it, there is a small chance that your baby could develop a GBS infection.

This factsheet contains information about 'early-onset GBS infection' and how it can be prevented and treated. If you have any further questions or concerns, please speak to your midwife or obstetrician (doctor who specialises in pregnancy).

GBS bacteria

Between 20 and 40% of women in the UK (2 to 4 in every 10) will carry the GBS bacteria, either in the vagina or rectum (back passage). This may be temporary. GBS bacteria is not harmful to you and most women carrying GBS bacteria will have no symptoms.

However, carrying GBS bacteria can have implications for your baby. While the majority of babies born to mothers who carry GBS are fine, a small number of babies who come into contact with GBS bacteria will develop an infection. Although not every baby of a mother who carries GBS bacteria will be affected, and not all of those who are affected will become ill, there are potentially serious implications for those who do.

Early-onset GBS infection

When GBS infection develops during pregnancy, in labour or within the first seven days after birth, it is described as an 'early-onset GBS infection'.

Approximately 1 in every 1750 babies who come into contact with GBS (during pregnancy, labour or birth) will develop an early-onset GBS infection.

How GBS infection can affect your baby

GBS infection is rare but the effects can be very serious.

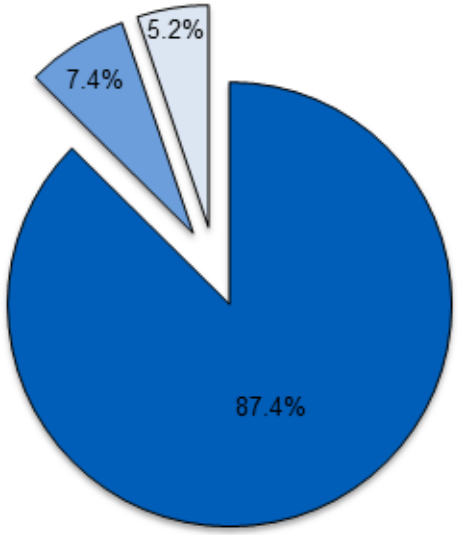
GBS infection during labour or around the time of birth can cause your newborn baby to become seriously ill with potentially life-threatening conditions including:

- sepsis (infection of the blood)
- pneumonia (infection in the lungs)
- meningitis (infection of the fluid and lining around the brain).

Most babies who develop GBS infection become unwell within the first 12 to 24 hours after birth, but it is important to keep checking your baby for signs of the infection for the first three months.

Of babies who develop early-onset GBS infection, the majority (between 87 and 88 in every 100) will make a full recovery if they receive prompt treatment. For between 7 and 8 babies in every 100 (7.4%) GBS will have an impact on their long-term physical or mental wellbeing and for 5 in every 100 (5.2%) babies GBS will be fatal (RCOG 2017).

Outcomes for babies who develop early-onset GBS infection



- **Full recovery** (87.4%, or between 87 and 88 in every 100 babies who develop early-onset GBS)
- **Impact on long-term physical or mental wellbeing** (7.4%, or between 7 and 8 in every 100 babies who develop early-onset GBS)
- **Fatal** (5.2%, or 5 in every 100 babies who develop early-onset GBS)

The risk of your baby becoming unwell with early-onset GBS infection will be higher if:

- your baby is premature (born before 37 weeks). Unfortunately, your baby will be more susceptible to infection the earlier they are born.
- GBS has ever been found in your urine or on a swab.
- you have previously had a baby affected by a GBS infection. In this case, the likelihood of your baby developing early-onset GBS increases to 1 in 700 or 1 in 800. This is almost double the usual risk. However, it is important to remember that the likelihood of your baby becoming unwell is still extremely small.
- you develop a high temperature (pyrexia) or any other symptoms of an infection during labour.
- your waters 'break' before your labour starts. This happens in about 1 in 12 pregnancies (about 8%) and is known as pre-labour rupture of membranes. For a very small number of women, infection can develop in the amniotic fluid surrounding the baby after the waters break. As the length of time between your waters breaking and your baby being born increases, so does the likelihood of an infection developing. Please read our booklet called 'If your waters break before labour starts' for more information. This is available to download from **www.uhs.nhs.uk/maternity**.

The signs and symptoms of early-onset GBS infection are listed at the end of this factsheet. If GBS infection is identified early and treated promptly, most babies will make a full recovery.

Antenatal screening

Screening for GBS bacteria is not routinely offered at University Hospital Southampton NHS Foundation Trust (UHS). This is in accordance with national recommendations from the UK National Screening Committee and is for the following reasons:

- Many babies who are severely affected by GBS infection are born prematurely before the suggested time for screening (35 to 37 weeks).
- Many women carry the GBS bacteria and, in the majority of cases, their babies are born safely and do not develop an infection. Giving antibiotics to every woman who carries GBS bacteria would mean that a very large number of women would receive treatment they do not need. This would have implications for their chosen place of birth and increase the risk of side effects associated with the use of antibiotics for both mother and baby. For more information, please see the 'Place of birth' and 'Side effects of taking antibiotics' sections of this factsheet.
- No screening test is entirely accurate. Even the more sensitive 'enriched culture medium' (ECM) screening test, which may be performed at 35 to 37 weeks of pregnancy, is not entirely accurate.
- A negative swab test result (showing that you are not currently carrying GBS bacteria) does not guarantee that you will not carry GBS bacteria at the time of birth. Around 4% of women who have a negative swab test result will carry GBS bacteria by the time they give birth, and 13% of women who have a positive swab test result do not carry GBS bacteria when they give birth. As a result of this, some women would receive antibiotics and the associated side effects unnecessarily, while others would receive false reassurance and go without.
- Screening cannot accurately predict whether a baby will develop a GBS infection. A positive vaginal swab at 35 to 37 weeks would suggest a risk of 1 in 400 babies, but there is still a risk of 1 in 5000 even if the swab is negative.

If you would like to know more about these recommendations, please speak to your midwife.

Private screening

GBS screening is not offered within the NHS due to UK National Screening Committee recommendations, so some women choose to have private GBS screening.

If you choose to have private screening, the Royal College of Obstetricians and Gynaecologists (RCOG) recommend that you use a laboratory which offers enriched culture medium (ECM) screening. For more information about available tests, please visit the Group B Strep Support (GBSS) website: **www.gbss.org.uk**

Screening should be carried out when you are 35 to 37 weeks pregnant. Please bring your results to discuss with your midwife and keep a copy in your handheld notes.

If the test is performed by an accredited laboratory and you receive a positive screening result, you will be offered antibiotics during labour and your baby will be closely monitored for signs of GBS infection after birth.

If GBS bacteria is identified during your current pregnancy

- **If you have a urine infection caused by GBS:** If you have a urine infection caused by GBS, you will need to start treatment with antibiotic tablets straight away. You will need to provide your midwife or GP with a urine sample between one and two weeks after you have finished your antibiotic treatment so that they can check that it has been successful. You will also be offered antibiotics through a drip during labour or when 'your waters break' to prevent your baby developing a GBS infection.

- **If GBS bacteria has been found on a vaginal or rectal swab:** GBS bacteria is sometimes found during pregnancy if you have vaginal or rectal swabs. If GBS bacteria is found in your vagina or rectum, you will be offered antibiotics through a drip when you are in labour, or when your waters have broken. Antibiotic treatment before your labour begins will not reduce the chance of your baby developing GBS infection. However, antibiotic treatment during labour will reduce the likelihood of your baby developing a GBS infection from 1 in 400 to 1 in 4000.

If GBS bacteria has been identified at any time before this pregnancy

If GBS bacteria has ever been found in your urine or on a swab, there is a 1 in 2 (50%) chance that you will be carrying GBS bacteria in this pregnancy. The likelihood of your baby developing early-onset GBS infection is therefore 2 to 2.5 times higher than for most pregnant women and is likely to be around 1 in 700 to 1 in 800.

The likelihood of your baby developing early-onset GBS infection is still small, but due to this increased risk all women who have previously carried GBS bacteria are offered prophylactic antibiotics during labour.

If you have previously had a baby who has been affected by GBS infection

If you have previously had a baby who has been affected by GBS infection (either early or late-onset), you will be offered (and are advised to accept) antibiotics during labour in all of your following pregnancies.

Mothers who have had a baby affected by early or late-onset GBS infection have a higher chance of having another affected baby when compared with women of similar carrier status who have not had an affected baby. The reasons for this are not clear but may be due to a particularly virulent strain of GBS or a deficient immune response.

Your options for labour and birth if you carry GBS bacteria

Prophylactic antibiotics

You will be offered prophylactic antibiotics (antibiotics given to you to prevent your baby from developing an early-onset GBS infection) through a drip during labour if:

- you have had a GBS-positive swab test result at any time, either during this pregnancy or previously. This may be a vaginal, rectal, placental, wound or other swab, from an NHS or other accredited laboratory
- GBS bacteria has been identified in a urine test
- you have previously had a baby who has been diagnosed as having a GBS infection or has carried GBS bacteria within 28 days of birth

Even if you are not known to carry GBS bacteria, antibiotics may also be recommended in labour if:

- your waters break before 37 weeks of your pregnancy
- you develop any signs of infection in labour

If antibiotics during labour have been recommended to prevent GBS infection in your baby, you should receive your first dose as soon as possible after your labour begins, or within four hours of your waters breaking.

Please phone Labour Line on 0300 123 9001 **when you experience signs of labour or if your waters break, and tell the Labour Line team that you need antibiotics.**

Your antibiotics will be given to you through a drip via a thin plastic tube (a cannula) in your hand. They will be repeated every four hours until your baby is born. You are not likely to need any antibiotics after your baby is born. You will still be able to remain upright and move around or use the birthing pool if you are receiving antibiotics during labour.

For the antibiotics to be effective, it is essential that you receive at least one dose, at least four hours before your baby is born. If this is not possible, or if you choose not to have any antibiotics, your baby will need to be carefully monitored for 24 hours after birth.

Side effects of taking antibiotics
It is important to discuss the risks and benefits of taking antibiotics in labour with your midwife or obstetrician during your pregnancy.

Some women may experience temporary side effects such as feeling sick or having diarrhoea. Others may be allergic to certain antibiotics. In rare circumstances, this allergy may result in anaphylaxis (an allergic reaction) which may be severe or life-threatening.

The antibiotic most often used to treat GBS is penicillin. When penicillin is used during labour, the risk of severe anaphylaxis is estimated to be 1 in 10,000, and the risk of fatal anaphylaxis is estimated to be 1 in 100,000, although not all of these women will be receiving antibiotics for GBS.

- **Allergies to penicillin or other antibiotics:** If you know that you are allergic to penicillin or any other medications, it is important to discuss this with your midwife and obstetrician. If you are (or think you might be) allergic to penicillin, you will be offered a suitable alternative. Your obstetrician will discuss the severity of your reaction to penicillin with you and choose an appropriate alternative antibiotic based on the severity of your previous reaction.
- **Implications of using antibiotics for your baby:** A number of studies have started to explore the effect antibiotics have on the natural bacteria in your baby's intestines. Changes in the natural bacteria have been linked to a number of effects in later life, including allergies, obesity and diabetes. However, findings have not been consistent across all studies and these risks have not been confirmed. Further research is required. As far as we know, the intravenous antibiotics you receive during labour are safe for breastfeeding mothers. Please make sure your midwife knows you are planning to breastfeed your baby.

If you decide not to have antibiotics during labour

If you choose not to have antibiotics during labour, you will be advised to stay on the postnatal ward at the Princess Anne Hospital for at least 24 hours after your baby is born. Your baby will be monitored closely for signs of GBS infection.

Although the overall risk of GBS infection is very low, the risk of your baby developing an early-onset GBS infection is higher than if you had received antibiotics during labour. Going home before this period of observation is complete is not recommended. For more information, please read the 'Care after your baby is born' section of this factsheet.

Place of birth

It is important to discuss your intended place of birth with your midwife during your pregnancy. The availability of antibiotics and specialist neonatal care for your baby will depend on your chosen place of birth.

If antibiotics have been recommended or if you choose to have antibiotics in labour when the likelihood of GBS infection is low, they will be given through a drip. It is not appropriate to provide antibiotics via a drip at the New Forest Birth Centre or at home, so this may affect your plans if you choose to have antibiotics.

Broadlands Birth Centre

- If you have been identified as having GBS bacteria at any time or if you have had a baby who has been found to be GBS positive within 28 days of giving birth but neither of you have shown any signs of infection, Broadlands Birth Centre may be appropriate for you.
- Labouring and having your baby at Broadlands Birth Centre is only recommended if you and your baby have otherwise been well throughout your pregnancy, you are more than 37 weeks pregnant when you go into labour and the time between your waters breaking and you giving birth is less than 18 hours. If any of these circumstances change, we would recommend giving birth on Labour Ward.

Labour Ward

Labour Ward is recommended if:

- you have been identified as having GBS at any time and your waters break more than 18 hours before you give birth to your baby
- you go into preterm labour (before 37 weeks)
- you have previously given birth to a baby who has shown symptoms of a GBS infection

On Labour Ward you will have direct access to neonatologists (specialists in newborn care), as well as additional equipment for monitoring the wellbeing of you and your baby in case you need it. The neonatal unit is also on the same floor as Labour Ward, which means your baby can be quickly transferred for specialist care if necessary.

Other places of birth

NHS guidelines recommend that women whose babies are at a higher risk of GBS infection should give birth in an environment with direct access to immediate advanced neonatal resuscitation.

If you wish to give birth at home or at the New Forest Birth Centre, it is important to be aware that this is outside the NHS recommendations. Please let your midwife know if you are considering these options. Your midwife will refer you to one of our consultant midwives for further discussion.

Using the birthing pool

Please speak to your midwife if antibiotics during labour have been recommended and you would like to use the birthing pool during either labour or birth. Your midwife will be able to give you more information about the advantages and disadvantages of using water during labour and discuss whether water is appropriate for you.

If using the birthing pool is appropriate for you, you will be given your first dose of antibiotics before you enter the pool. You will also be advised to get out of the pool while you receive the next dose of antibiotics. You will be offered a dose of antibiotics every four hours. You will also need to try and keep your cannula and dressing dry.

Please read our 'Use of water for labour and birth' factsheet for more information about the use of water for labour and birth. This is available to download from: **www.uhs.nhs.uk/maternity**

Planned caesarean section

All women having a caesarean section are offered antibiotics to reduce the risk of a wide variety of infections including GBS. This is in accordance with the NICE guidelines.

If you are having a planned caesarean section and you carry GBS bacteria, you will not need to have additional antibiotics specifically to prevent GBS infection in your baby, unless your labour has started, or your waters have broken.

If the decision to perform your caesarean section is made after your waters have broken, you will be offered penicillin antibiotics specifically to prevent GBS infection. The timing of your caesarean section will depend on the wellbeing of you and your baby.

Your care during pre-term labour (if you labour before 37 weeks)

Approximately 8 in every 100 (8.2%) women in the UK give birth before 37 weeks of pregnancy. More women experience a 'threatened premature labour' than actually give birth prematurely.

The risk of your baby developing early-onset GBS infection if you give birth prematurely is estimated to be 2.3 in every 1000 babies. This risk is higher than in babies who are born at full-term. The likelihood of GBS infection being fatal is also increased, affecting 20 to 30% of premature babies compared with 2 to 3% of babies born at full-term.

If your waters break before 37 weeks but you are not in labour

If you are less than 37 weeks pregnant when your waters break, you will be offered a course of the oral antibiotic (tablet) erythromycin, to take four times a day, for 10 days or until you are in established labour (whichever is sooner). Your obstetrician will discuss this with you and explain the alternatives to erythromycin if you are known to be allergic to it.

You will be offered this course of antibiotics irrespective of whether you are GBS-positive or negative or if your GBS status is unknown.

You will be closely observed for any signs of infection. If you develop a temperature, feel unwell or have a suspected infection, your obstetrician will discuss the possibility of inducing your labour with you.

You will also be offered antibiotics intravenously (through a drip via a thin plastic tube known as a cannula in your hand) when you are in labour. These will be given every four hours until your baby is born.

If you go into labour before 37 weeks and your waters haven't broken
If you go into labour prematurely (before 37 weeks) and your waters haven't broken (they are intact), you will be closely monitored for any signs of infection and offered antibiotics intravenously (through a drip via a thin plastic tube known as a cannula in your hand) if you are known to be GBS positive. These will be given every four hours until your baby is born.

Your care during term labour (after 37 weeks)

When your waters break
If your waters break after 37 weeks of pregnancy, you will be offered an early induction of labour, usually within the first four hours after your waters break. This will reduce the time that your baby is exposed to GBS before birth. You will also be offered antibiotics through a drip.

Please call Labour Line on 0300 123 9001 **as soon as you go into labour or your waters break. Make sure you tell them if you have tested positive for GBS bacteria in this pregnancy or previously, or if you have previously had a baby who had GBS infection.**

They will invite you to go to your intended place of birth and make sure you have antibiotics within four hours of your waters breaking.

Induction of labour
There is no evidence to suggest that having a membrane sweep or being induced increases the likelihood of your baby developing early-onset GBS infection. If antibiotics have been recommended, you should start them as soon as your labour becomes established. For more information about induction, please speak to your midwife or visit **www.uhs.nhs.uk/maternity** and download the 'Induction of labour' booklet.

Caring for your baby

Your baby **will not** require specific monitoring after birth if:

- they were born vaginally at term (after 37 weeks) and you received antibiotics through a drip in labour at least four hours before you gave birth
- you had a planned caesarean section at term (after 37 weeks) before your waters broke

Your baby will require additional monitoring after birth if:

- you have previously had a baby who has been infected with or has carried GBS
- antibiotics were recommended but you have chosen not to have them
- antibiotics were recommended but you laboured quickly and did not receive them
- antibiotics were recommended but there were less than four hours between you receiving them and giving birth
- there are any other concerns about your baby's wellbeing

If your baby requires additional monitoring, your midwife or a member of the maternity team will regularly assess their:

- temperature
- heart rate
- breathing rate
- muscle tone
- feeding

It is important to discuss the signs and symptoms of GBS infection with your midwife and paediatrician (your baby's doctor) while you are receiving your postnatal care (care after giving birth) at the Princess Anne Hospital.

If your baby requires additional monitoring, going home before your baby is 24 hours old is not recommended. If you would like to continue your postnatal care at the New Forest Birth Centre (NFBC), please discuss this with your midwife. Arrangements for your baby to receive additional monitoring during their stay at the NFBC can be made.

Please read 'The signs of an unwell baby' factsheet, which can be downloaded from: **www.uhs.nhs.uk/maternity**.

More information is also available in your 'Personal Child Health Record' (red book) which will be given to you when your baby has their first 'newborn and infant physical examination' (NIPE).

Signs of early-onset GBS infection in newborn babies

The majority (up to 90%) of babies infected with GBS will show signs of infection within the first 12 hours. If your baby has developed difficulties with feeding or with tolerating feeds (keeping milk down) or is crying inconsolably or you are worried about your baby contact your midwife or GP and ask for advice.

Always seek urgent medical attention if your baby:

- is showing an abnormal breathing pattern (they may have rapid or noisy breathing, be grunting or moaning, seeming to be working hard to breathe when you look at their chest or tummy, or not breathing at all)
- is very sleepy, listless, unusually floppy or unresponsive
- has an abnormal temperature unexplained by the environment (lower than 36°C or higher than 38°C). Their skin may feel too hot or cold.
- has changes in their skin colour (including blotchy skin)
- has an abnormally fast or slow heart rate

Call 999 and ask for an ambulance. Mention GBS and ask for an urgent assessment of your baby's wellbeing. If your baby has GBS infection, early diagnosis and treatment is essential. Any delay could be very serious or even fatal.

If your baby shows signs of an infection, they will be offered tests to see whether GBS is the cause. This may involve taking a sample of your baby's blood, or a sample of fluid from around your baby's spinal cord (a lumbar puncture). This will be discussed fully with you before the tests are done.

Babies with signs of GBS infection or babies who are suspected to have the infection should be treated with antibiotics as soon as possible. Antibiotics can be lifesaving when given to babies with suspected infection.

Late-onset GBS infection

This booklet focuses on early-onset GBS infection. However, it is also important to ensure you are aware of the signs and symptoms of late-onset GBS infection.

Late-onset GBS infection is a GBS infection which develops after your baby is a week old. Approximately one third of all GBS infections are late-onset GBS infections. Late-onset GBS infection affects 0.37 in every 1000 babies. It is uncommon after your baby reaches one month old and very rare after three months.

The reason why some babies develop late-onset GBS infection and others don't is not well understood, although babies born prematurely (before 37 weeks of pregnancy) are more likely to be affected.

At the moment, there are no known ways of preventing late-onset GBS infections. Having antibiotics during labour does not prevent late-onset GBS infection, and screening for GBS bacteria in pregnancy does not reliably identify babies who may be affected. Only half the babies who develop late-onset GBS infection have mothers who tested positive for GBS bacteria during their pregnancy.

As more research is required to identify the babies most at risk, it is important you are aware of the signs and symptoms of late-onset GBS infection, so that you can seek help immediately if you are concerned.

Early diagnosis and treatment is essential because your baby may become seriously unwell with meningitis, sepsis or pneumonia, or more rarely osteomyelitis (bone infection) and septic arthritis (joint infection).

Signs of late-onset GBS infection in babies

Typical signs of late-onset GBS infection are similar to those associated with early-onset infection and may include signs associated with meningitis. If you are worried about your baby contact your midwife or GP and ask for advice. It is essential to identify and treat late-onset GBS infection as soon as possible.

Always seek urgent medical attention if your baby:

- is being irritable, with a high-pitched or whimpering cry, or moaning
- has a blank, staring or trance-like expression
- is floppy, dislikes being handled or is fretful
- has a tense or bulging fontanelle (soft spot on babies' heads)
- turns away from bright light
- has an involuntarily stiff body or jerking movements
- has pale, blotchy skin

Call 999 and ask for an ambulance. Mention GBS and request an urgent assessment of your baby's wellbeing. If your baby has GBS infection, early diagnosis and treatment is essential. Any delay could be very serious or even fatal.

Contact us

If you have any non-urgent concerns about your baby during their first two weeks, please contact us by telephone:

Community midwifery co-ordinator (between 7.30am and 5.30pm)
Telephone: **07786 266529**

Broadlands Birth Centre
Telephone: **023 8120 6012** (out of hours)

New Forest Birth Centre
Telephone: **023 8074 7690** (out of hours)

Breastfeeding Babes
Telephone: **07786 267584**

If your baby has had antibiotics during the first few days of life, please make sure that the health professionals caring for your baby in the first month are aware.

If your baby is having trouble breathing or you are unable to wake your baby, call 999 for an ambulance. Always seek urgent medical attention if you suspect your baby is unwell.

Useful links

Royal College of Obstetricians and Gynaecologists
'Group B Streptococcus (GBS) in pregnancy and newborn babies' leaflet
www.rcog.org.uk/en/patients/patient-leaflets/group-b-streptococcus-gbs-infection-pregnancy-newborn-babies/

Group B Strep Support (GBSS)
www.gbss.org.uk

For a translation of this document, or a version in another format such as easy read, large print, Braille or audio, please telephone **023 8120 4688.**

For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit **www.uhs.nhs.uk/additionalneeds**

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