Royal College of Obstetricians and Gynaecologists
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(http://www.rcog.org.uk)

Chorionic villus sampling (CVS): what you need to know

This information is also available as a pdf: Chorionic villus sampling (CVS): what you need to know [1].

You may be interested to read the Clinical Green-top guideline Amniocentesis and chorionic villus sampling [2].

Contents

Key Points

- Chorionic villus sampling is known as CVS.
- CVS is a procedure in which a tiny sample of tissue is removed from the placenta, or afterbirth, either by passing a fine needle through the mother's abdomen (transabdominal) or by passing a fine tube or forceps through the cervix (transcervical).
- CVS is usually offered to women who have an increased chance of having a baby with a disorder. It is not usually offered on a routine basis.
- CVS is also used to detect whether or not a baby has a chromosomal disorder, such as Down syndrome.
- The safest time to have CVS is after 10 weeks of pregnancy.

- Although CVS is usually done before 14 weeks of pregnancy, it can be done later than this.
- About 2 in every 100 women (or 2%) who have a CVS from 11 to 13 weeks of pregnancy under ultrasound guidance miscarry as a result of the procedure.
- An alternative procedure, amniocentesis, has a lower risk of miscarriage and is usually offered later in pregnancy. RCOG information about amniocentesis can be found here. [17]
- If a disorder is diagnosed, then you should be given information and the opportunity to discuss this with a specialist.
- You will be asked to sign a consent form before having CVS.

About this information

This information is intended for you if you are pregnant and you have an increased chance of the baby having a disorder. You may have already been offered CVS. The information is based on the Royal College of Obstetricians and Gynaecologists (RCOG) guideline **Amniocentesis and Chorionic Villus Sampling** (published in January 2005). To find out more about the guideline, see the ***Sources and acknowledgements*** section.

This information tells you about CVS and what you need to know if you are considering whether or not to have this procedure during pregnancy.

This information aims to help you and your healthcare team make the best decisions about your care. It is not meant to replace discussions with an obstetrician, midwife or genetic counsellor about your situation.

This information does not tell you about:

- amniocentesis ? see RCOG patient information ?Amniocentesis: what you need to know [18]'

If you would like further information about this topic, then please ask your healthcare professional.

- Some of the recommendations here may not apply to you. This could be because of some other illness you have, your general health, or some or all of these things. If you think the treatment or care you get does not match what we describe here, talk about this with your obstetrician, midwife or genetic counsellor.

What is CVS?

CVS is a diagnostic procedure carried out during pregnancy. It is most commonly used to check the baby's chromosomes for specific disorders such as Edward syndrome , or Down syndrome and a few specific genetic disorders .

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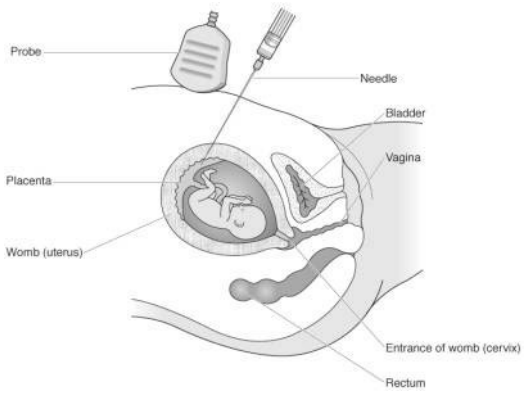
When and how is CVS performed?

CVS is performed after 10 weeks.

Before the procedure, gel is applied over your abdomen. You are scanned to check the positions of both the baby and the placenta (afterbirth).

CVS involves taking a tiny piece of the developing placenta, where it is attached to the womb. The placenta contains tissue that is genetically identical to the baby. CVS may be performed in two ways (see below). The obstetrician doing the procedure will choose the method that he or she thinks is more appropriate for you. This will depend upon the position of the placenta.

Through the abdomen (transabdominal)
A transabdominal CVS may be performed from 13 weeks onwards. For this, you might get some local anaesthetic to numb the area. Your skin is then cleaned in the area where the needle will be inserted.

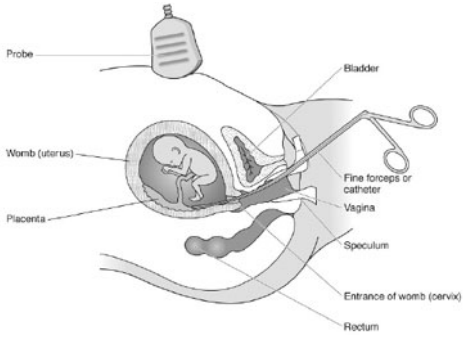


Transabdominal CVS

Using an ultrasound probe to guide the direction, a needle is pushed through the abdomen and the wall of the womb into the placenta. A small amount of placental tissue is sucked up into a syringe by moving the needle in and out of your abdomen. The needle is then taken out and the baby is checked on ultrasound.

Through the cervix (transcervical)
Transcervical CVS is usually performed between 11 and 13 weeks.

A speculum is inserted into your vagina. The vagina and cervix are cleaned. Using ultrasound guidance, fine forceps or a small tube is passed through the cervix to the placenta. A small amount of placental tissue is removed, using either forceps or a fine suction catheter.



Transcervical CVS

The baby is checked on ultrasound after this.

After each procedure, the placental tissue, which contains some of the baby's cells, is sent to the laboratory for testing (see section on ?What are the laboratory tests?').

If your blood group is Rh (sometimes called rhesus) negative, you will be recommended an injection of anti-

D immunoglobulin after the procedure to prevent you from developing antibodies against the baby's blood cells. You can find more information about this in ***Guidance on the routine use of anti-D prophylaxis for RhD negative women: information for patients*** *[20]* , by the National Institute for Health and Clinical Excellence (NICE).

Is CVS painful?
Most women say that having CVS, either transabdominal or transcervical, is uncomfortable rather than painful, a bit like a period pain. Some women say the transcervical method is like having a cervical smear taken. Women also say they feel anxious.

After the procedure you should rest, if you wish to, for the remainder of the day.

You may notice some ?spotting' of blood and cramping for a few hours afterwards. This is normal. If you experience any unusual symptoms immediately after the test, such as feeling shivery (as if you have flu), fluid loss, bleeding or contractions, then you should seek advice immediately.

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What are the risks?

Every pregnancy carries a risk of miscarriage.

CVS may sometimes cause a miscarriage due to injury or infection in the womb. The additional overall risk of miscarriage from CVS is approximately 2%. In other words, about 2 in every 100 women who have CVS under ultrasound guidance after 10 weeks will miscarry. Your healthcare professional will discuss the risk at your hospital.

It is possible that the risk of miscarriage following transabdominal CVS may be less than transcervical CVS. More research is needed to confirm this.

There is a small risk, less than 1 in 1000 women who have CVS, that the procedure will cause a serious infection. Infection can be caused by the needle puncturing the bowel, or skin contamination, but neither of these should happen if standard practices for CVS are followed. Infection can also be caused if the needle is contaminated by the ultrasound gel or the ultrasound probe. These risks can be reduced by standard procedures to reduce infection, for example, by using sterile gel.

Clinicians who do CVS often, rather than occasionally, seem to be slightly better at getting enough placental tissue during the procedure, and may also have a lower risk of miscarriage. The Royal College of Obstetricians and Gynaecologists recommends that to maintain their skills, clinicians doing CVS should do at least 10 each year.

Who should consider CVS?

Women may consider CVS if they:

- have had a previous pregnancy affected with a disorder
- have one or more relatives affected with a genetic disorder
- themselves or their partner are at greater risk of having a child with a genetic disorder, such as cystic fibrosis, thalassaemia or sickle cell disease
- have received a result from a scan which shows certain features, such as increased fluid at the

back of the baby's neck (nuchal translucency) indicating the baby may have a disorder such as Down syndrome
- have an increased risk of a chromosomal disorder because they are over a certain age (typically 35 years)
- want to know for certain whether the baby has a disorder.

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What are the laboratory tests?

There are two types of laboratory tests which can be used to look at the baby's chromosomes. These are:

- a full karyotype which checks all the baby's chromosomes. Results from this test are usually ready in two to three weeks
- a rapid test which checks for specific chromosomes. The disorders that can be detected by the rapid test include Down syndrome (known as ?trisomy 21' caused by an additional chromosome 21), Edward syndrome (known as ?trisomy 18' caused by an additional chromosome 18) and Patau syndrome (known as ?trisomy 13' caused by an additional chromosome 13) and if requested sex chromosome disorders. Results from this test are usually ready after three working days. There may be a charge for this test.

The unit where you had your CVS will make arrangements with you as to how you will receive your results.

How reliable are the laboratory tests?

The laboratory tests use different techniques to analyse the baby's chromosomes.

- With the full karyotype test there is a small chance, about 1 in 100, that it will not give a clear result. This could be because the sample was analysed and the test gave an uncertain result.
- Problems with the rapid test are that some samples may not be suitable for the test and that, even if it does not find a problem, the full karyotype may show an abnormality when that result becomes available about two weeks later.

For most women the laboratory test will give a definite ?yes' or ?no' answer. The result will let you know, one way or the other, whether the baby has the disorder the test was looking for.

If the test gives an uncertain result, it may be necessary for you to have another diagnostic procedure, known as amniocentesis (further information about Amniocentesis is available [18]).

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What will the results tell me?

The laboratory tests which look at the baby's chromosomes are able to detect a range of disorders, but not all.

- Most women who have CVS will have a ?normal' result, in other words, their baby will be born without the disorder(s) that the test was looking for.
- Some women will be informed that the baby has the disorder the test was looking for.

- Very occasionally women have CVS to detect Down syndrome and another disorder is detected by the test.
- A very few women will have a ?normal' result and yet in spite of this, they will have a baby born with the disorder tested for, or another chromosomal or genetic condition. A normal result does not exclude every disorder.

What are my choices if the results are abnormal?

If the results are abnormal, these will be discussed fully with you. For the majority of disorders, there is no treatment or cure. You will need to consider what is best for you and the baby. This might be to:

- continue with the pregnancy and use the information you have gained to help prepare for the birth and aftercare of your baby
- end this pregnancy.

It is helpful to talk through all the options with your doctor or midwife before you make a decision about having CVS. You should be able to talk through your options with a paediatrician and consultant geneticist or genetic nurse counsellor.

Some women who made an informed decision to end their pregnancy want to talk with a counsellor afterwards about their experience.

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Making a decision about CVS

Making a decision about having a diagnostic procedure during pregnancy, such as CVS, can be difficult. You may be making this decision alone or with your partner.

To help make the decision which is best for you, your healthcare professional should discuss the following information with you:

- the types of laboratory tests available and what the results will tell you
- the reliability of the laboratory test(s)
- the risk having an uncertain result and being offered a repeat procedure
- the risk of miscarriage from CVS (both transabdominal and transcervical) including the risk in your own unit at this time
- how long the results will take
- how you will get the results
- your options if the baby is found to have a disorder.

You may want to know more about the disorder or disorders which can be detected by CVS. You may also want to know more about what is involved in ending a pregnancy and how you may feel afterwards.

You might want to find out as soon as possible about a disorder because you are fairly certain that, if the results are abnormal, you would end this pregnancy. In this instance, you may decide that CVS is the best option for you.

Amniocentesis as an alternative to CVS
If you are uncertain what you would do if the baby has a disorder, but want to know anyway, then you may

consider having a procedure later on in pregnancy. This procedure is known as amniocentesis (further information on Amniocentesis can be found at www.rcog.org.uk [21]).

Amniocentesis is a diagnostic procedure which is done after 15 weeks of pregnancy. About 1 in a 100 (or 1%) women who have an amniocentesis, under ultrasound guidance, from this time will miscarry as a result of the procedure.

What is the difference between CVS and amniocentesis?

CVS	Amniocentesis
What does it involve?	Taking a small amount of placental tissue under ultrasound guidance.	Taking a small amount of fluid that surrounds the baby in the womb under ultrasound guidance.

When is the safest time to have the procedure?	After 10 weeks of pregnancy. Transcervical CVS is usually done at 11-13 weeks, transabdominal after 13 weeks.	Normally after 15 weeks of pregnancy.
What is the risk of miscarriage?	About 2 in 100 (2%) women will miscarry as a result of the procedure.	About 1 in a 100 (1%) women will miscarry as a result of the procedure.
What is involved in ending the pregnancy?	At this stage, this involves a n small operation to empty your womb.	Ending a pregnancy later on may involve going into labour.

In making a decision about CVS, or amniocentesis, it is important that you have enough time and that you feel supported in your final decision. You should be given time to talk through your options and be able to request any further information.

The final decision is yours. Only you can weigh up how much you want early information about a disorder against the slight risk that the procedure may lead to miscarrying a baby who may, or may not, have a disorder.

If you decide to have CVS, then you will be asked to sign a consent form before the procedure is carried out.

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Is there anything else I should know?

- If you are are HIV positive and you decide to have CVS, this might increase the risk of passing HIV on to your baby. You may be offered treatment with HAART (highly active antiretroviral therapy), if you are not already taking it. This reduces the risk of the HIV virus infecting the baby.
- If you carry hepatitis B or hepatitis C viruses , there is in theory a possibility that CVS might increase the risk that you pass this onto your baby. There is not enough information to be sure about whether this risk is real or not.
- If you would like to know more about amniocentesis, see ?Amniocentesis: what you need to know' (RCOG website address). Your health professional should give you full information about

amniocentesis.

- You have the right to be fully informed about your health care and to share in making decisions about it. Your healthcare team should respect and take your wishes into account.

Sources and acknowledgements

This information is based on the Royal College of Obstetricians and Gynaecologists (RCOG) guideline Amniocentesis and Chorionic Villus Sampling [2](published by the RCOG in January 2005 and due for a review in January 2008). The guideline contains a full list of the sources of evidence we have used.

Clinical guidelines are intended to improve patient care. They are drawn up by teams of medical professionals and consumers' representatives, who look at the best research evidence there is about care for a particular condition or treatment. The guidelines make recommendations based on this evidence.

This information has been developed by the Patient Information Subgroup of the RCOG Guidelines and Audit Committee, with input from the Consumers' Forum and the authors of the clinical guideline. It is being reviewed until the end of August 2006 by women attending clinics in Bristol and London. All comments will be considered and the information may be amended. The final version is the responsibility of the Guidelines and Audit Committee of the RCOG.

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Other organisations

These organisations offer support:

ARC (Antenatal Results and Choices)
73 Charlotte Street
London W1T 4PN
Helpline: 0207 631 0285 (Monday to Friday, 10am to 5.30pm)
Email: info@arc-uk.org
[22]Website: www.arc-uk.org [23]

Contact a Family
209-211 City Road
London EC1V 1JN
Helpline: 0808 808 3555 (Monday to Friday, 10am to 4pm)
Email: info@cafamily.org.uk
[24]Website: www.cafamily.org.uk [25]

Down's S yndrome Association
Langdon Down Centre
2a Langdon Park
Teddington TW11 9PS
Helpline: 0845 230 0372 (Monday to Friday, 10am to 4pm)
Email: info@downs-syndrome.org.uk [26]
Website: www.downs-syndrome.org.uk [27]

Genetic Interest Group

Unit 4D, Leroy House,
436, Essex Road
London N1 3QP
Tel: 0207 704 3141
Email: mail@gig.org.uk
[28]Website: www.gig.org.uk/index.html [29]

Sickle Cell Society
54 Station Road
London NW10 4UA
Tel: 0208 961 7795
Email: info@sicklecellsociety.org [30]
Website: www.sicklecellsociety.org [31]

SOFT UK (Patau syndrome, Edward syndrome)
48 Froggatts Ride
Walmley
Sutton Coldfield B76 2TQ
Tel: 0121 351 3122
Email: enquiries@soft.org.uk [32]
Website: www.soft.org.uk [33]

The Miscarriage Association
c/o Clayton Hospital
Northgate
Wakefield
West Yorkshire WF1 3JS
Helpline: 01924 200799 (Monday to Friday, 9am to 4pm)
Email: info@miscarriageassociation.org.uk
[34]Website: www.miscarriageassociation.org.uk [35]

UK Thalassaemia Society
19 The Broadway
Southgate
London N14 6PH
Tel: 020 8882 0011
Email: office@ukts.org [36]
Website: www.ukts.org [37]

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