Clinical performance of the SAFE/IONA® test				
	Sensitivity[1]	Specificity[2]	PPV[3]	NPV[4]
Trisomy 21 (Down's syndrome)	>99%	>99%	>99%	>99%
Trisomy 18 (Edwards' syndrome)	98.3%	>99%	96.7%	>99%
Trisomy 13 (Patau's syndrome)	>99%	>99%	>99%	>99%

These statistics are based on post-market surveillance of the IONA® Nx test in 9,575 singleton and monochorionic twin pregnancies, from a population of women who are predominantly at a higher chance of having a baby with a trisomy such as Down's syndrome. Correct as of 11th June 2021.

PPVs and NPVs are specific to the population and vary by prevalence of trisomy in the population being tested. For example, PPVs would be expected to be lower if IONA® Nx is tested in a population of women who are predominantly at a lower chance of having a baby with a trisomy such as Down's syndrome.

Definitions:

1. Sensitivity - the proportion of people/babies confirmed to have a condition that is reported as higher chance from an NIPT screening test

2. Specificity - the proportion of people/babies confirmed not to have a condition that is reported as lower chance from an NIPT screening test

3. Positive predictive value (PPV) - the probability that those with a higher chance result do have the condition

4. Negative predictive value (NPV) - the probability that those with a lower chance result do not have the condition

For most recent test performance data please visit **www.thesafetest.co.uk**

Who can I contact for further information?

If you have any questions about the SAFE test, please contact your named midwife or consultant obstetrician. To contact us directly please email: theSAFEtest@nhs.net

For more information on the SAFE test or to find out your nearest provider please visit: **www.theSAFEtest.co.uk**

Patient Advice and Liaison Service (PALS)

Your local PALS office can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received.

Other Useful Organisations

The NHS website
www.nhs.uk

The Down's Syndrome Association
www.downs-syndrome.org.uk

Positive About Down Syndrome
www.positiveaboutdownsyndrome.co.uk

Supporting Organisation for Trisomy 13/18 (SOFT) UK
www.soft.org.uk

Antenatal Results and Choices (ARC)
www.arc-uk.org

About St George's University Hospitals NHS Foundation Trust

The maternity unit at St George's University Hospitals NHS Foundation Trust is a regional and tertiary referral unit ranking one of the safest in the country. Delivering over 5,000 babies each year, the unit has achieved exceptional clinical outcomes, the highest possible external accreditations and boasts the highest 'midwife: birth' ratios in London. The unit has consultant and midwifery led maternity care and state of the art equipment, including neonatal intensive care and a special care baby unit.

The Fetal Medicine Unit at St George's Hospital is a leading tertiary referral centre and research centre located within a purpose built unit. It houses state of the art facilities for all aspects of care from routine assessment up to invasive procedures, including fetal surgery (surgery in the womb). The unit routinely accepts referrals from the 10 district general hospitals in the south-west London region including approximately 35,000 women a year for antenatal care. Extra-regional referrals are also received for complex fetal surgical procedures and maternal care from other hospitals in the UK and Europe. The unit has recognised international expertise in the clinical and supportive management of high-risk care in pregnancy.

The SAFE test is a CE-marked in vitro diagnostic test from Yourgene Health plc. Yourgene is a UK based molecular diagnostics company working in partnership with St George's University NHS Hospitals Foundation Trust to create a UK Centre of Excellence in bringing the first regulated NIPT test to more pregnant women.

Powered by the IONA® test - a registered trademark of Yourgene Health plc

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NHS
St George's University Hospitals
NHS Foundation Trust

the SAFE test

St George's Antenatal Fetal Evaluation

Non-Invasive Prenatal Testing (NIPT)

What is NIPT?

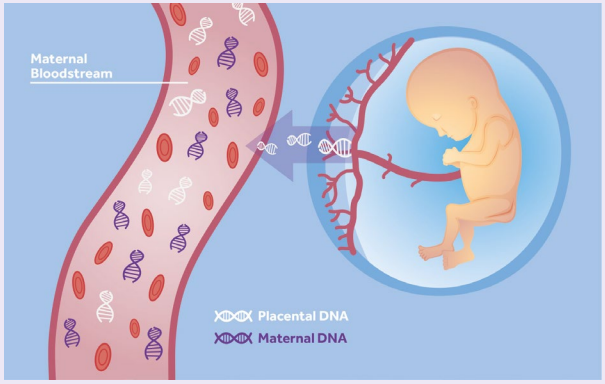
Non-invasive prenatal testing (NIPT) is a screening test that uses cutting edge DNA technology to evaluate whether a pregnancy has a higher chance of a certain chromosomal condition.

What is the SAFE test?

The St George's Antenatal Fetal Evaluation (SAFE) test is an NIPT test that screens for Down's syndrome, Edwards' syndrome and Patau's syndrome only, in line with UK National Screening Committee (UKNSC) recommendations. The test is performed by taking a small sample of the mother's blood and sending it to the NHS laboratory at St George's hospital for assessment. The results are typically available within 7 calendar days from sample receipt.

How does the SAFE test work?

During pregnancy the placenta sheds cell free DNA (cfDNA) into the mother's bloodstream. As a result, the mother's blood contains a mixture of placental and maternal cfDNA. By evaluating the cfDNA in the blood and combining this with the mother's background chance of a trisomy (mother's age or the combined test results offered within the NHS), a likelihood ratio is obtained to predict whether or not the baby is more likely to have a chromosomal condition such as Down's syndrome.



Why have the SAFE test?

As part of the national screening pathway women are offered the 'combined test' in the first trimester of pregnancy. This evaluates hormonal blood levels with ultrasound findings to assess the chance of chromosomal or structural anomalies. Although the range of conditions that can be detected by this method is broader than the number of conditions identified by the SAFE test, the SAFE test has a higher detection rate for Down's syndrome, Edwards' syndrome and Patau's syndrome.

In addition, if the 'combined test' result is available, the SAFE test is able to incorporate this to provide a more individualised result.

What is Down's syndrome?

People with Down's syndrome (or trisomy 21) have an extra copy of chromosome 21 (three chromosome copies rather than the usual two). Around one in every 1000 babies born in the UK will have Down's syndrome and there are over 40,000 people in the UK living with the condition. Anyone can have a baby with Down's syndrome and although the chance increases for older mothers, most babies with Down's syndrome are born to younger women.

Down's syndrome is a life-long condition typically associated with some level of learning disability. Some health conditions are more common in people with Down's syndrome, although most associated medical issues can be treated. Down's syndrome is extremely variable and it is impossible to know what life will be like for you and your baby. Some children and adults will need long term support, however many young people attend mainstream schools and live fairly independent lives with varying degrees of assistance.

Can the SAFE test screen for all genetic conditions?

No, Down's syndrome is the most common condition looked for as well as two rarer and more serious conditions known as Edwards' syndrome (trisomy 18) and Patau's syndrome (trisomy 13).

What are Edwards' syndrome and Patau's syndrome?

Edwards' syndrome and Patau's syndrome are life limiting conditions and will cause a wide variety of developmental and health difficulties, some of which can be very serious. Around 70% of pregnancies affected by Edwards' or Patau's syndrome will end in miscarriage or stillbirth. Partial forms of Edwards' or Patau's syndrome have a lesser impact upon the child.

Who can have the SAFE test?

The test is suitable from 10 weeks of pregnancy for all single and twin pregnancies, including IVF, egg donor or surrogate pregnancies. For non-identical and vanishing twin pregnancies, test sensitivity is reduced. The test is not suitable for multiple pregnancies greater than twins, if the mother has cancer, a chromosomal or genetic condition (including Down's syndrome). It is also unsuitable for mothers who have undergone a blood transfusion in the last 4 months, had transplant surgery, immunotherapy or stem cell therapy.

How is the SAFE test reported?

Lower chance: means that it is very unlikely that your baby has Down's syndrome, Edwards' syndrome or Patau's syndrome.

Higher chance: means that there is an increased chance that your baby will have Down's syndrome, Edwards' syndrome or Patau's syndrome. In this case a diagnostic test would be offered to confirm the result.

No call result: in a very small number of cases (1 in 200), tests may not yield a result for a variety of reasons. In this instance the clinical team will discuss your available options.

What happens if I get a "higher chance" result?

If the SAFE test shows a higher chance of a chromosomal condition you will be offered an invasive diagnostic test such as amniocentesis or chorionic villus sampling (CVS). These tests give a definite 'yes' or 'no' result as to whether your baby has Down's syndrome, Edwards' syndrome or Patau's syndrome. Both procedures involve using a fine needle to collect either a small sample of the amniotic fluid that surrounds the baby (amniocentesis) or a small sample of cells from the placenta (CVS). Although these invasive procedures give a definitive diagnosis they do carry a small risk of miscarriage. The chance of miscarriage is often a dilemma for parents, with many women opting to have NIPT, such as the SAFE test before proceeding to an invasive procedure.

It is important to remember that NIPT is a screening test which means that occasionally false positive and false negative results do occur. It is a good idea to consider the need to be certain about the diagnosis compared to the risk of miscarriage associated with the invasive procedure. Some women who would continue their pregnancy anyway, may be happy to proceed without invasive testing. An invasive test would be needed to confirm the SAFE test result for those considering termination of pregnancy.

Your midwife and/or obstetrician will be on hand to answer any questions you may have and support you through this time.