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cervical smear results EXPLAINED

a guide for primary care

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PREFACE

The purpose of these guidelines is to provide general practitioners with an easy reference for interpreting cervical smear results and taking appropriate action where indicated.

The preliminary draft of these guidelines was drawn up by a working group set up by the Cancer Research Campaign and chaired by Dr Joan Austoker. The membership of the group was:

Chris Brown
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The draft was circulated to over one hundred general practitioners to seek their views, both on the content and format of the guidelines. Important changes were made to the guidelines in the light of the views of the general practitioners. We would like to thank all these general practitioners, many of whom gave considerable time to considering the guidelines and provided us with detailed comments to aid us in the revision.

The revised draft was then sent to Dr Amanda Herbert, Consultant Cytologist, Southampton General Hospital and Julietta Patnick, National Coordinator, NHS Cervical Screening Programme, to ensure that it was consistent with the most recent developments in cervical cytology and with current NHSCSP policy.

Their recommendations have been incorporated into the guidelines and we are grateful to both of them for their valuable advice and support.

CONTENTS

INTRODUCTION

Patient distress associated with cervical screening and *recall can be reduced by providing information* at all stages of the screening process.

Before taking a smear all women should have explained to them:

- The condition cervical screening will detect, ie precancerous lesions.
- When and how results will be made available.
- Likelihood of a normal result (about 90%).
- A normal result implies low risk, not no risk.
- Meaning of being recalled:
  a) an inadequate/ unsatisfactory smear
  b) an abnormal smear.
- The vast majority of women recalled do not have cancer, any disease detected is treatable.

Note

Each woman should receive a written statement of her result, whether it is normal (ie a negative smear) or abnormal.

It is the responsibility of the smear taker to communicate this to the woman.

The term 'negative' is used to describe a smear on which no nuclear abnormalities have been identified. The term 'normal' should be used to inform the woman of her screening result.

When referring women for colposcopy all women should have explained to them:

- The procedure of colposcopy. *See page 18*
- Possible embarrassment due to the lithotomy position.
- The possibility of a cervical biopsy.
- That treatment may occur with the initial examination.
- Likely treatment options. *See page 21*

Note
A woman with a clinically suspicious cervix should be referred for colposcopy regardless of her smear result.

GPs and practice nurses should be familiar with the type of treatments offered locally.

RESULT NEGATIVE

EXPLANATION

No nuclear abnormalities identified.

ACTION

Ensure the patient is informed of the result.
Recall as and if appropriate.

Recall protocol for negative smears

Patient's history	Recall interval
No previous smear history	Routine recall
Previous smears negative	Routine recall
Women over 65* years, with no previous negative smear history	Two negative smears, 3 years apart then no further recall
Previous abnormal smear	For minor abnormalities (borderline and mild dyskaryosis) follow protocol for the particular abnormality *See pages 12 and 13*
	If abnormalities have persisted for 2 years, consider for colposcopy
Previously treated for CIN	Follow up protocol for patients treated for CIN *See pages 22 and 23*
Previous CIN1 (not treated)	At least 2 negative smears, 6-12 months apart then routine recall

*Women over 60 years in Scotland

RESULT NEGATIVE

but without evidence of transformation zone sampling

EXPLANATION

No nuclear abnormalities identified.

No evidence that transformation zone has been sampled.

ACTION

If no previous history of abnormal smears, and the cervix has been clearly seen and adequately sampled, and the woman's age and hormonal status make it likely that the transformation zone is covered by mature squamous cells, then normal recall.

If there is a previous history of abnormal smears or any doubt that the cervix has been clearly seen or that the transformation zone has been sampled adequately, then repeat smear.

If repeat smear also shows no evidence of transformation zone sampling, then normal recall except if previous CIN2 or 3 or glandular abnormality when presence of endocervical cells is essential.
(see page 22).

Indicators of transformation zone sampling

Endocervical cells and/or immature metaplastic squamous cells.

The majority (80%) of smears from women of child bearing age (under 50) should contain evidence of transformation zone sampling: information on the presence or absence of transformation zone sampling will be provided for the purpose of auditing the smear taking technique.

In postmenopausal women, the transformation zone is likely to be covered with mature squamous cells.

Note
It is the responsibility of the smear taker to visualise the cervix to ensure that the whole of the transformation zone has been sampled.

In the case of a negative result without evidence of transformation zone sampling, the smear taker should ensure that the woman's age and hormonal status, and the clinical opinion as to the visibility of the cervix and the adequacy of sampling of the transformation zone are clearly noted.

RESULT INADEQUATE/UNSATISFACTORY

EXPLANATION

5 to 10% of all smears are inadequate/unsuitable.

Insufficient or unsuitable material present.

Inadequate fixation.

Poor spreading.

Smear consisted mainly of blood and pus or inflammatory exudate.

Excessive cytolysis may render smear unsuitable.

ACTION

Repeat smear immediately after treating any infection or atrophy.

Repeat smear as soon as possible if technically inadequate.

If persistent (3 inadequate smears), advise assessment by colposcopy.

RESULT NEGATIVE

but with incidental observations

EXPLANATION

No nuclear abnormalities present.

Incidental observations include vaginal infections without evidence of dyskaryosis or borderline nuclear change.

Including

Infections	Other incidental findings
Actinomyces	**Atrophic smears** Cell shrinkage or wasting.
Candida	**Cytolysis** The normal breakdown of cells when vaginal environment is very acidic.
Mild Inflammation	**Endometrial cells** Cells shed from the endometrial lining during menstruation.
Trichomoniasis	**Metaplastic cells** Normal cells from the transformation zone.
Gardnerella	

ACTION

Investigate and manage infection as appropriate.

Ensure patient is informed of the result.

Recall if and as appropriate for a negative smear.
See table on page 7

RESULT NEGATIVE

but with herpes simplex

EXPLANATION

Nuclear abnormalities present, but are not suggestive of pre-malignant change.

Cervical infection noted coincidentally, possibly asymptomatic.
Recall if and as appropriate. *See table on page 7*

ACTION

Consider referral to GUM clinic.

Ensure the patient is informed.

RESULT BORDERLINE NUCLEAR ABNORMALITY

with or without HPV

EXPLANATION

Nuclear changes that cannot be described as normal.

Smears in which there is doubt as to whether or not the nuclear changes reflect true dyskaryosis.

Approximately 5% of all smears show borderline nuclear change or mild dyskaryosis.

Borderline nuclear change is most often reported in the presence of HPV.

From this:

- The majority of women with borderline smears will have ensuing smear results that revert to normal.
- Those who do not should be managed appropriately (see action) and are highly unlikely to develop cervical cancer.

ACTION

Repeat smear in 6-12 months for changes bordering on mild dyskaryosis particularly in association with HPV. The majority of smears will return to normal by this stage.

Repeat smear in 3-6 months when the differential diagnosis is between benign/reactive changes and higher degrees of dyskaryosis or ?glandular neoplasia.

If there is an associated treatable condition, treat and repeat smear at no more than 6 months.

Two consecutive negative results required 6-12 months apart before returning to routine recall.

If changes persist (2 or 3 borderline smears), consider for colposcopy.

See also Appendix 1, on HPV.

RESULT MILD DYSKARYOSIS

with or without HPV

EXPLANATION

Nuclear abnormalities reflecting probable CIN1 (ie low grade CIN). Mild dyskaryosis is often associated with HPV.

Approximately 5% of all smears show borderline nuclear change or mild dyskaryosis.

From this:

- The majority of women with mild dyskaryosis will have ensuing smear results that revert to normal.

- Those who do not should be managed appropriately (see action) and are highly unlikely to develop cervical cancer.

ACTION

Repeat smear at 6 months. Many smears will return to normal by this stage.

At least 2 consecutive negative results required 6-12 months apart before returning to routine recall.

If changes persist, refer for colposcopy.

See also Appendix 2, on mild dyskaryosis.

RESULT MODERATE DYSKARYOSIS

EXPLANATION

Nuclear abnormalities reflecting probable presence of CIN2 which should be managed as suspected high grade CIN.

Approximately 1% of all smears show moderate dyskaryosis.

ACTION

Refer for colposcopy.

RESULT SEVERE DYSKARYOSIS

EXPLANATION

Nuclear abnormalities reflecting probable presence of CIN3 (high grade CIN).

Approximately 0.5% of all smears show severe dyskaryosis.

ACTION

Refer for colposcopy.

RESULT SEVERE DYSKARYOSIS ?INVASIVE CARCINOMA

EXPLANATION

Nuclear and cellular abnormalities indicating probable CIN3 with additional features suggesting possibility of invasive cancer.

Less than 0.1% of smears suggest invasive carcinoma.

ACTION

Urgent referral to a gynaecological oncologist.

RESULT GLANDULAR NEOPLASIA or ?GLANDULAR NEOPLASIA

EXPLANATION

Dyskaryotic glandular cells.

May represent:
Endocervical adenocarcinoma in situ
or
Endocervical adenocarcinoma of the cervix
or
Adenocarcinoma of the endometrium
or
Extra-uterine adenocarcinomas.

ACTION

Urgent referral to a gynaecological oncologist.

Note
Adenocarcinoma in situ may co-exist with CIN3 and it may not always be possible to distinguish them cytologically.

COLPOSCOPY

Very high levels of patient anxiety are associated with concerns about the outcome of investigation (fears of cancer) and the colposcopy procedure.

Patient anxiety can be reduced by providing verbal and/or simple written information explaining the procedure to the woman prior to her colposcopy appointment.

Women should have explained to them

Why colposcopy is required

- Women are referred to a colposcopy clinic if their smears have shown evidence of cells which may represent precancerous changes.
- It is a common problem: about 1 in 12 women have abnormal smears.
- Usually the condition present is called CIN which is invisible on naked eye inspection and not doing any harm to the patient at present.
- It is very rare indeed for these abnormalities to be cancer.
- Some of these abnormalities will return to normal on their own, but most will be cured after some simple out-patient treatment.
- High grade CIN may develop into invasive cancer if left untreated.

The procedure of colposcopy

- The patient lies on a couch with her legs in leg rests.
- A colposcope is a magnifying instrument that sits between the woman's legs but does not enter the vagina. A speculum will be inserted.
- The procedure takes 10-15 minutes. No anaesthetic is required.
- The woman is informed of the diagnosis and appropriate treatment suggested.

The examination

- The cervix is examined.
- A smear may be taken by the usual procedure.
- Acetic acid solution is applied to view any abnormal areas (may sting slightly).
- An iodine solution may be applied to show the outer limits of abnormal areas.
- A biopsy may be taken to provide histological information.

Note The sampling may be slightly painful. The biopsy instrument may appear alarming to some patients.

WHEN SHOULD THE CERVIX BE TREATED?

CIN grade should be histologically confirmed on colposcopically directed biopsy.

Inadequate information exists regarding the natural history of the lower grade abnormalities.

The majority of low grade abnormalities may not progress, but some would eventually lead to invasive disease if not treated at any stage.

A balance must be reached between potential over-diagnosis and over-treatment, and the need to ensure that progression to invasive disease does not occur.

No definite treatment policy can be defined with any degree of certainty.

CIN1 is generally at the low risk end of the spectrum and CIN3 at the high risk end.

CIN2 is intermediate.

CIN at high risk of progression must be treated.

Currently, CIN2 is treated in the same way as CIN3 (high grade).

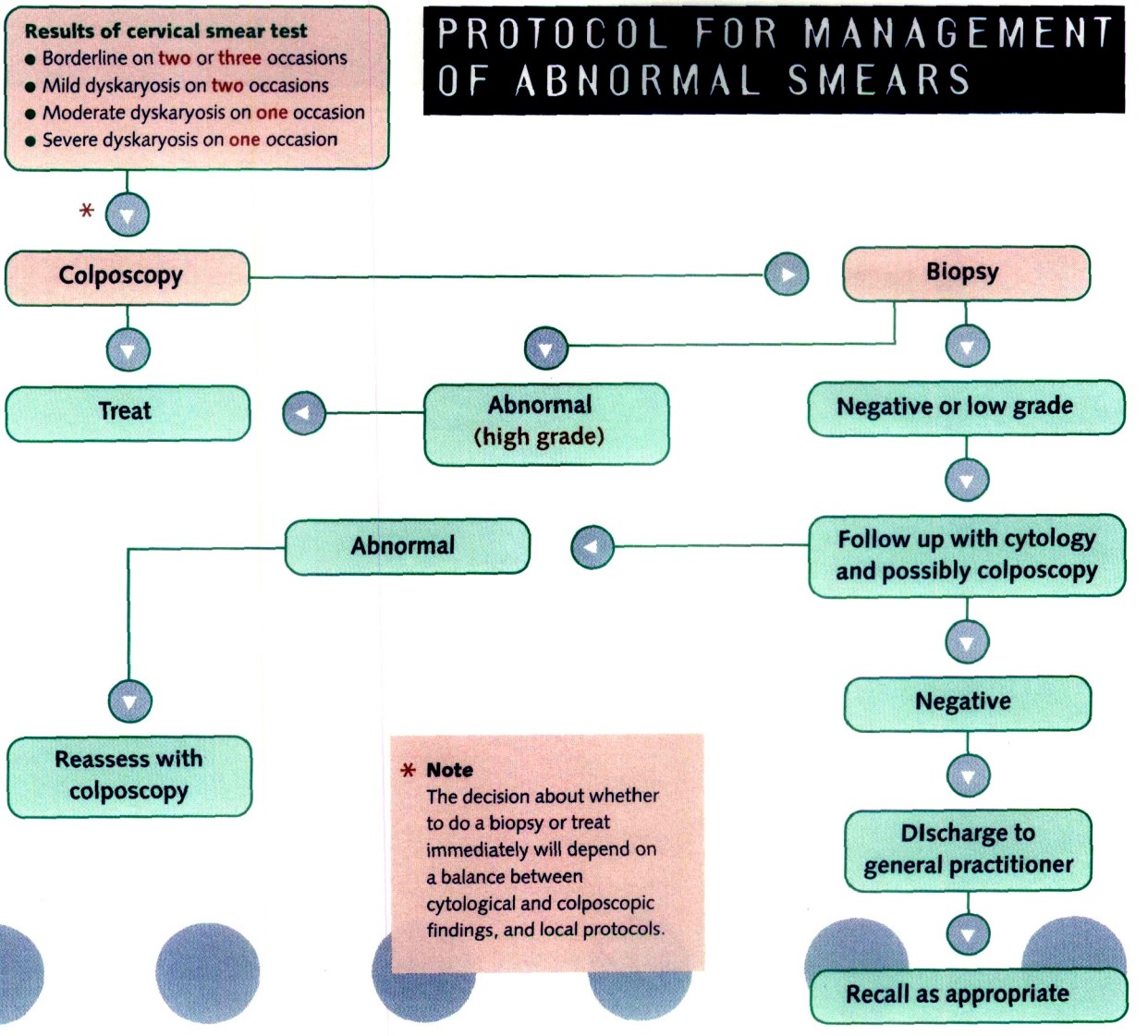
CIN1 can either be treated or be kept under close observations (low grade).

Consideration should be given to the likelihood of maintaining contact with the patient during the surveillance period.

CIN2 and 3 should be **treated** once **diagnosed**.

CIN1 may be treated **or kept** under close **surveillance**.

PROTOCOL FOR MANAGEMENT OF ABNORMAL SMEARS



TREATMENT OF CIN

Treatment aims to remove or destroy abnormal cells found in the transformation zone of the cervix.

Extremes of heat or cold are equally effective.

Some methods of treatment require two visits, whilst others can deal with diagnosis and treatment in one visit.

Method of manage depend on local pr and facilities.

Present methods of treatment	Women should have explained to them
Local Destructive Therapy • Carbon dioxide laser ablation • 'Cold' coagulation • Cryosurgery • Electrocoagulation	• Cervical function is not compromised by the destructive therapies and LLETZ. • Uterine contraction (similar to menstrual cramps, but sometimes like labour pains) may be experienced.
Local Excision • Knife cone biopsy • Laser cone biopsy • Large loop excision of the transformation zone (LLETZ) **Hysterectomy (rare)**	• Local anaesthetic used. • General anaesth rarely required.

FOLLOW UP OF PATIENTS TREATED FOR CIN

Reasons for follow up

- To identify residual disease
- To identify new CIN
- To identify new invasive disease
- To reassure both the patient and the clinician

How should follow up be conducted

Cytology is essential for those who have undergone ablation or excision. Sampling of the transformation zone may be difficult in women who have been treated for CIN. In this circumstance it may be necessary to use an endocervical brush **in addition** to a spatula.

Colposcopy is not essential in the review process but may enhance detection of persistent disease at 6 months.

FOLLOW UP OF LOCAL ABLATION OF CIN2 OR CIN3

Smear at 6 months

If negative repeat smear at 12 months

If negative repeat annually for at least 4 years

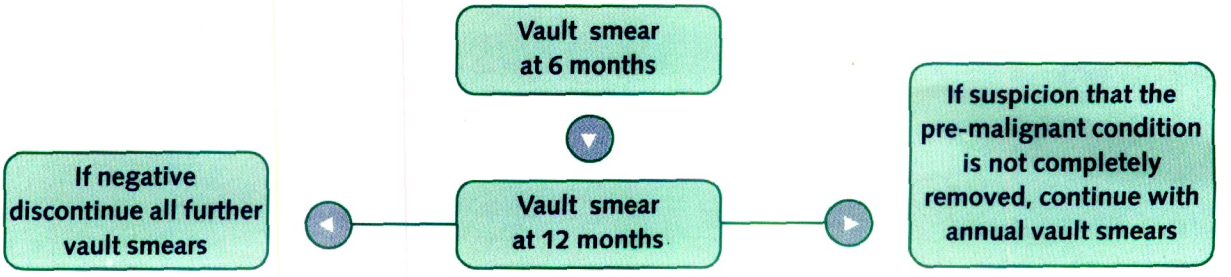
If negative then routine recall

For lesser grades of CIN treated conservatively, smears may be done less frequently eg every 2 years

Note
Women who have been treated for CIN2 or CIN3 should be recalled for routine screening every 3 years.

If at any stage a smear is abnormal the woman will require reassessment

FOLLOW UP AFTER HYSTERECTOMY FOR CIN2 OR CIN3



Total hysterectomy is an indication for ceasing recall from routine screening.
Vault smears are not part of the NHS Cervical Screening Programme

FOLLOW UP AFTER HYSTERECTOMY FOR REASONS OTHER THAN CIN

Sub-total hysterectomy

If no cervical pathology, then normal smears at routine recall unless otherwise indicated by the laboratory.

Total hysterectomy

Total hysterectomy is an indication for ceasing recall.

APPENDIX 1

Human Papilloma Virus (HPV)

- Different strains of HPV have been identified which vary in their oncogenic potential.

- Correlation of virus type with the morphology of the cervical lesion shows that HPV types 16 and 18 are present in over 80% of invasive squamous cancers of the cervix and grade 3 cervical intraepithelial neoplasia.

- No cell with evidence of HPV is normal, and no smear in which there is evidence of HPV should be reported as negative whether or not there is a substantial nuclear abnormality.

- The majority of smears showing evidence of HPV will also have nuclear abnormalities (borderline nuclear changes or dyskaryosis).

- Cells in which there is dyskaryosis in addition to cytoplasmic features of HPV infection should be reported according to th grade of dyskaryosis, regardless of the cytoplasmic changes. Management should based on the degree of dyskaryosis.

- The presence of HPV infection is the mai reason for reporting borderline nuclear changes.

- Smears with HPV or borderline nuclear changes should be repeated at 6 to 12 monthly intervals at least once before considering referral for colposcopy *(see pages 12 and 20).*

- Even lesions with high risk HPV types 16 and 18 may regress, particularly in young women.

APPENDIX 2

Controversy surrounding the management of mild dyskaryosis

- Cytological surveillance versus immediate referral for colposcopy?

- Aetiology suggests that although the majority of mild dyskaryotic smears will revert to normal or persist as mildly dyskaryotic, a small proportion may progress to severe dyskaryosis.

- A recent study in Aberdeen concluded that although safe, surveillance was not an efficient management strategy.

- Others argue that surveillance allows confirmation of cellular changes before medical investigation is considered.

- It is important to find a balance between ensuring appropriate management and over investigation of many women who would never go on to develop invasive disease.

- Possible implications of immediate referral for colposcopy are:
  increase in waiting times for colposcopy
  impact on the psychological well-being of those women told they require referral to a specialist
  demand for further funds for colposcopy clinics.

- Further research is needed to assess the role of cytological surveillance in mild dyskaryosis, to determine optimal management and the psychological implications for women.

- Consider referral for colposcopy after one occurence of mild dyskaryosis.

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