

Cervical screening

pocket guide



Cervical Screening Programme

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This booklet is a simple guide
to cervical screening.

We hope you find it useful, whether
you work for, or take an interest in,
the NHS Cervical Screening Programme.

Your comments about the pocket guide
are welcome and should be sent to:

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The NHS Cervical Screening Programme

What does the NHS Cervical Screening Programme do?

The programme aims to reduce the number of women who develop invasive cervical cancer (incidence) and the number of women who die from it (mortality). This is done by regularly screening all women at risk.

What is cervical screening?

Cervical screening is not a test for cancer. It is a method of preventing cancer by detecting and treating early abnormalities which, if left untreated, could lead to cancer in the cervix (the neck of the womb). Early detection and treatment can prevent 75 per cent of cancers.

The first stage in cervical screening is taking a sample for cytology analysis.

The sample cells are collected from the neck of the womb using a special brush. A doctor or nurse inserts an instrument (a speculum) to open the woman's vagina and uses the plastic brush to sweep around the cervix. Most women consider the procedure to be only mildly uncomfortable.

The head of the brush, where the cells are lodged, is then broken off into a small glass vial containing preservative fluid, or rinsed directly into the preservative fluid. This process is called Liquid Based Cytology (LBC) and has replaced conventional cytology where smears were taken. The vial of fluid is then sent to the laboratory where it is spun and treated to remove any obscuring material, for example mucus or pus. A thin layer of the cells from the sample is deposited onto a slide. The slide is examined in the usual way under a microscope by a cytologist.

Cytology, the study of cells, enables cervical samples to be grouped into different grades. This helps the doctors decide what action should be taken.

LBC has reduced the rate of inadequate tests taken in the NHS Cervical Screening programme. It has now fallen from over 9 per cent before the introduction of LBC, to 2.5 per cent in 2008-09. This means fewer women have to undergo repeat testing, and the anxiety that goes with that. Laboratories can also work more efficiently, so women get their results more quickly.

Who is eligible for cervical screening?

All women between the ages of 25 and 64 are eligible for a free cervical screening test every three to five years. In the light of evidence published in 2003 the NHS Cervical Screening Programme now offers screening at different intervals depending on age. This means that women are provided with a more targeted and effective screening programme.

The intervals are:

Age group	Frequency of screening
25	First invitation
25 – 49	3 yearly
50 – 64	5 yearly
65+	Only those who have never been screened or who have had recent abnormal tests

The NHS call and recall system invites women who are registered with the NHS for cervical screening. It also keeps track of any follow-up investigation, and, if all is well, recalls the woman for screening in three or five years time. It is therefore important that all women ensure their GP has their correct name and address and inform them if these change.

Women who have not had a recent test may be offered one when they attend their GP or family planning clinic on another matter. Women should receive their first invitation for routine screening at 25.

Why are women under 25 and women over 65 not invited?

Cervical cancer screening starts at the age of 25 and this is in line with recommendations made by:

- The International Agency for Research on Cancer, an agency of the World Health Organisation that coordinates and conducts research into cancer
- Cancer Research UK following research they have funded
- The independent Advisory Committee on Cervical Screening.

Screening women under the age of 25 may do more harm than good as it can lead to unnecessary and harmful investigations and treatments. Women below the age of 25 often undergo natural and harmless changes in the cervix that screening would identify as cervical abnormalities. Despite this, cervical cancer is very rare in this age group. In most cases these abnormalities resolve themselves without any need for treatment. Research has shown if women suffer unnecessary treatment, this could have an adverse effect on their future childbearing.¹ In women under 25, therefore, this risk outweighs any benefit.²

1 Perinatal mortality and other severe adverse pregnancy outcomes associated with treatment of cervical intraepithelial neoplasia: meta-analysis. Arbyn M, Kyrgiou M, Simoons C, Raifu AO, Koliopoulos G, Martin-Hirsch P, Prendiville W, Paraskevaidis E. (BMJ. 2008 Sep 18;337:a1284. doi: 10.1136/bmj.a1284. Review).

2 Sasieni P, Castanon A and Cuzick J Effectiveness of cervical screening with age: population based case-control study of prospectively recorded data, BMJ 2009, 339 b2968

Following a review, carried out by the independent Advisory Committee on Cervical Screening (ACCS) in 2009, it was agreed unanimously there should be no change in the screening age as evidence showed that earlier screening could do more harm than good causing too many young women to be treated, increasing the risk of premature births in some women.

Women, including those under the age of 25, who are concerned about their risk of developing cervical cancer or their sexual health generally, are advised by the programme to contact their GP or Genito-Urinary Medicine (GUM) clinic.

Women aged 65 and over who have had three consecutive negative results in the last 10 years are taken out of the call and recall system. The natural history and progression of cervical cancer means it is highly unlikely that such women will go on to develop the disease. Women aged 65 and over who have never had a test are entitled to one. Women aged 65 and over who have had a recent abnormality will continue to be followed up.

What causes cervical cancer?

Human Papilloma Virus (HPV) is found in over 99 per cent of cervical cancers. Although infection with a high risk type of Human Papilloma Virus (HPV) is necessary for cervical cancer to develop, not every woman who is infected with it will go on to develop the disease. What makes any individual woman develop cervical cancer is not known, although we know that certain factors (see below) increase the risk of this happening.

There are many types of HPV and only some cause cancer. The HPV vaccine protects against Human Papilloma Virus associated with the development of cervical cancer. The vaccine currently in use covers the two most important types which cause 70 to 75 per cent of cervical cancer (For more information about the HPV vaccine please see page 10).

What are the risk factors for cervical cancer?

- Some types of Human Papilloma Virus, in particular HPV 16 and HPV 18, the types included in the vaccine, are found in over 99 per cent of cervical cancers. These are known as 'high risk' types. Some other types (eg HPV 6 and HPV 11) can cause genital warts. Those which cause genital warts do not place a woman at increased risk of developing cervical cancer. Some types of HPV appear to be harmless
- The majority of sexually active women will come into contact with high risk HPV types at some time in their life. In most women (90 per cent), their body's own immune system will get rid of the infection without them ever knowing it was there. Only a minority of those who are positive for high risk HPV types will develop cervical abnormalities (CIN) which could develop into cervical cancer if left untreated
- Women with many sexual partners, or whose partners have had many partners, are more at risk of developing cervical cancer. This is because their behaviour is more likely to expose them to HPV. However, a woman with only one partner could contract HPV if that partner has previously been in contact with the virus
- Women who are immunosuppressed (for example, those who are taking immunosuppressive drugs after an organ transplant, or women who are HIV positive) may be at increased risk of developing cervical cancer
- Long term use of oral contraceptives increases the risk of developing cervical cancer but the benefits of taking oral contraceptives far outweigh the risks for the majority of women
- Women who smoke are about twice as likely to develop cervical cancer as non-smokers. This may be because smoking is associated with high risk health behaviours or because it suppresses the immune system allowing the persistence of high risk HPV infection. Stopping smoking appears to help cervical abnormalities to return to normal

- Using a condom offers only very limited protection from transmission of HPV
- Women with a late first pregnancy have a lower risk of developing cervical cancer than those with an early pregnancy. The risk rises with the number of pregnancies.

Cervical screening can prevent around 75 per cent of cancer cases in women who attend regularly. Screening is the best defence against cervical cancer for older women. Many of those who develop it have never been screened. The biggest risk factor therefore is non-attendance for screening.

What about women who are not sexually active?

The NHS Cervical Screening Programme invites all women between the ages of 25 and 64 for cervical screening. But if a woman has never been sexually active, then research evidence shows that her chance of developing cervical cancer is very low indeed. We do not say no risk, only very low risk. In these circumstances, a woman might choose to decline the invitation for cervical screening on this occasion. If a woman is not currently sexually active but has had partners in the past, we would recommend that she continues screening.

What about women in same sex relationships?

Lesbian and bisexual women may contract HPV through their own previous sexual behaviour with a man or through their partners' previous behaviour. They may also transmit HPV through lesbian sex. Lesbian women are at lower risk, but still at risk of developing cervical cancer and are therefore recommended to attend for cervical screening.

When was the NHS Cervical Screening Programme set up?

Cervical screening began in Britain in the mid-1960s. By the mid-1980s, although many women were having regular smear tests, there was concern that those at greatest risk were not being tested, and that those who had positive results were not being followed up and treated effectively.

The NHS Cervical Screening Programme was set up in 1988 when the Department of Health instructed all health authorities to introduce computerised call-recall systems and to meet certain quality standards.

How many women are screened?

The programme screens over 3.5 million women in England each year. Of the 3.6 million women in the target age group screened in 2008-09, 2.8 million were tested following an invitation and the rest were screened opportunistically at the suggestion of the sample taker or of the woman herself.

For clinical reasons some women have more than one test during the course of a year and 3.9 million samples were examined by pathology laboratories in 2008-09.

Of the 13.4 million women aged 25-64 eligible for cervical screening, 78.9 per cent had been screened within the previous five years. 72.5 per cent of women aged 25 to 49 had been screened within the last three years and 80 per cent of women aged 50 to 64 had been screened within the last five years.³

3 Cervical screening programme, England 2008-09, Health and Social Care Information Centre 2009.

How is the programme organised?

More than 100,000 people are involved in cervical screening. They include the doctors and nurses who take the samples in GP surgeries and community clinics, the laboratory staff who review them and the people who run the computer systems.

The national office of the NHS Cancer Screening Programmes, based in Sheffield, is responsible for improving the overall performance of the programme. Set up in 1994, its priorities are to:

- develop systems and guidelines which will assure a high quality of cervical screening throughout the country
- identify important policy issues and help resolve them
- improve communications within the programme and to women.

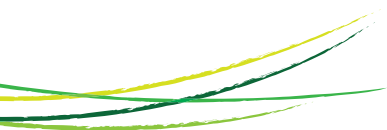
Every Primary Care Trust (PCT) has a nominated person responsible for its cervical screening programme and implementing the national guidelines.

Regional Directors of Public Health are responsible for the quality assurance of the programme in their region and have each appointed a Quality Assurance Director to the Programme.

How much does the programme cost and how is it funded?

Cervical screening – including the cost of treating cervical abnormalities – has been estimated to cost around £157 million a year in England.

PCTs commission cervical screening using the overall financial allocation they receive from the Department of Health.





Human Papilloma Virus (HPV) vaccination

The HPV vaccine currently in use covers the two most important types (strains 16 and 18) which cause 70 to 75 per cent of cervical cancer.

The HPV vaccination programme started in September 2008 with all 12 to 13 year old and 17 to 18 year old girls being offered the vaccine. An accelerated catch-up programme was announced in December 2008 so that all girls born on or after 1 September 1990 could be protected before the end of the academic year 2009/10.⁴

By July 2009, 76.4 per cent of 12-13 year old girls had received all three doses of the HPV vaccination, while 24.9 per cent of 17-18 year old girls had received all three doses.

It will be many years before the vaccination programme has an effect upon cervical cancer incidence so the screening programme is not yet planning any changes. Vaccinated women are advised to continue accepting their invitations for cervical screening as the vaccination will not prevent all types of cervical cancer.

For more information about HPV vaccination see www.nhs.uk/hpv

⁴ NHS Immunisation Information – www.immunisation.nhs.uk

Cervical cancer – incidence and mortality

What is the incidence of cervical cancer?

In 2006, 2,873 new cases of cervical cancer were diagnosed in the UK, making it the twelfth most common cancer in women and accounting for around 2 per cent of all female cancers.⁵

The age-standardised (European) annual incidence rate of cervical cancer in the UK was 8.5 per 100,000 females.⁶

In the first ten years of the organised screening programme cervical cancer incidence fell by 42 per cent. (England and Wales). This fall is directly related to the programme.⁵

In 2008, 31,738 women aged 25 to 64 were found to have moderate dyskaryosis* or worse. This is considered 'high grade' disease. Three per cent of women with moderate dyskaryosis or worse have cervical cancer and Department of Health guidelines say they must be treated within 62 days of being referred to a clinic.

5 Cancer Research UK 2009.

6 Office National Statistics 2008.

* Changes in the nuclei of cells covering the surface of the cervix.

How many women die of cervical cancer?

In 2007, 756 women died from cervical cancer in England.⁷

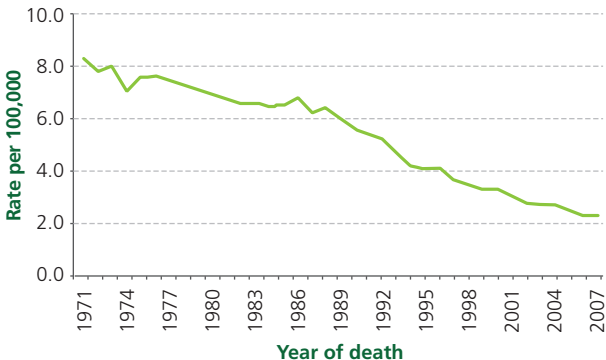
Mortality rates generally increase with age and the highest number of deaths occurs in the 75-79 age group. Fewer than 6 per cent of cervical cancer deaths occur in women under 35. In 2007, three women under the age of 25 and twenty-seven women aged 25 to 29 died from cervical cancer in England.

Cervical cancer mortality rates in 2007 (2.4 per 100,000 females) were nearly 70 per cent lower than they were 30 years earlier (7.5 per 100,000 females in 1977). Cervical cancer is the sixteenth most common cause of cancer deaths in women in UK.

The latest relative survival figures for England show that 63 per cent of women diagnosed with cervical cancer between 2000 and 2001 were alive five years later.

Cervical screening has been estimated to save approximately 4,500 lives a year in England.⁸

Age-standardised (European) mortality rates, cervical cancer, UK, 1971 – 2007



Source: Cancer Research UK

7 Cancer Research UK 2009

8 Julian Peto et al, *The Lancet* 2004 (Vol.364: 249-56)



Cervical screening – getting the results

In the Cancer Reform Strategy the Government pledged that by 2010 all women will receive the results of their screening tests within two weeks of having the sample taken.⁹ This is an improvement on current national quality assurance guidelines which state that 80 per cent of women should receive the result of their cervical screening test in writing within four weeks and all women should be informed within six weeks.

Strategies to improve turnaround time for samples and report results within 14 days are being piloted in 2009.

Cytology, the study of cells, enables cervical samples to be grouped into different grades. This helps the doctors decide what action should be taken.

9 Cancer Reform Strategy, Department of Health, December 2007

Explaining results

Grade	Explanation	Action
Negative	No abnormalities detected	Routine recall after 3 or 5 years depending on age
Abnormal		
Borderline changes	Cellular appearances which cannot be described as normal	Repeat test in 6 to 12 months. Refer for colposcopy if changes persist
Mild dyskaryosis	Cellular appearances consistent with CIN1*	Immediate referral to colposcopy or repeat test after no more than 6 months. Refer for colposcopy if changes persist
Moderate dyskaryosis	Cellular appearances consistent with CIN2*	Refer for colposcopy
Severe dyskaryosis	Cellular appearances consistent with CIN3*	Refer for colposcopy
Suspected invasive cancer**	Possibility of invasive cancer	Refer urgently for colposcopy
Inadequate	The test cannot be interpreted. For example, if it is incorrectly labelled or there might be too few cells present in the sample	Repeat the test

* The abnormal changes, or lesions, on the cervix are known as cervical intraepithelial neoplasia (CIN). The appearance of these that is noted in a cervical test is called dyskaryosis.

** Includes glandular abnormalities.

HPV triage

HPV triage means that anyone who has a cervical screening result of borderline changes or mild dyskaryosis will automatically have an HPV test performed on her sample. If HPV is found she will be referred to colposcopy and if HPV is not found she will be returned to routine screening every 3 or 5 years depending on her age.

In 2001 pilot studies were conducted into the possibility of introducing HPV triage into the cervical screening programme as triage for samples showing borderline nuclear change and mild dyskaryosis.

Data from the original pilots indicated a large initial increase in the number of referrals to colposcopy followed by a reduction in referrals, which might be particularly apparent where current practice is to refer on the second occurrence of mild dyskaryosis. Therefore, the introduction of HPV triage must be carefully managed. Further work on this is being done through the Sentinel Sites Implementation Project in six sites. More sites may be involved as the potential use of HPV testing within the programme continues to be examined.

The project includes HPV testing after treatment for cervical intra-epithelial neoplasia (CIN), a process called 'test of cure'. Currently, after a woman has been treated for abnormal cells, she is recalled for screening every year for up to 10 years but if her HPV test is negative she can return to routine recall much more quickly.

What is a colposcopy?

Colposcopy is performed by specially trained doctors and nurses at an outpatient appointment. A colposcope – a low-powered microscope – is used to examine the woman's cervix to assess the extent and severity of any problem and to determine appropriate treatment. If necessary, a sample of tissue can be taken from the cervix for diagnosis, and/or the cervix may be treated.

When should the cervix be treated?

Not all grades of abnormality are treated immediately. Some abnormalities may disappear on their own without treatment.

During a colposcopy, samples may be taken from the cervix. If histological diagnosis indicates CIN 2 or 3 the affected part of the cervix can be removed or destroyed. Women with CIN 1 may be treated or kept under surveillance with repeat cervical cytology tests. CIN 1 often disappears without treatment.

What kind of treatment is available?

There are two main methods of treatment. The abnormal cells in the cervix may be destroyed using laser ablation or cold coagulation treatments, or the abnormality may be cut away using loop diathermy or laser excision. Loop diathermy (also called Large Loop Excision of the Transformation Zone or LLETZ), where a thin wire loop cuts through and removes the abnormal area, is the most common treatment.

Treatment with LLETZ is most effective, but can cause problems for women's later pregnancies, including premature delivery and/or low birthweight.¹⁰

A hysterectomy is not usually necessary if abnormal cells are found in the cervix. Treatment aims to preserve a woman's fertility and ability to have children wherever possible. For the few women who have cancer, surgery is the main form of treatment for localised cases. Radiotherapy and chemotherapy may be used for more extensive disease.

10 Perinatal mortality and other severe adverse pregnancy outcomes associated with treatment of cervical intraepithelial neoplasia: meta-analysis; Arbyn M, Kyrgiou M, Simoens C, Raifu AO, Koliopoulos G, Martin-Hirsch P, Prendiville W, Paraskevidis E. (BMJ. 2008 Sep 18;337:a1284. doi: 10.1136/bmj.a1284. Review)

Who does what in the NHS Cervical Screening Programme?

The NHS call and recall system:

- Holds a list of all patients registered with a GP in the area it covers
- Sends the list of women due for screening to each GP to check the records (for correct name and address and in case it is not appropriate for them to be invited)
- Sends the invitation and result letters.

The sample takers:

- Take the samples, using the most up-to-date methods and in line with quality standards
- Check that the results are returned to the GP surgery and to the woman
- Arrange for repeat tests and referrals if necessary.

A woman can choose to have her test taken at her GP surgery by the GP or practice nurse, or at a community clinic, such as a family planning or well-woman clinic.

The laboratory:

- Interprets the samples. All slides are screened by a bio-medical scientist or a cytology screener. Samples which are thought to be abnormal are screened again by senior laboratory staff and are given a result code depending on the degree of abnormality seen

- Follows strict quality assurance procedures, including rapid review by a senior member of staff of all samples originally classed as negative
- Sends the results to the Primary Care Trust, the GP and the sample taker (if not the GP)
- Runs a failsafe system for checking that all abnormal samples are followed up
- Reports on biopsies (samples of tissue taken at colposcopy) and provides a histological diagnosis
- Screens the samples in the hospital's pathology department. A consultant pathologist has overall responsibility.

The colposcopy service:

- Is provided in the gynaecology and genitourinary medicine departments of general hospitals and some community clinics
- Accepts referrals from GPs and the screening programme's direct referral offices
- Takes samples from the cervix (a biopsy) to obtain a histological diagnosis
- Diagnoses abnormalities from colposcopy examination alone
- Treats abnormalities
- Follows up treatment if necessary
- Discharges the patient back to the call-recall system
- Runs a failsafe system for checking the follow-up of all patients treated.

The primary care team:

- Includes the woman's GP and all practice staff
- Encourages women to have cervical screening when it is due and keeps women informed about the different stages of the screening programme
- Answers questions and concerns that women may have regarding test results, follow-up and treatment

- Refers women for further treatment if necessary
- May deal with infections which are found incidentally when a women participates in the NHS Cervical Screening Programme.

Informed choice

Every woman registered with a GP will receive her first invitation for cervical screening shortly before her 25th birthday. Every effort is made to minimise women's anxiety at all stages of screening. Invitations and recall letters are carefully worded and include a contact number for those who have questions.

To help them make an informed choice about whether or not to come for cervical screening, all eligible women receive a leaflet 'Cervical Screening – The Facts' with their invitation. The leaflet explains the benefits and limitations of cervical screening. It also informs women about audit and quality assurance of the cervical screening programme.

The leaflets have been produced in Braille and on CD in English, Arabic, Bengali, Cantonese, Polish, Punjabi and Urdu. Versions of the leaflet are also available in 18 languages: Arabic, Bengali, Cantonese, Farsi, French, Greek, Gujarati, Hindi, Italian, Kurdish, Polish, Portuguese, Punjabi, Somali, Spanish, Ukrainian, Urdu and Vietnamese. These are available on the following website:

www.cancerscreening.nhs.uk/cervical/publications/the-facts-other-languages.html

We also have leaflets for those with learning disabilities, a DVD in British Sign Language and a factsheet for women who have sex with women.

Coverage of the target population

This is the percentage of women in the target age group (25 to 64) who have been screened in the last five years. If overall coverage of 80 per cent is achieved, the evidence suggests that 4,500 deaths per year are prevented in England.

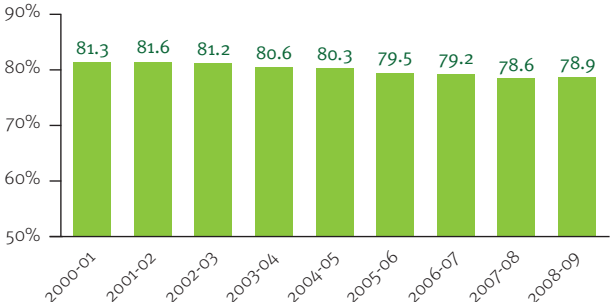
Women aged 25 to 49 are screened every three years and those aged 50 to 64 every five years.

Between 2002 and 2008 the percentage of women aged 25 to 49 who had been screened in the last three years had fallen from 71.7 per cent to 69.3 per cent. This fall was especially marked in women under 35 where the percentage screened had fallen from 68 per cent to 63 per cent. The programme is concerned about this fall and several projects are being undertaken both at local and national levels to understand and address the issue. In 2008-09, the three yearly coverage in women aged 24 to 49 years old reached 72.5 per cent, a rise probably largely due to publicity that year.

In 2008-09 the five year coverage of women aged 25 to 64 was 78.9 per cent.¹¹

11 Cervical screening programme, England 2008-09, Health and Social Care Information Centre 2009.

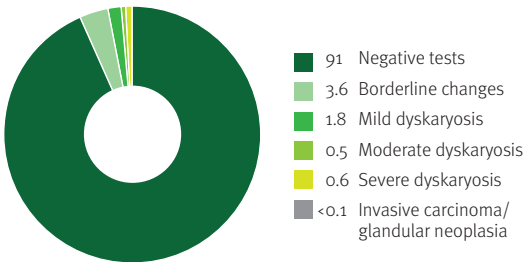
Coverage of the target population



Results of screening 2008-09

In 2008-09 3.6 million women in the target age group were screened. Of the GP and NHS Community Clinic samples examined 2.5 per cent were inadequate specimens for which no result could be determined, a much lower proportion than in any of the previous years. The test results for adequate samples are given below:

2008/09 results % (25-64 age group)



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Directory

Cancer Research UK

P.O. Box 123
Lincoln's Inn Fields
London
WC2A 3PX
Tel: 020 7242 0200
www.cancerresearchuk.org

Jo's Trust

16 Lincoln's Inn Fields
London
WC2A 3ED
Tel: 020 7936 7498
www.jotrust.co.uk

Eve Appeal

Butler House
177-178 Tottenham Court Road
London
W1T 7NY
Tel: 0207 299 4430
www.eveappeal.org.uk/

Macmillan Cancer Support (incorporating Cancerbackup)

89 Albert Embankment
London
SE1 7UQ
Tel: 020 7840 7840
Fax: 020 7840 7841
www.macmillan.org.uk

NHS Direct

Tel: 0845 4647
www.nhsdirect.nhs.uk

NHS Choices

www.nhs.uk/

HPV vaccination

www.nhs.uk/hpv

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All information is correct at time of going to press.



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